

SEEN Not Heard

Composition, Iconicity, and the Classifier Systems of Logosyllabic Scripts

Edited by ILONA ZSOLNAY



INSTITUTE FOR THE STUDY OF ANCIENT CULTURES
OF THE UNIVERSITY OF CHICAGO
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Seminar participants.

From top, left to right: Jerry Cooper, Andréas Stauder, Guolong Lai;
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Holly Pittman, Orly Goldwasser, Piotr Michalowski, Christopher Woods;
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Photo by Bryce Lowry

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Edited by

Ilona Zsolnay

with contributions by

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and response by

WANG HAICHENG

Papers from the postdoctoral seminar
“Seen Not Heard: Composition, Iconicity,
and the Classifier Systems of Logosyllabic Scripts”
held at the University of Chicago
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Table of Contents

<i>Preface and Acknowledgments</i>	vii
<i>Introduction</i>	ix

PART I: EXPERIENTIAL WRITING

1. Text in Context: Relief and Hierarchy on Piedras Negras Panel 3 <i>Claudia Brittenham</i>	3
2. The Iconicity of the Vertical: Hieroglyphic Encoding and the <i>Akhet</i> in Royal Burial Chambers of Egypt's New Kingdom <i>Joshua Aaron Roberson</i>	31
3. For the Eye Only: Aspects of the Visual Text in Ancient Egypt. <i>Andréas Stauder</i>	63

PART II: CLASSIFIERS

4. Animal Categorization in Mesopotamia and the Origins of Natural Philosophy. <i>Gebhard J. Selz</i>	91
5. Was There an “Animal” in Ancient Egypt? Studies in Lexica and Classifier Systems, with a Glimpse toward Sumer and Ancient China. <i>Orly Goldwasser</i>	121
6. The Cognitive Role of Semantic Classifiers in Modern Chinese Writing as Reflected in Neogram Creation. <i>Zev Handel</i>	159
7. Iconic and Grammatical Dimensions of Sign Language Classifiers. <i>Diane Brentari</i>	193

PART III: SCRIPT EVOLUTIONS

8. Encounters between Scripts in Bronze Age Asia Minor. <i>Elisabeth Rieken and Ilya Yakubovich</i>	205
9. Iconicity, Composition, and Semantics: A Structural Investigation of Pictures in an Early Writing Environment. <i>Holly Pittman</i>	237
10. ABa and ABb, a Memoir—or, The Curious Case of Niġin/Našše Signification <i>Ilona Zsolnay</i>	273

PART IV: RESPONSE

11. On the Visual Presentation of Writing313
Wang Haicheng

Preface and Acknowledgments

This volume of the ISAC Seminars series contains the proceedings of “Seen Not Heard: Composition, Iconicity, and the Classifier Systems of Logosyllabic Scripts,” a postdoctoral fellow conference held March 2–3, 2017, at the University of Chicago’s Oriental Institute (now the Institute for the Study of Ancient Cultures). The goal of this symposium was to interrogate writing as a visual and tactile medium that is not simply a handmaiden to the spoken word but a communication system that is richly experienced. To tackle this innovative project, an international roster of participants was brought on board, with papers given by art historian Holly Pittman; Assyriologists Piotr Michalowski, Gebhard Selz, Christopher Woods, and Ilona Zsolnay; Egyptologists Orly Goldwasser, Joshua Roberson, and Andréas Stauder; Hittitologist Elisabeth Rieken (for Rieken and Ilya Yakubovich); Mesoamericanists Claudia Brittenham and David Stuart (presented by Brittenham); and Sinologists Zev Handel and Guolong Lai. It was a further privilege to have sign language specialist Diane Brentari provide a primer on classifiers in sign language to the participants and audience and to have Assyriologist Jerry Cooper and art historian Wang Haicheng deliver responses.

In the years between the convening of “Seen Not Heard” and the publication of its proceedings, the world was rocked by the COVID-19 pandemic and the OI (ISAC) experienced several academic and staff changes. Therefore, I would like to thank former OI directors Gil Stein and Chris Woods for bringing me to Chicago and making funds available for the conference and for the publication of this volume. I also extend my gratitude to Petra Goedegebuure, who stepped in as director of the postdoctoral program. Many thanks also go to OI (ISAC) Publications staff members Tom Urban and Leslie Schramer, who were there at the beginning; Charissa Johnson, managing editor during the pandemic; and current managing editor Andrew Baumann, who has seen the project through to its close. Many thanks, too, to numerous members of the OI (ISAC) staff whose support to the postdoctoral fellows was invaluable to the arrangement and production of these events, and finally to the book’s copyeditors and typesetters, without whose tireless and unsung work volumes such as *Seen Not Heard* would be a morass of typos, failed sentences, and abused fonts.

For all but a few participants who were not able to contribute to this volume, it represented both an intellectual and, at times, a physically challenging commitment. I therefore warmly thank all participants and final contributors for their continued dedication to the project. The excellence and pioneering quality of the work is evident on every page.

Ilona Zsolnay



Rabbit scribe from the Princeton Vase (Mayan, 670–750 AD).
Image courtesy of the Princeton University Art Museum
(<https://artmuseum.princeton.edu/collections/objects/32221>).

Introduction

The sign systems that comprise logosyllabic scripts, such as Egyptian hieroglyphs or Chinese characters, convey meaning in a manner both similar to and different from alphabetic scripts. First and foremost, it is likely that unlike alphabets, no logosyllabic writing system was, at its inception, designed to convey fully fledged spoken sentences graphically. Instead, each system's original purpose was notational, and because the graphs used represent whole concepts in and of themselves, it may in fact be more appropriate to refer to these scripts as *pictographic* or *ideographic*. This is to say that they were inscribed at first with no markers meant to indicate a particular (vocalic) reading. Logosyllabic systems are similar to alphabetic ones because, as the technology develops, graphs come to represent phonemes in addition to whole concepts, which, like letters, can be arranged and rearranged glottographically (by sound) to spell out (sound out) words. Most notably, though, the graphs of logosyllabic scripts retain some illustrative quality throughout their usage. This phenomenon runs contrary to the letters of alphabetic scripts, whose original iconicity is entirely lost to the average person and therefore leaves the letters with only a learned relationship to their signified sound. In other words, as logosyllabic scripts develop, they may—depending on the writing system—either continue to appear as pictographic or become more abstract and seemingly nonrepresentational.

Being composed of graphs that originate as pictographic and eventually come to represent syllables in addition to whole concepts, logosyllabic scripts have greater power to transmit metalinguistic information than do alphabetic scripts. Because they are image based, the graphs themselves visually convey more than the sound(s) they signify. Indeed, the very choices made in determining which image should represent which concept or sound are cognitive data ready to be mined. As graphic designer Katherine McCoy discusses in her work on typography, Cubists and Futurists explicitly used the visuality of font to map nonverbal ideological meaning implicitly onto any phonological units represented by alphabetic signs (McCoy 1988, 116). Similarly, chosen logographic signifiers may implicitly carry cultural perspectives. Using the example of the glyph that signifies the word *sdr* “to spend the night,” a reclined figure on a bed, Egyptologist Orly Goldwasser notes that only the highest classes of society would have had access to a bed or understood the sign's significance (Goldwasser 2002, 22). For Goldwasser, the Egyptian logographic script contains a complete knowledge-organization system that is “not at all arbitrary or context-bound, but faithfully represents the deep structured system of world-organization of the Egyptian elite society” (Goldwasser 2002, 25). The chapters in this volume explore this visual, and at times tactile, aspect of writing. The majority of the studies presented investigate early Mesopotamian cuneiform and Egyptian and Anatolian hieroglyphic systems and scribal productions. But broadening its scope, this volume also includes contributions that consider Mesoamerican text exhibition, as well as mechanisms inherent to two present-day logographic scripts, Chinese and American Sign Language. Finally, while the volume does

preference speech writing systems (a term coined by Elizabeth Boone [2011, 314]), it also contains a study that reflects on the syntax and semantics of ancient Near Eastern seal impressions, here perhaps better termed *art writing* (Boone 2011, 314).

1. THE DISCOVERY OF THE SIGN

The study of graphs and their ability to convey meaning is primarily, but not wholly, located in the now well-developed field of semiology and the study of semiotics. These areas of inquiry have as their forebears the early twentieth-century linguist Ferdinand de Saussure and sometime philosopher Charles Peirce, two figures well known to anyone interested in what are now commonly referred to as *signs*.¹ As a linguist, Saussure's primary concern lay in understanding the role of language in the formation of meaning. Originally, Saussure approached language using historical linguistics models to determine how language systems were related. Eventually he moved away from this familial approach and instead theorized that any language is in actuality a relational system of arbitrary signs. Phonemes lie at the heart of these systems, for it is only through their combination that different words, which Saussure called *signifiants* (sound images, hereafter *signifiers*), can be created. The signifiers, in turn, signify objects or ideas, the *signifié* (hereafter *signified*) (Saussure 2013, §1, 74ff.). For example, the sounds /o/, /d/, and /g/ are in essence meaningless individually but when combined can sound out the ideas *dog* or *god*. Meaning and assignment are created through these combinations. The arbitrary nature of the signifier, either the word *dog* or *god*, is apparent when we consider that neither instance of combined sounds is suggestive of such creatures.²

Saussure was less concerned with the graphic representation of language than with the way in which language created meaning. For Saussure, all signs used in writing were linguistic signs; thus, even if a written sign signified an idea (*d-o-g*), the viewer would “hear” the word for that idea (*dog*) in their mind. For Saussure, the physical manifestations of spoken language—the materiality of writing and its physical context—held no value. In other words, whether the writing was of a certain color or font or was written on an obelisk or a piece of parchment was irrelevant to him. It was only the message transmitted through the choice and arrangement of written signs that held meaning. The value of a sign is relational with respect to other signs only per the code in which it is attested (its position in a sentence).

Peirce, Saussure's contemporary, adopted a different perspective. Like Saussure, he contended that signs were composed of a signifier, which he called the *representamen*, and a signified, or *object*; but Peirce added to his scheme an *interpretant* (reception of the signified) (Buchler 1940). Unlike the simple signifier–signified relationship, the signifier–signified–interpretant relationship takes into account the reader's reception of the sign.

1 Because the work of these two scholars and the fields of semiology and semiotics can be easily consulted in a variety of introductory texts, this introduction will review only those contentions that are pertinent to the studies that comprise this volume.

2 For alphabetic scripts, this observation would seem to be reasonable. The shape of the letter *a* is not imbued with any sense of *a*; however, as more work is done on the alphabet, as it is traced back to its origins, we may note that the shape of the letter *A* evolves from of the shape of an ox's head. At the time the alphabet was created, the word *ox* was pronounced leading with the /a/ sound.

Going back to our example above, in seeing (or hearing) the word *dog*, the reader (or hearer) might receive this sign as terrifying, soft, small, or large. The selection is endless. The interpretant, therefore, is always in flux and dependent.

Peirce also typed signs into three categories: *symbolic*, *iconic*, and *indexical*. Again like Saussure, Peirce theorized that signs could have an arbitrary relationship to their referent. These signs he called “symbols.” As an example, the sign + signifies “moreover.” In English, in a mathematical context, this symbol is read as *plus*; in a literary context, it is read as *and*, or possibly *more*, with a superlative sense. The sign + has no inherent qualities that might suggest the meaning *more*, so its signification can be known only if it is learned. Peirce also contended that signs could be iconic and indexical. Unlike arbitrary symbols, iconic signs have a visual or aural resemblance to that which they signify. For example, a placard indicating the presence of a garbage can bear the sign , which resembles a person putting trash in a bin. Regardless of the language system(s) known by the reader, as long as that person is familiar with the convention of putting trash in a bin, they would be able to decipher the signification of the sign; the correlation between sign and meaning would not have to be learned. Indexical signs are not wholly different from iconic ones in that they are also relational to that which they signify; however, they do not attempt to represent the concept but rather indicate it. For example, to denote the presence of a theater, the sign  might be used. The two masks refer to the two classical forms of theater, comedy and tragedy. This tragicomedy sign does not resemble either a building or a performance; however, the sign can indicate theatrical performance, which would likely take place on a stage. What one might notice in all three of these cases—namely, +, , and —is that each signifier could be read in *any* language as long as the given image has salience for the reader(s), be it taught or, in the cases of  and , observed in daily life. Additionally, because of its clear depiction of a bin, the  sign is then deemed highly iconic, or *motivated*—it looks like what it signifies. Conversely, the symbolic + sign is unmotivated or highly arbitrary. The  sign is both iconic and arbitrary. It is arbitrary in that a theater may be signified by any number of other images that might indicate a building, stage, or performance. It is iconic because it is a clear representation of two masks. So the more arbitrary the sign, the more necessary it is that both the writer and the reader be learned in the code used or that the reader be aided in deciphering it.

2. CHOICE, CONTEXT, AND MEANING

As noted above, the + symbol may be used to express the conjunction *and*. It is, however, not the only symbol that can be used to express this conjunction, nor, as mentioned above, is *and* the only possible reading of this sign. When using the symbol + to express the coordinating conjunction *and*, the writer is making a conscious choice. First and foremost, that person is choosing not to express the concept of conjunction using a spelled-out word, the sign *a-n-d*. Second, the writer is opting to use the plus symbol rather than the archaic Roman ligature, the ampersand (&). If the writer is writing by hand, this choice could simply be a matter of either poor penmanship or the desire to put thoughts down quickly and efficiently. Conversely, if the writer is typing, the ampersand may constitute the more desirable sign, for typing & and + take the same amount of effort on a modern keyboard but the complexity of the ampersand may give the impression of some

erudition on the part of both the writer and reader. It is also possible that a writer or typist might choose to use the ampersand rather than the plus sign to avoid the reader's choosing the wrong signification for $+$. As noted, depending on the context in which $+$ is used, it might stand for the coordinating conjunction *and* but could also very well stand for the concept *in addition to*, which in itself could indicate either a mathematical context or a superlative one.

Because Saussure was concerned only with the linguistic message carried by the writing system, the issue of choice was not so much a matter of sign preference as it was of placement. Working within agreed-upon codes (language systems), cognition and therefore meaning were expressed through the placement of a sign (word) within a sentence. Just as meaning was expressed through the arrangement of phonemes into agreed-upon patterns of vocalization, so the position of a sign in relation to other signs affected its value *as per the code*. Visuality played no role here. For Peirce, meaning depended on the placement of the sign in relation to other signs while still working within a code, but also of critical importance was the reader's confrontation of the sign. Cognition resulted from the reader's bringing reception to bear on the encounter. Over the course of his many treatises on signs, Peirce concentrated more and more on the dynamism of the interpretant, the ever-manifesting and associating effects of one's encounter with signs. For the purposes of this volume, these increasingly complex experiences are less immediate. More helpful at this point is the work of Roland Barthes.

Somewhat surprisingly a student of Saussure and not Peirce, Barthes developed the theories of *connotation* and *denotation*. In this scheme, context and choice are seen as critical, as are the associations conjured by the experiencer of the sign. For Barthes, in his observations on certain popular images, each sign conveys three messages: the *linguistic*, the *connotative*, and the *denotive* (Barthes 1964). To return again to our example above, the word *dog* is the linguistic message: the word *denotes* the noncoded object, a furry four-legged creature, though what it *connotes* might be different depending on the cultural background of the person receiving the linguistic message, the code. In modern Western culture, the word *dog* might conjure a creature more akin to a family member. In cultures in which dogs are thought to carry disease, with the saliva of the dog thought to be a sort of poison, the word *dog* would connote a threat, or at least something unpleasant. It might also be the connotation for a Westerner who has had a negative experience with dogs or perhaps has been influenced by the negative press on pitbulls (or any other breed of dog thought to have violent tendencies). Expanding this example, contextualizing the image of a pitbull in a blue background or gauzy lighting, blue and gauzy lighting themselves being coded signs with connotations of serenity, might moderate for that person the negative connotations of the pitbull. Context, then, can guide the experience of the sign with any number of interpretants.

3. THE GRAPHS OF LOGOSYLLABIC SCRIPTS

The graphs, or signs, that comprise logosyllabic scripts fall into each of the three Peircean categories: symbolic, iconic, and indexical; however, not all logosyllabic scripts evolved similarly. Whereas Egyptian, Anatolian, and Mayan glyphs retained high iconicity throughout their lives, Chinese characters have lost almost all their iconicity over the millennia.

Mesopotamian cuneiform, on the other hand, transitioned to a far more abstract, symbolic script very early in its usage. As mentioned above, in the cases of all these script systems, with some exceptions, each graph, whether originally of the symbolic, iconic, or indexical sort, comes to function both as a signifier for one or more whole words and as a signifier for one or more phonemes. Because many of the graphs can signify more than one phoneme, they then take on a more symbolic aspect, with their multiple significations having to be learned. Because many of the graphs can signify more than one whole word or concept, context can be critical to deciphering the meaning of a graph. In Peircean tradition, this context would be deemed a referential one. The ancients, however, had a trick up their proverbial sleeve: the use of a type of graph referred to by modern scholars as either a *determinative* or a *classifier*.

Referred to traditionally as determinatives and more recently as classifiers, these signs are integral features of each of the four pristine logosyllabic writing systems: Mesopotamian, Egyptian, Chinese, and Mesoamerican. Classifiers are also fundamental to sign languages. Thought to serve primarily as disambiguators, classifiers are indexical graphs that might precede, follow, or be encased in their referents. They may take the form of simple phonetic indicators or, when serving to classify semantically, be signs that only visually inform a reader of the category indicated. Modest cuneiform examples, which were originally highly iconic, are the appending of the sign for wood, GIŠ, to the names of trees or KU₆, fish, to the names of aquatic creatures. More highly charged examples might be the Egyptian classifiers *negative* (a sparrow icon) or *aggression* (a man with up-held stick) (Goldwasser 1995, 87). Through their iconicity and application as classificatory agents, classifiers orient the reader while at the same time exposing to the outside observer cultural and environmental parameters, relationships to these parameters, and processes by which they were incorporated into the psyche. When serving as classificatory agents, classifiers, in essence, encode cognition.

4. CONTEXT AND MATERIALITY

As anyone who has picked up a pen, pencil, or other writing implement is well aware, writing is a physical process. Even before this activity is performed, writing implements, material on which to write, and even the location for that performance must be chosen. As this activity is undertaken, the writer is made keenly aware of presentation. First and foremost, graphs must be formed and ordered in such a manner that they follow agreed-upon scribal conventions—for without adherence to these conventions, what is meant to be conveyed may not be comprehended by the intended reader or, conversely, if writing is presented counter to convention, the reader may conclude that the writer has a low level of literacy or be alerted to subversion, an indication of an even higher level of technical scribal knowledge. Scribal conventions may be grammatical in that they require both the writer and the reader to be at least vaguely familiar with the tenets of the language transmitted through the writing. The reader and writer must also be able to recognize the sign signification system used to represent syllables, words, and sentences, and any graphs employed, alphabetic or otherwise, must adhere to form. With the reader in mind, a writer may employ additional visual tools in the presentation of the text. Layout, perhaps being the most helpful of visual guides, can optically orient a reader to written materials, most

obviously when signifying genre (e.g., formal letter, register, comic strip, or essay), while the size and font of graphs can affect a reader's disposition. If they are small and tight, a reader may be put into a state of concentration; if standard and less formal, a state of calm. The location of text, be it on a computer screen, paper, parchment, or clay, may also be conventional; however, writing can be placed on high cliffs to instill a sense of majesty or hidden away in caves to effect mystery—further, it may be accompanied by imagery to contextualize, bolster, or contradict written messages.

Although studies devoted to writing and writing systems concentrate mainly on the extent to and manner by which they perform glottographic transcription—that is, how they graphically convey or developed to convey the phonological units of spoken language (Gelb 1963; Coulmas 1989; Daniels and Bright 1996)—this emphasis has begun to change. A steadily growing contingent of scholars has begun to consider not only how writing fails to record the entirety of linguistic code but also how focusing on the manners by which writing may do so has led to the deriding or ignoring of nonlinguistic communications systems, independent, sympathetic, or underlying (Rotman 1993; Harris 1995, 2000; Derrida 2016). Instead, as Mesoamericanist Elizabeth Boone recently suggested, writing should be viewed as a self-sufficient communication system, whether transmitting phonological units or concepts. For all that can be read to be seen, she therefore offers a more open definition for the technology: writing is “the communication of relatively specific ideas in a conventional manner by means of permanent, visible marks” (Boone 2011, 315).

Boone, of course, recognizes the open-endedness of her suggested definition; however, because her work focuses on Aztec codices, works described as “semasiographic” rather than “true” writing, she has been forced to consider the deep relationship between image and text. Aztecs, she observes, did not separate art from writing—so much so that the verb *tlacuilociztli* may stand for painting, drawing, or writing. To read an Aztec codex, one must be aware that “the syntax is fundamentally spatial, where meaning is created and directed by structure and by the principles of sequence, proximity, inclusion, and exclusion” (Boone 2011, 317). Perhaps unexpectedly, this awareness is also required when deciphering proto-cuneiform texts in which case delineation and sign clustering are the precursors to morphological indicators (Green 1981). Even today, spatial relationships continue to be relevant. Graphic designer Clive Ashwin, in his attempt to develop a theory of drawing, also turns to the field of linguistics, or more specifically semiotics, when he considers the indexical quality of drawing. Visual indicators such as arrows and the use of perspective serve a pragmatic phatic function. Just as spoken phatic utterances devoid of substance such as *uh-huh* and *sure* can prompt a speaker to continue with their narration (Brown and Yule 1983; Zegarac 1998), so the self-contained image of an arrow guides a reader's intake of information without signifying any lexical term per se (Ashwin 1984). A reader in this instance would not read the word *arrow* but would instead be directed to that to which the arrow is pointing. A similar form of visual escort is observed by Mesoamericanists Stephen Houston and Marc Zender in their work on early Mexican codices. In these codices, in certain instances, a text may be tethered to an image of its referent by means of a painted line (Houston and Zender 2018). This linking forces the reader either to consume text and image holistically or to visually link one to the other linearly, along the line.

Most recently, as discussions on the agency of objects have come more to the fore of ancient studies (Steadman and Ross 2010; Englehardt 2013), the effect of inscribed objects

on their environments and, concurrently, the effect of environment on our reception of object and text is being made clearer. Indeed, an entire series that focuses on these issues has recently been launched. The *Materiale Textkulturen* series invites scholars to consider the materiality of writing. Although most of the series's volumes take a predominantly archaeological approach that focuses on the more practical aspects of writing—how tools are made, materials are sourced, and persons are educated—several volumes contain chapters that recontextualize written objects by analyzing how “visual features can manipulate the potential beholder, such as writing surfaces, layout, iconic scripts etc.” (Enderwitz and Sauer 2015, 9) and how spatial relationships between objects and their placement in both public and private spaces have impact (Berti et al. 2017). So when we interrogate writing, it is not simply Saussure's and Barthes's linguistic message that can offer meaning; the form and history of the signs with which the message is composed, the choice and framing of those signs into the message meant to be recorded, the effects of the message's context, and the purpose of its positioning also carry significance.

5. CONTENTS

Seen Not Heard opens with two studies that consider experiential writing. In “Text in Context: Relief and Hierarchy on Piedras Negras Panel 3,” Claudia Brittenham demonstrates that the manner by which an inscription is carved matters, that physical presentation can dictate how it is received. Using the royal Mayan relief carved on Piedras Negras Panel 3 as a case study, she asks what kind of physical engagement is demanded by the art and by the text: Who could see it? Who could read it? Brittenham establishes that subtle and not-so-subtle hierarchies are revealed and performed through high and low relief. Contrary to Western art, where we anticipate that the most easily accessible must be the most important, that it must be the largest and boldest, Brittenham negotiates how on Piedras Negras Panel 3 the closest, most available figures are in the lowest relief. As though meant to denote the common viewer, they are devalued and obvious, yet the least embodied. In contrast, the most privileged information—royal first-person speech—is the least obvious. Also rendered in low relief, this technique is used to opposite effect. The word of the king is so precious, so ephemeral, that the carving of the text must impart this sense. The restricted nature of this text is further signified through diminutive graphs. The privileged nature of the text is then imposed on the body of the advantaged and disadvantaged viewer alike through size and depth of relief. Yet, as Brittenham demonstrates, this agency of text is not limited to obvious privilege, for the materiality of the text on Piedras Negras Panel 3 expresses even more delicate hierarchical social arrangements, depending on the genre.

Writing is not just manipulated to force physical and emotional responses, according to “The Iconicity of the Vertical: Hieroglyphic Encoding and the *Akhet* in Royal Burial Chambers of Egypt's New Kingdom,” by Joshua Roberson; rather, it is made manifest. Focusing on the *akhet*-hieroglyph, Roberson demonstrates that the tombs of the kings of Egypt's Ramesside period were designed as elaborate, multidimensional expressions of this glyph. Not simply indexing the cyclical rejuvenation of the sun, these architectural spaces were meant to activate the signification of the signifier, the *akhet*. Through the use of horizontality and verticality, the sequential passage of the sun from day to night and back to day again, as recorded in the cosmological books buried with these kings

and depicted in their tombs, is given a deliberate multidimensionality. The king entombed within the *akhet*-hieroglyph could then access the path of rebirth. Roberson coins this hieroglyph-made-manifest a “hyperlogogram,” which was both linguistic, signifying the term *akhet*, and participatory, functioning to transport the king to his afterlife.

Awareness of writing as a visual medium by scribes may be no more evident than in the visual plays that pepper Egyptian texts. Ironically, however, the evidentiary nature of this awareness is made possible only through continual engagement with a text and erudition. For as Andréas Stauder elucidates in “For the Eye Only: Aspects of the Visual Text in Ancient Egypt,” it is only the learned reader who might have both physical access and training enough even to be aware of additional layers of transmitted information. In his chapter, Stauder lays out multiple manners by which Egyptian scribes engaged with their reader(s). Through enigmatic writings, scribes force readers to engage more fully with texts. Using selected glyphs, these writers demonstrate their own brilliance with visual puns and optically affirm linguistic messages contained in texts. While working within the constraints demanded by a writing system to convey this linguistic information, conventional readings are also shown to be visually subverted by scribes in an effort to jar their audiences into a more intimate connection with them and with their subject. Stauder’s chapter, then, highlights both the joy scribes may take in their craft and underscores the privileged access to their sophisticated productions.

Moving past examples of how text may be manipulated to induce physical, emotional, and sympathetic experiences, the next set of chapters of *Seen Not Heard* targets the graphs themselves by considering encoded cultural, circumstantial, and cognitive information that may be accessed only visually. In the opening chapter of the section on classifiers, “Animal Categorization in Mesopotamia and the Origins of Natural Philosophy,” Gebhard Selz proposes that the development of Mesopotamian classifiers counters the traditionally held belief that ranked arrangement of categories, *cladistics*, was invented by the Greeks. Arguing instead that a hierarchical classification of the southern Mesopotamian region is already in evidence in the cuneiform writing system, Selz contends that it is with the creation of this very system that the Sumerians first demonstrated scientific reasoning. Focusing on animal taxonomy, Selz considers two graphically realized classification schemes: *sign compounding*, in which the addition of taxonomic graphs to others may lead to supra-signifiers, whose verbal expression may contain neither original lexeme but whose visual expression reveals categorical information, and the more obvious *semantic* classifier system, which demonstrates an ongoing abstraction process. Selz’s investigation then contextualizes these findings within the lexicon as a whole; he concludes that the evolving nature of Mesopotamian classification progresses toward the hyper taxon *breathing things* and is indeed comparable to Aristotle’s concept of *animalia*.

The work of Selz is complemented by Orly Goldwasser’s analysis, “Was There an ‘Animal’ in Ancient Egypt? Studies in Lexica and Classifier Systems, with a Glimpse toward Sumer and Ancient China.” Continuing her work on the classifiers of the ancient Egyptian script system, Goldwasser, like Selz, searches for points of “supercategory” creation by arguing that awareness of changes to cultural categorization allows for insight into a culture’s cognitive processes as they develop over time. Not evidenced by the phonological information carried through the text she mines, emic information about cultural perspectives is instead revealed by these graphic, seen-only markers. Through her investigation,

Goldwasser recognizes that higher registers do reveal themselves as the script is modified and thereby evidence new taxonomic systems; however, unlike the Sumerian system as laid out by Selz, the Egyptian one never quite manages a complete reduction to the abstract category *animal*. Comparing the two systems, Goldwasser finds that the Egyptian and the Sumerian mental maps are not the same, thus forcing her to conclude that the Egyptian lexicon offers no supercategory term higher than *ʿwt*, “livestock” (domesticated and undomesticated).

Moving from ancient to modern reasoning, Zev Handel investigates the cognitive negotiation between modern cultural norms and inherited traditional thinking in “The Cognitive Role of Semantic Classifiers in Modern Chinese Writing as Reflected in Neogram Creation.” Similar to the duration of both the Mesopotamian and Egyptian scripts, the Chinese writing system is one that has been in use for millennia; thus, its classification system can be antiquated and contradict modern categorization. Fortunately, as Handel notes, because the Chinese script, unlike the Mesopotamian and Egyptian ones, continues to be active, the salience of certain classifiers can be monitored for present-day users of the system. Employing recent psycholinguistic studies on Chinese script learning, Handel establishes that child learners build semantic-category models that replicate those mandated by the script, thereby suggesting a direct influence of writing *on* cognition. By charting the frequency of certain classifiers in the creation of new Chinese graphs (*neograms*), Handel further identifies thirty-nine classifiers that maintain a high degree of saliency for modern users and demonstrates how seemingly frozen classifiers may be promoted, such as the signifier for “steam,” now associated with recently discovered gaseous elements.

The final chapter to address the categorizing function of classifiers offers a primer on their use in a purely visual language system, one never meant to carry glottographic information: sign language. Ultimately a demonstration of how sign language works with iconicity to deepen meaning and create new terms, “Iconic and Grammatical Dimensions of Sign Language Classifiers,” by Diane Brentari, first clarifies the requirements of classifier use and then delves into the manner by which classifiers in sign language inherently bring life to their antecedents. In her discussion, Brentari explains that classifiers in this system may be chosen to define an object by size, shape, instrumentality, manipulation, or semantic class, thereby giving these antecedents categorical depth and identity. Classifiers may be further employed to impart the action of their antecedent, thus giving it movement and dimensionality. Sign language classifiers may, therefore, animate as they visually situate the audience within a chosen perspective. So, as integral features of a communication system, classifiers also carry and visually impart cognitive information while serving a grammatical function.

The concluding section of this volume is dedicated to script evolution, with studies that address how the graphic rendering of lexemes, phrases, and sentences provide information on cultural interactions, adoptions, and developments. In “Encounters between Scripts in Bronze Age Asia Minor,” Elisabeth Rieken and Ilya Yakubovich scrutinize the Anatolian hieroglyphic writing system for script-to-script influence in Bronze Age Turkey. This influence, as they make clear, can be detected only visually; it would never have been made aurally obvious. In careful detail, the authors first introduce the complex multicultural, multilingual, and multiscript environment that provided the setting for this literal code-switching. Fascinated by the phenomenon, Rieken and Yakubovich provide evidence

for how certain Anatolian hieroglyphic texts could be embedded with words and phrases that were written following the conventions of an entirely different script system: Sumerian-Akkadian cuneiform. When these sections of text were then mentally processed, they contend, readers would automatically engage in code-switching: they would read the embedded words and phrases as though they were written following the conventions required by the Anatolian hieroglyphic writing system, not the cuneiform one.

The penultimate study of *Seen Not Heard* addresses neither direct nor indirect script-to-script influence as such. Instead, in “Iconicity, Composition, and Semantics: A Structural Investigation of Pictures in an Early Writing Environment,” Holly Pittman compares two graphic systems in concurrent operation serving to convey the same information through seemingly different methods. One of these systems is deemed semasiographic or artistic—archaic Mesopotamian seal impressions; the other, writing—proto-cuneiform administrative texts. By critiquing the imagery present in seal impressions in the light of logographic inscriptions, Pittman determines that when inscribed on seals, graphs traditionally thought to serve only an artistic function can take on semantic functions akin to those found in archaic inscriptions. Arguing for analogous purposes for both engraved seal scenes and inscribed tablets, Pittman, more than any other contributor to this volume, exposes the fine line between what we define as *writing* and what we define as *art* by probing what it means to read language.

Delving even further into aspects of visual code, this section on script evolution closes with Ilona Zsolnay’s investigation of the compound graph ABxKU6. In “ABa and ABb, a Memoir—or, The Curious Case of Niġin/Našše Signification,” Zsolnay first lays out the conundrum: in the Archaic cuneiform corpus, as in later corpora, the foremost cities of southern Mesopotamia—Uruk, Ur, Zabala, Larsa, and Niġin—are all signified with the AB graph. What is curious about this seeming consistency is that in the proto-cuneiform corpus the names of the cities Uruk, Ur, Zabala, and Larsa are all formed with the ABa variant of this graph. The name of the city Niġin is attested with either the ABa or the ABb variant, phased out early in the development of the script. Uruk, Ur, Zabala, and Larsa are never signified using the ABb variant. “ABa and ABb, a Memoir” is both a survey of script standardization and a graphic history of a compound graph. The results of Zsolnay’s investigation suggest that theological meaning can underlie visual choice in signification and confirm that as scripts are developed, adopted, and adapted to suit new purposes, even profound ideologies can be leveled in the name of convenience and progress.

The final chapter of *Seen Not Heard* offers Wang Haicheng’s thought-provoking meta-response to the whole of the project. In dialogue with each of the sections of this volume, in “On the Visual Presentation of Writing” Wang first considers the historical breadth of layout and image use to communicate nonlinguistic information, even incorporating observations of the manner by which format and image are used to express meaning in the chapters contained within. Wang then turns to classifiers and their relationship to cognition, reflecting on their role in the “mental search for correct meanings.” Focusing on the Egyptian and Mesopotamian contributions, he questions whether semantic classifiers were always silent or if it is their iconicity, their visuality, that holds the key to deciphering their role in the mind’s computational process in clarification. Wang closes his response by introducing aesthetics into script analysis. The beauty of the East Asian and Islamic calligraphic arts, as well as that found in the Book of Kells, matters. Arguing that the

formation of writing can be as a visual poetry, as an art historian Wang is led to suggest that in the study of writing, art cannot be excluded. Indeed, the inclusion of art, he purposes, should be the next phase of metalinguistic study—when we consider what “we call art.”

6. CONCLUSION

Each contribution in *Seen Not Heard* seeks to lay bare either explicit exploitation of visibility in scribal production or orientations informed implicitly through the optical quality inherent to writing systems, and together these chapters demonstrate that although writing may be heard, the fact that it can also be seen affects the reception and therefore meaning of any transported phonological units. Indeed, such phenomena as explicated in these chapters are in evidence today. One need simply notice the icons located on a Microsoft Word document. The icons for the desired actions *print* and *save*, though maintaining a high iconicity, are frozen images; they are archaisms. Being frozen, their signifiers, and the perspective of those who chose them, are fixed in time. The average young user of MS Word, one born after the year 2000, would be hard pressed to identify the *save* icon as an image of a floppy disc, an inserted physical object on which to save data. Where the *save* icon has a high iconicity for an older user, one who has used floppy discs, it has now only a symbolic, learned one for the younger user. The personal printer icon is perhaps more accessible to all users, but in due time it too will become a signification to be learned, not simply intuited. Following this line of thought, one might consider the image of a cloud as the modern *save* icon. Although the cloud icon signifies a particular manner of saving, how confusing it will be to later users once this manner of saving is also made obsolete. How perplexing even to those not trained in computing interface design will be the use of a polyvalent weather icon that may either index a data-protective function or signify an overcast day. But then one might ask, Are computer icons *text*? The answer: How can they *not* be, since when a mouse is positioned over an icon, phonological text is revealed?



Scribes recording military achievements. Tomb of Horemheb, Saqqara, Egypt, Eighteenth Dynasty. Image courtesy of Merja Attia (www.flickr.com/photos/130870_040871/21362435835/in/album-72157658107758199/).

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xxii INTRODUCTION

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PART I

EXPERIENTIAL WRITING

1 Text in Context: Relief and Hierarchy on Piedras Negras Panel 3

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1. INTRODUCTION

The materiality of text matters. *How* a text is written determines how it is received: who can see it, who can read it, and what kind of physical engagement that act of reading demands. We know this all too well when it comes to matters of preservation—the perishable media such as amate fiber paper, deer hide, and cotton textiles on which the majority of ancient Mesoamerican inscriptions were written rarely survive in the archaeological record. But even monumental stone inscriptions shape their audiences through choices about format, scale, script style, orientation, depth of relief, and myriad other factors. Reading demands an embodied response, one that depends not only on the size and format of text but also on its legibility. When we study inscriptions primarily through line drawings, we risk losing valuable contextual information that helps explain how texts functioned in the ancient world.

Let us begin with a relatively simple example. From a distance, La Mojarra Stela 1, an Isthmian monument made near the Gulf Coast of Mexico during the second century CE, seems curiously off-balance (fig. 1.1). The left side of the stone slab represents a king dressed in elaborate regalia, but the right side of the monument appears blank. It is only when the viewer approaches that the text occupying the other half of the stela becomes visible. Even closer proximity is required to read the more than five hundred small glyphs arranged in neat columns, each glyph block only 2.5 cm wide (fig. 1.2). With just a handful of surviving examples, Isthmian script remains undeciphered (Houston and Coe 2003; Macri and Stark 1993; Méluzin 1992). All that can now be understood of this text are the two dates, rendered in the Mesoamerican Long Count system, which correspond to days in the years 143 and 156 CE (Winfield Capitaine 1988; see also Strauss 2018, 153–62, 233–48, 322–25). Based on analogy with later Maya inscriptions, it is likely that this long text details the exploits of the ruler depicted on the left side of the stela.

This embodied encounter with the stela is markedly different from the experience of a modern line drawing of the same monument (fig. 1.3). The line drawing is tremendously useful in recording all the intentional marks made on the surface of the stone slab. It even reproduces, albeit obliquely, later damage to the stela in the form of empty spaces within

the drawing.¹ Yet in its quest for legibility, the drawing sacrifices some of the most important aspects of the materiality of the stone monument. For while the image of the king on La Mojarra Stela 1 is carved in multiple layers of relatively deep relief, emerging from the flat plane of the stone, the inscription is only lightly incised, just barely scratched into the stone's surface. Text and image are clearly contiguous in terms of style and facture, products of a unified moment of artistic conception that engaged the entire front surface of this large stone slab. From the outset, then, the differences in how the text and image were experienced reinforced inequality: reading

1 See also Winfield Capitaine (1988, fig. 5) for a more complete accounting of the damage. For more on the role of illustration in Mesoamerican archaeology, see Pillsbury 2012.



Figure 1.1. La Mojarra Stela 1, 156 CE. Museo de Antropología de Xalapa. Photo by the author.



Figure 1.2. Detail of La Mojarra Stela 1. Museo de Antropología de Xalapa. Photo by the author.

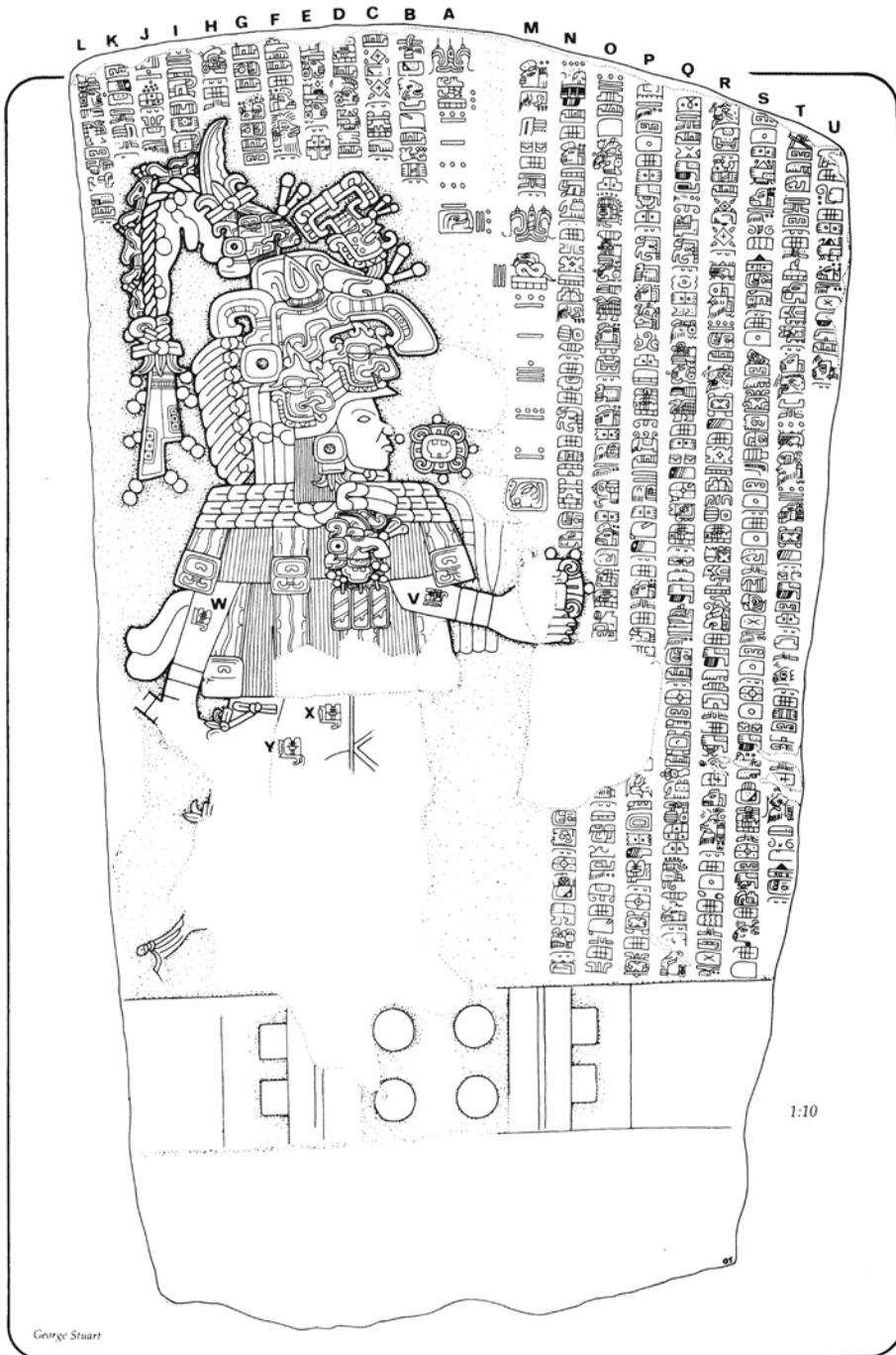


Figure 1.3. Line drawing of La Mojarra Stela 1. Drawing by George Stuart. Courtesy of the Boundary End Archaeology Research Center.



Figure 1.4. Piedras Negras Panel 3, 782 CE. Courtesy of Penn Museum, image no. 21138.

the text on the stela required not just literacy but also privileged physical access to the monument, while those who would have seen the stela from afar would have been able to witness only the image of the divine king, expressed through a format comprehensible to all.² Created in a period defined by both the rise of divine kingship and the beginning of monumental public writing (Fahsen and Grube 2005; Guernsey and Strauss 2022; Houston 2004), La Mojarra Stela 1 offers an exemplary case of how the presentation of writing, and not just the information it conveys, can carry significant meaning.

2. PIEDRAS NEGRAS PANEL 3

Just how powerfully choices about textual presentation might shape interactions with stone monuments becomes even clearer centuries later in the Maya lowlands, where a range of script and carving styles were available to artists and multiple kinds of inscriptions frequently coexisted on a single stone. In the remainder of this essay, I examine the potential impact of these choices through a close examination of an eighth-century sculptural panel from the city-state of Piedras Negras, one of a number of competing polities that thrived in the Maya lowlands during the first millennium CE. Piedras Negras Panel 3 features four different kinds of inscriptions, which interact with one another—and with the image and the viewer—to create a powerful portrait of hierarchy at the royal court. My contention is that writing on Maya monuments such as Piedras Negras Panel 3 does not merely reflect or record social organization through the semantic content of its inscriptions but instead

² La Mojarra Stela 1 was found in the Acula River, so there is no direct information about its original placement (Winfield Capitaine 1988, 1; for archaeology at La Mojarra, see Diehl 2011). Wherever it was located, the text could not have been read from afar, even if the lightly incised glyphs were highlighted with red pigment. Perhaps the text on the monument was intended to be read out loud, but even so, the right—and the ability—to access the text directly would have been limited to a select few.



Figure 1.5. Piedras Negras Panel 3. Reconstruction painting by Mary Louise Baker. Courtesy of Penn Museum, image no. 176733.

actively generates and reproduces hierarchy through the embodied encounters provoked by its conditions of visibility.

Piedras Negras Panel 3 features a king seated on a throne furnished with a jaguar pelt cushion, surrounded by standing and seated members of his court (fig. 1.4; see also Mary Louise Baker's reconstruction of the original scene in fig. 1.5 and Alexandre Safronov's line drawing in fig. 1.6).³ It is an intimate monument, 126 cm wide and 62 cm tall, that may have been installed onto the exterior of Pyramid O-13 (fig. 1.7).⁴ On the panel, the architectural space of the royal palace is only lightly suggested by the throne at the center, which strongly resembles actual thrones discovered at Piedras Negras; by the palace walls, just inside the framing text, with hints of curtains draped at the corners; and by the step in front of the throne. Together these forms evoke the familiar hierarchical space of the Maya

3 The bibliography on Piedras Negras Panel 3 (originally termed Lintel 3) is extensive. For the discovery, see Mason 1935, 548–50; for the reconstruction, see Baker 1936. Morley (1937–38, 3:220–29) summarizes early bibliography. Key recent works on the monument and its inscription include Clancy 2009, 157–60; García Juárez and Bernal Romero 2019; Herring 1999, 139–57; 2005, 151–62; Houston and Stuart 2001, 69–73; Jackson 2013a, 28–32; Martin and Grube 2008, 127, 148–52; Montgomery 1995, 57–120; O'Neil 2005, 200–234; 2012, 45–48, 154–58, 180; and Teufel 2004, 480–90. While the sculpture is often assigned to c. 795 CE, later in Ruler 7's reign, I follow O'Neil 2005, 218 n. 2, and Houston 2016, table 13.4, in supposing that the last event recorded on the monument occurred closer to its dedication, c. 782 CE.

4 Panel 3 was found in fragments on the upper terraces of Pyramid O-13 (Mason 1935, 548), but its original location with respect to the building is unclear. Early commenters assumed it was a lintel spanning a doorway (e.g., Morley 1937–38, 3:221), but this placement is unlikely given the shape and size of the panel. It may have been inset into an inner or outer wall of the temple, placed on an upper setback of the pyramid, or even set into the stairway (Jackson 2013b, 49; O'Neil 2012, 216 n. 18). Panels 1 and 2 were also found nearby and likely were part of a conjunctive display (O'Neil 2005, 217–22). For more on Pyramid O-13, see Escobedo and Alvarado 1998; Herring 2005, 186–87; Houston 2004; Houston et al. 1998, 17–19; 1999, 11–13; and O'Neil 2005, 223–34; 2012, 140–47, 153–82. For more on the visibility of the panel in its original context, see below.

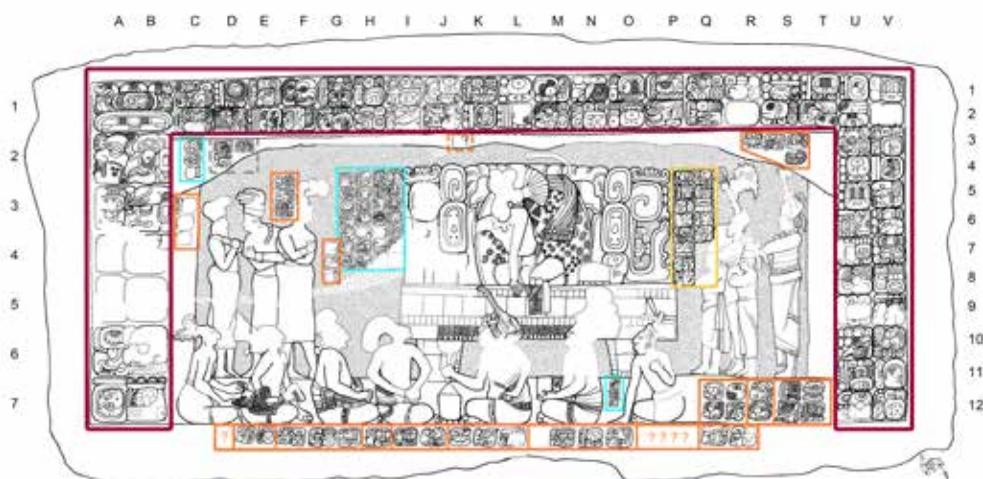


Figure 1.6. Line drawing of Piedras Negras Panel 3. The Initial Series text is indicated in dark red, the captions in orange, the sculptors' signatures in yellow, and direct speech in turquoise; a calendrical text of uncertain function is marked in gray. Drawing by Alexandre Safronov, with modifications by Amanda Chacón and the author.

court (Herring 2005, 158, 160; Jackson 2009; Miller and Martin 2004; Reents-Budet 2001). The sculpture is richly intermedial, demonstrating a dense engagement with other works of art: the scene is structured like a rollout of a polychrome vase, on which such courtly scenes are a frequent subject (see fig. 1.8; Herring 2005, 162; Houston and Stuart 2001, 69; Martin and Grube 2008, 149), but rendered into three dimensions, taking full advantage of the potential of the sculptural medium to grant a complex sense of space.

This courtly scene is exceptional in its inclusion of four of the major genres of Maya monumental writing within its confines: a dedicatory text, replete with historical information, frames the scene; captions label the actors within it; sculptors' signatures claim credit for the making of the work; and extremely rare examples of first- and second-person speech adorn the rear wall. Both texts and images are full of social nuance, with placement, size, elaboration, and proximity to the body of the king carrying rich information about power dynamics at court. Jointly with the figural rendering of royal and noble actors, the textual hierarchies of relief replicate, reinforce, and occasionally subvert the social hierarchies of the court that made them. Moving from the most visible to the least visible of the logosyllabic texts, I will examine what each passage demands of its reader, and then conclude by comparing the relative visibility of the image to the difficulty of reading its surrounding texts.



Figure 1.7. Piedras Negras Pyramid O-13, eighth century CE. Artwork by Mark Child and Heather Hurst, © 2004. Courtesy of Heather Hurst.



Figure 1.8. Rollout photograph of Maya vase with courtly scene, eighth century CE. Photo by Justin Kerr, K1453. (K numbers refer to Justin Kerr's MayaVase database, available online at <http://research.mayavase.com/kerrmaya.html>.)

2.1. INITIAL SERIES TEXT

The largest, most visible, and most public inscription on the panel is the narrative and calendrical text that frames the scene (see figs. 1.4 and 1.6). Full of conventional calendrical information, this principal text indicates that the panel is a retrospective monument, dedicated by K'inich Yat Ahk II, or Ruler 7 of Piedras Negras, around 782 CE, commemorating the deeds of his probable father Itzam K'an Ahk II, Piedras Negras Ruler 4, who ruled between 729 and 757 CE. At the left is the Initial Series calendrical sequence that typically begins Maya monumental inscriptions, an elaborate date corresponding to July 28, 749 CE in the Julian calendar.⁵ Opening with an Initial Series Introductory Glyph spanning two columns, the text proceeds to enumerate the Long Count of days elapsed since the beginning of the present era, with glyphs rendered at nearly double the height and width of the subsequent glyphs.⁶ This passage is immediately recognizable as the kind of date that so frequently opens Maya inscriptions. However, the content of the date is not so easy to decipher: the Long Count date is written with calligraphic and recondite head variants of the numerical glyphs, perhaps less accessible to the marginally literate than the more conventional bar-and-dot numeration (visible farther down in the Calendar Round dates at A7, E2, K2–L2, and V4–U5; for head-variant and full-figure glyphs, see Houston 2014, 102–23; 2021).

The date commemorated, the text goes on to explain, is the first *k'atun*, or roughly twenty-year anniversary of Ruler 4's accession to the throne. The event was witnessed by a lord from Yaxchilan, a neighboring (and sometimes rival) polity; this brief passage thus hints at political intrigues otherwise suppressed by the principal text.⁷ Two days later

5 All dates are Julian, using the 584286 Martin-Skidmore correlation (Martin and Skidmore 2012).

6 Sylvanus Morley notes that the text gets smaller toward the bottom of the first column, with the Calendar Round date given less visual emphasis than the rest of the elaborate Long Count that precedes it (Morley 1937–38, 3:221 n. 286).

7 The Yaxchilan king who attended the event is named Yopaat Bahlam (Martin and Grube 2008, 149), but no record of a king by this name exists at Yaxchilan (Martin and Grube 2008, 127). There is a ten-year gap

there was a party: the king danced the macaw dance all day and all night, and everyone drank *kakaw*, or chocolate. The text moves on to record the death of Piedras Negras Ruler 4 eight years later, in 757 CE, and his burial three days afterward in 5 Flower Mountain, which is the name of a mythical place but in this context may refer to Pyramid O-13, where the panel was later displayed (Martin and Grube 2008, 150; Stuart and Houston 1994, 69, 77–79). The text then counts forward 8,881 days, or roughly twenty-four years, to a tomb-censing ceremony conducted at the tomb by Ruler 7 (for the decipherment, see Stuart 1998a, 389–93).⁸ There is archaeological evidence for this event: Burial 13, the probable tomb of Ruler 4, was discovered by Stephen Houston and Héctor Escobedo in 1998 (Escobedo 2004; Houston et al. 1998, 18–19). It lay directly in front of the pyramid where Panel 3 was found, and the bones in it show signs of burning and disturbance, as though such a rite had been conducted. Although the text does not explicitly say that the panel was made and dedicated as part of the event described at the end of the inscription, it likely was, for many monumental Maya inscriptions conclude with a record of their own dedication (Stuart 1995, 99–100; 1998a, 374–75).

This kind of calendrical, historical, and (perhaps) dedicatory inscription is the most common kind of text on monumental Maya sculpture. If a public sculpture has only one kind of text, it will be of this genre. Here, although the Initial Series text does not directly interact with the scene it surrounds, the relationship between the two components is carefully scripted. The text is divided into three principal units: the Long Count date is rendered at double size on the left, the events of 752 CE are narrated on the horizontal span above the scene, and the sad events of 757 CE, as well as their commemoration, are sequestered in the right-hand columns. Thus the text directly above the scene relates most closely to what is being depicted, and the king's name is even positioned directly above the seated ruler at the center of the scene (see below). The text is planned not simply to convey information but also to frame the scene within it.

2.2. CAPTIONS

The Initial Series inscription is not the only text on the stone panel. Below the seated figures on the outer edge are a number of smaller incised texts, somewhat harder to see (see figs. 1.4 and 1.6). Unlike the principal text, they are not a continuous phrase but instead a discontinuous series of names and titles, which serve as captions for the seated and standing courtiers surrounding the throne. A few additional caption texts are scattered throughout the scene, written on the curtains draped in the upper right corner or lightly

in the monumental history of Yaxchilan between 742 and 752 (a period now known as the interregnum [Proskouriakoff 1964, 198]), which seems to have been a period of political conflict and uncertainty. If Yopaat Bahlam did indeed reign at Yaxchilan during this time, Bird Jaguar IV and later rulers may have destroyed all traces of his reign. The Yaxchilan prince pictured in the scene is likewise absent in records at Yaxchilan. For more on the Yaxchilan/Piedras Negras intrigues, see Herring 2005, 155–56; Houston n.d.; Martin and Grube 2008, 127, 149; and O'Neil 2005, 205–15; 2012, 156–58. It is important to note that a shell bearing Yopaat Bahlam's name was found in Burial 13, the likely burial of Piedras Negras Ruler 4 (Escobedo 2004, 279).

⁸ This occasion was an auspicious anniversary, 360 days after the death of Ruler 6 and 301 lunar months since the demise of Ruler 4 (Clancy 2009, 159; Escobedo 2004, 278).



Figure 1.9. Bonampak, Structure 1, Room 2, north wall, 791 CE. Reconstruction painting by Heather Hurst and Leonard Ashby, © Bonampak Documentation Project.

incised in a vertical line next to the Initial Series text on the left. Smaller than the glyphs of the Initial Series inscription, and incised into the surface rather than raised above it, the subsidiary nature of these texts is emphasized by their relatively modest form.

The practice of captioning figures has many parallels in Maya art, both painted and sculptural. In the mural paintings of Bonampak, dedicated in 791 CE, for example, the vast majority of the texts are precisely such captions, naming many of the figures in the scenes (Miller and Brittenham 2013, 72–85). These captions are also smaller and less graphically elaborated than the Initial Series dedicatory text painted in Room 1 (Miller and Brittenham 2013, 70–72). Most of the captions are simply personal names and titles; many include titles such as *anahb* and *sajal*, whose bearers also populate the court at Piedras Negras (Miller and Brittenham 2013, 79–80). As on Piedras Negras Panel 3, it is not always immediately obvious how to match captions with figures, especially in densely clustered groups where there are more figures than captions (or vice versa).⁹

At Bonampak, naming was a complex and varied practice: some figures were named on reserved spaces left for the captions amid the murals, while other captions were painted against the unreserved background, as though the right to a name were an afterthought. Conversely, in other instances prepared spaces for captions were left blank. The situation in Room 2 is especially illuminating. Like Piedras Negras Panel 3, the battle scene in Room 2 at Bonampak was a retrospective image, depicting events that took place five years earlier (Miller and Brittenham 2013, 64–54, 96–112; Miller and Houston 1998, 253; Rosas Kifuri 1988, 42). Here, a pattern of changes suggests that history remained mutable until brush was set to wall. On the north wall of Room 2 (fig. 1.9), the texts painted on reserved grounds name the king and the most important members of his court, including the *ch'oks*, or royal youths, and the women who stand behind him. The lengths of the texts indicate the

9 On Panel 3, the damaged state of both image and text makes a complete correlation challenging. Given the close spacing between the titles of different seated figures, where to partition the names is not always clear (see n. 11 for an example), and depending on how one draws the divisions, there are either more or fewer captions than there are figures. It is also possible that captions naming the outermost seated figures were effaced, either as part of the final episode of iconoclasm or earlier in the sculpture's history.

relative importance of these principal actors. By contrast, the warriors on the upper left have captions written directly against the blue ground, as though their names were later additions (Miller and Brittenham 2013, 75–77, 80–84). This part of the scene also features more repainting than any other part of the mural; in particular, the headdresses of many of the victorious warriors were reworked, seemingly to match the new identities inscribed on the wall. Perhaps the retrospective history recorded on Piedras Negras Panel 3 was likewise subject to contemporary political pressures.



Figure 1.10. Piedras Negras Panel 4, 706 CE. Photo © Peter Hess.

The varying degrees of relief possible in sculpture offered many ways to signal hierarchies in content. Across Maya monuments, captions are almost invariably at a smaller scale, in a less obtrusive style, and carved in lower relief than the Initial Series text, thus suggesting that the names of courtly actors mattered less than the unified narrative of royal deeds. For example, Piedras Negras Panel 4 has the names of the warriors and perhaps captives incised below the scene, in a smaller and less elaborate script than the principal inscription above (fig. 1.10; Clancy 2009, 42–45; Teufel 2004, 491–96). Hierarchy is further amplified on Piedras Negras Panel 2, made in 667 CE, by differences in caption size (fig. 1.11; for Panel 2, see Clancy 2009, 46–48; Martin and Grube 2008, 143–44; O’Neil 2012, 159–63; Teufel 2004, 474–79). As on Piedras Negras Panel 3, for which it may have served as a model (O’Neil 2005, 217–22; 2012, 162–63), an historical text frames the scene, with the date glyphs of the Initial Series in head-variant forms again rendered at double size in the leftmost columns. Above each of the kneeling figures in front of the king are name captions, all rendered at slightly smaller scale than the historical text save for that of the Piedras Negras heir; he stands behind the king, and his name caption, carved at the same size as the principal text, seems even larger for standing out so starkly from its surroundings. As is often the custom at Piedras Negras, the king is not named, as though his identity goes without saying (Clancy 2009, 46; O’Neil 2012, 160–61).

Captions on Piedras Negras Panel 3 comprise one of the fullest surviving portraits of Maya courtly roles. The seated figures bear titles, including *anahb*, *sajal*, *ti’ sak huun*, and *itzaat*—all courtly titles, their meanings still contested, that also occur in the Bonampak murals discussed above, as well as in other images of courtly life (Houston n.d.; Houston and Stuart 2001, 61–63, 68–69, 72–73; Jackson 2013a, 10–15; Miller and Brittenham 2013, 79–80; Jackson and Stuart 2001; Zender 2004, 164–226, 322–26). Several of the standing figures, by contrast, bear the title of *ch’ok*, or royal youth, an appellation corroborated by their diminutive height (for *ch’oks*, see Houston 2009, 2012, 2018, n.d.). To the right of the throne when facing the panel (and thus positioned on the king’s left, or less privileged side, on which see Houston 1998, 341–43) stands an individual named T’ul Chiik, labeled a *yok’ib ch’ok*, or

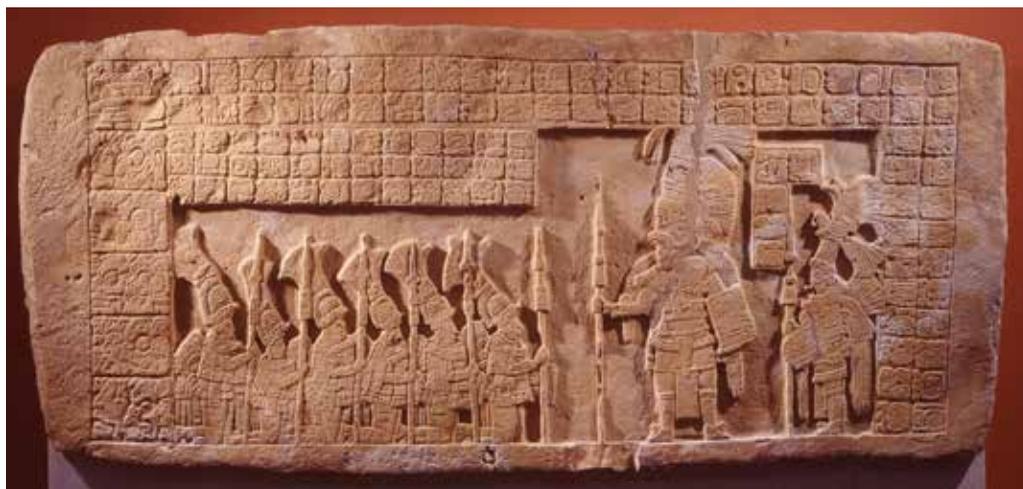


Figure 1.11. Piedras Negras Panel 2, 667 CE. Peabody Museum Expedition: Teobert Maler, 1899–1900. © President and Fellows of Harvard College, Peabody Museum of Archaeology and Ethnology, PM no. 00-36-20/C2740.

prince of Piedras Negras (Martin and Grube 2008, 127, 149). One of the figures closest to the throne on the opposite side is named a *pa' chan ch'ok*, or “prince of Yaxchilan.”¹⁰ Neither of these youths is ever recorded as a king of his respective city, hinting at the perils of adolescent mortality and political intrigue. T'ul Chiik, the Piedras Negras prince, was captured by Yaxchilan ten years later, in 759 CE (Martin and Grube 2008, 149; O'Neil 2012, 147).

Some of the figures on Piedras Negras Panel 3 may also be recorded on other monuments. One of the seated courtiers in front of the throne shares a name, K'an Mo Te', with a lord pictured on Piedras Negras Stela 5, dedicated in 716 CE by Ruler 4's predecessor, K'inich Yo'nal Ahk II (for Stela 5, see Clancy 2009, 93–99). If these images indeed picture the same person, by the time of the courtly scene from Ruler 4's reign pictured on Panel 3, K'an Mo Te' was a respected elder, bearing the title *baah sajal*, or “head *sajal*” (Houston n.d.; Houston and Stuart 1998, 79; 2001, 62, 72; Jackson 2013a, 28–32; Martin and Grube 2008, 149). He sits in a privileged position near the throne, at the head of the row of courtiers on the left side of the monument, facing another lord across a lidded cylinder vessel (see figs. 1.4 and 1.6).¹¹

¹⁰ In both of these tight figural groupings, it is difficult to be certain exactly which figure bears the title. On the right, it is likely that the almost-effaced shortest figure is the Piedras Negras prince, still explicitly shown as a youth; I suspect that the figure closest to the king on the left is the Yaxchilan prince, but Houston and Stuart (2001, 72) propose instead that it is the central figure who is the prince. For the significance of the damage to these groupings, see below.

¹¹ Clancy (2009, 95–99, 190 n. 40, 197 n. 18) questions whether it is the same individual pictured on Panel 3 and Stela 5; she refers to this figure as K'an Nik Te', but Stephen Houston suggests that Mo is a more likely reading for the middle grapheme of the name glyph (personal communication; see also Houston n.d.). Although I do not agree with all of Clancy's reasons for questioning the identification, it is true that given the forty-year gap between the two scenes, K'an Mo Te' would have been a venerable elder by the time of the scene on Panel 3 (and, as Clancy [2009, 96] notes, he is already represented as an adult of middle age, with marked facial folds, on Panel 5). As Houston observes (personal communication), the date of Stela 5 is also unclear, and it too may be a retrospective monument. To be clear, age alone is not disqualifying here: the El Cayo Altar shows a 67-year-old *sajal* and ally of Ruler 4 (Martin and Grube

More secure is the identification of Parrot Chahk (Mo' Chahk), one of the cluster of youths on the right of the throne. Named as a *ch'ok*, or "youth," he stands near the Piedras Negras prince on Panel 3. Mo' Chahk grew up to be a valued ally of Piedras Negras Ruler 7: he is named on Ruler 7's Throne 1 and pictured on his Stela 12 (see below). Parrot Chahk also dedicated his own stela at the subsidiary site of La Mar (Martin and Grube 2008, 153; Miller and Brittenham 2013, 107–8, 166; Schele and Grube 1994). Because Panel 3 is retrospective, the configurations represented on it may advance contemporary interests, such as promoting a powerful ally of Ruler 7, rather than faithfully representing the past court of Ruler 4.¹²

That the king is the only person not captioned in this scene leads to a productive ambiguity (Clancy 2009, 160; O'Neil 2005, 210–17).¹³ Either Ruler 4 or Ruler 7 could be the king represented on the throne: Panel 3 was commissioned and dedicated by Ruler 7 but commemorates the regnal anniversary and death of Ruler 4, as well as Ruler 7's pious re-entry of Ruler 4's tomb. A certain generic quality to the scene permits this royal doubling that merges past and present—or perhaps signifies a desire to renarrate and therefore own a new account of the past. The monument segments its audiences even more powerfully than La Mojarra Stela 1, with which this chapter began. Viewers from afar, who see only images, see an image of a king. From a distance, they might assume that it is an image of *the* king, that is, Ruler 7. Even with closer access—and the necessary literacy—to read the frame text, the issue would not be resolved, for both Ruler 4 and Ruler 7 are mentioned, though the scene corresponds more closely to the actions of Ruler 4 described in the text.¹⁴

Subtle textual cues, such as the names of the surrounding courtiers, make it more likely that it is Ruler 4 who is pictured. In fact, for many years Mayanist scholars struggled to identify just who was pictured on the throne. (The controversy is reviewed in O'Neil 2005, 211–15; see also Clancy 2009, 159–60.) Only by cross-referencing some of the figures named in the captions with other monuments—that is, by slowly reconstructing the ambit of knowledge that would have come effortlessly to many ancient Maya courtiers—has a consensus developed that the scene indeed pictures Ruler 4 on the throne.¹⁵ Properly inter-

2008, 150). On Panel 3, because of the close and even spacing between captions, it is also not entirely clear whether the figure is named simply K'an Mo Te' *baah sajal* (as proposed by Houston and Stuart 2001, 72) or whether another glyph should be appended to the front of the name, yielding Tz'unu'un Te K'an Mo Te' *baah sajal*. In general, it is surprisingly difficult to match captions with individuals in this scene.

12 Alexandre Safronov suggests that the Piedras Negras prince T'ul Chiik may have been Ruler 7's father (cited in Martin and Grube 2008, 152, 232 n. 22) and, for that reason, is important to project into this retrospective scene (O'Neil 2012, 157–58).

13 There is a possibility that a fragmentary text on the curtain above the throne would have named the king, but given the precedent of other Piedras Negras monuments that caption other figures but not the ruler (e.g., Panel 2, Stela 12; see Clancy 2009, 160), it seems at least as probable that this figure never had a caption. Mary Louise Baker reconstructs the central "cartouche" as the attachment point for a panache of feathers from Ruler 7's headdress (see fig. 1.5); this reconstruction explains the pattern of damage without positing lost texts. Sara Isabel García Juárez and Guillermo Bernal Romero (2019, 77) propose that a continuous text ran across the top of the curtain, but the pattern of spacing of the two texts at upper left suggests that they were discrete statements, making this interpretation unlikely.

14 Megan O'Neil proposes that the panel might even picture Ruler 7 reenacting the role of Ruler 4 (O'Neil 2005, 215–17).

15 The king's first-person speech, requiring the closest of access, also provides cues to the identification, but again it does so not through direct naming but through a web of insider references, in this case to his relationship with a named lord of the rival city of Yaxchilan.

preting this monument thus required physical proximity, literacy, and insider knowledge of the workings of the Piedras Negras court, both in its contemporary manifestation and also a generation earlier. A reader with all three would surely also have appreciated the subtleties of the presentation of the political relationship between Yaxchilan and Piedras Negras.

2.3. SCULPTORS' SIGNATURES

Another text lists the names of the panel's sculptors (see figs. 1.4 and 1.6). Located behind the throne, on the king's left, less privileged side, this text is carved in low relief, sunken beneath the rear plane of the sculpture, in contrast to the incised captions beneath the courtiers.¹⁶ Rendered in a unified style, it sequentially names three (or perhaps four) sculptors before describing this work as their collective carving (Houston 2016, tables 13.3, 13.6; Montgomery 1995, 92–96; Teufel 2004, 487–88). Yet hierarchy is present even here: the first sculptor to be named, with the longest and most prominent set of titles, assumes the title “head sculptor” before the text proceeds to name the other artists (Houston 2016, 401, 415).

Sculptors' signatures comprise one of the most common forms of subsidiary text on Maya sculpture (Houston 2016, 397–423). Carving seems often to have been a collaborative process: it is not uncommon to see multiple signatures on many Maya sculptural works, with the placement and relative prominence of different signatures hinting at hierarchies among the artists (Houston 2016, 401, 415).¹⁷ Signatures are commonly rendered in lower relief and at smaller scale than other texts on the monument and are often placed strategically in unobtrusive locations. Yet for all the ways these signatures appear as gestures of authorial autonomy, it is likely that this practice of artistic self-promotion required the overt or at least tacit consent of the ruler: as Stephen Houston has recently observed, artists sign works for only a short period between the sixth and eighth centuries CE, and only at particular sites, under the reigns of particular kings (Houston 2016, 396–400, 412, 420–23).

The presence of sculptors' names is common on works from Piedras Negras—at least on those works created under certain rulers (Houston 2016, 410–20; Montgomery 1995). On Panel 4, one signature lies in the lower right corner and is incised in even smaller glyphs than the captions naming the actors within the scene (see fig. 1.10). On Stela 14, by contrast, there are six signatures, all incised on the front plane of the stela, while the principal Initial Series inscription runs along the sides (fig. 1.12; Houston 2016, tables 13.3, 13.6). Most of the signatures lie along the cascade of cloth emerging from the niche where Ruler 5 sits, but one nestles on the cushion inside the niche, closer to the king's body, thus hinting at the artist's privileged status. Piedras Negras Stela 12, dedicated c. 795 CE, has an unprecedented eight sculptors' signatures (fig. 1.13; Houston 2016, 414–18; Montgomery 1995, 317–402; other texts on the front face of the sculpture name the lords and captives). As on Stela 14, all the signatures are rendered at a smaller scale than the text occupying

¹⁶ For left–right symbolism, see Houston 1998, 341–43; Palka 2002.

¹⁷ Houston has assembled the names of more than 114 carvers on well over 40 monuments from the Late Classic period (Houston 2016, 397–99). As these tallies suggest, multiple collective works were the norm, with artists working to efface differences in personal style, across various media (see also Brittenham 2008, 191–96; Torquemada 1969, 3:210, cited in Filloy Nadal and Moreno Guzmán 2017, 179).

the sides of the monument, but each is in a different “hand” or style, as though it were truly the signature of an artist carved into the stone. Placement—both proximity to the king and visibility—must relate to artisanal hierarchy (Houston 2016, 415).¹⁸

Unlike Piedras Negras Stela 12, on which each signature is rendered in a different sculptural style as though carved by a distinct artist’s hand, the Panel 3 inscription does not appear to be a series of autographs. Instead, all three sculptors’ names are consolidated into a single textual block and carved in a consistent style, an elaborate sunken relief different from the plain incision typical of many carvers’ signatures at Piedras Negras. On Panel 3, the glyph blocks are roughly the same size as the captions naming the courtiers, so size alone is not enough to indicate hierarchy. Indeed, how to rank these two kinds of texts is not entirely clear—and in that ambiguity emerge some of the tensions of the Late Classic Maya court. With the size of their signatures, the sculptors assert a kind of parity with the other courtiers represented in the scene, even though they themselves are represented only through inscriptions and not through figuration as well. From what we know, sculptors were courtiers, sometimes bearing the same kinds of titles as several of the other courtiers represented in the scene.¹⁹ Here, the higher, more elaborate relief and the proximity to the king’s body may assert

18 As John Montgomery notes, four of the eight sculptors’ signatures on this monument also occur on other major works of art at Piedras Negras; indeed, the name of the most junior of the sculptors on Panel 3, Yajawte Kaloomte, also appears on Stela 12 over a decade later (Houston 2016, table 13.5; Montgomery 1995, 380–82).

19 For example, at Bonampak and elsewhere there are sculptors bearing the title *anahb* (Houston 2016, 407–9; Miller and Brittenham 2013, 162–64), a title that also occurs among the seated lords on Panel 3. *Ch’oks* or youths also abound in both settings (Houston 2009; 2012; 2016, 417). On Panel 3, the first sculptor has the soubriquet *aj bikihl*, as does one of the seated figures below, though the personal names are different. *Bikihl* is likely a place, perhaps part of Piedras Negras territory, from which both men hailed (Houston 2016, 415–17).



Figure 1.12. Piedras Negras Stela 14, 761 CE. Courtesy of Penn Museum, image no. 19257.



Figure 1.13. Piedras Negras Stela 12, 795 CE. Photo courtesy of Penn Museum, image no. 19225. Drawing by Linda Schele, © David Schele. Courtesy Ancient Americas at LACMA (ancientamericas.org).

a kind of privileged status for the sculptors, a subversive declaration of the artists' own importance.²⁰

2.4. DIRECT SPEECH

Finally, and most unusually, direct speech is represented in small texts incised on the farthest plane of the monument. A long passage in front of the king represents his own royal speech, a now very fragmented, abraded, and difficult-to-read oration referencing past events to explain current political alliances (see figs. 1.4 and 1.6; Bíró 2011, 299–309; Houston n.d.; Martin and Grube 2008, 149; O'Neil 2005, 209–15; Stuart, Houston, and Robertson 1999, 46, 205; Teufel 2004, 487). This text is especially hard to read, not only for the rarity of its grammatical expression but also because it was damaged at some point in the monument's history. Presumably addressed to the Yaxchilan youths, it refers to an event that occurred under the supervision (*ukabiiy*) of "your grandfather," a Yaxchilan lord named Bat

²⁰ The placement of the sculptors' signatures so close to the throne—as though an extension of it—also recalls the presence of sculptors' signatures on Ruler 7's Throne 1 itself, which the carved throne closely resembles (Houston 2016, table 13.5; Montgomery 1995, 166–223).

Jaguar. The text then describes Bat Jaguar's accession to the throne, under the authority (*ukabi*) of a Piedras Negras king.²¹ In apparent response, one of the youths standing in front of the throne says *ha'at ka chana'n*, "you are our guardian" (Bíró 2011, 295–96; Law et al. 2013, E44). The text is located on the curtain above the three visitors, and though the identity of the speaker is unclear, it may be the youth labeled as a lord of the city of Yaxchilan.²² The entire statement is likely a political fantasy that had nothing to do with the strained relations between Yaxchilan and Piedras Negras in 782, when this monument was likely carved, and is only slightly less unlikely for the previous generation (Houston n.d.; Martin and Grube 2008, 127, 148–52).

First- and second-person speech is extraordinarily rare in the surviving Maya corpus. There are, on stone sculpture, a few examples of quoted speech or apostrophizing address to a deceased ancestor or to the monument itself (Law et al. 2013). In its direct representation of dialogue, Piedras Negras Panel 3 is more like surviving examples of conversation on Maya vases, though the majority of these still-scant examples occur in mythical scenes.²³ Painted clay chocolate pots are often decorated with scenes echoing the courtly contexts in which they were used. In one scene, a wispy line links the king to his royal speech, much like a modern-day speech bubble (fig. 1.8; Houston and Taube 2000, 273–81). In other examples the gods themselves talk. The "Regal Rabbit" vase includes dialogue in its representation of an otherwise obscure, but likely humorous, mythological narrative (fig. 1.14). God L, undressed and kneeling in supplication, appeals to the enthroned Sun God, saying "Lord, the rabbit took my staff(?), my clothes, my tribute!" (Beliaev and Davletshin 2006, 22–29; Hull, Carrasco, and Wald 2009, 39; Law et al. 2013, E29–E30, E45–E46; Miller and Martin 2004, 61; Stuart, Houston, and Robertson 1999, 47). The supreme god disavows all knowledge of the theft—"The rabbit is not here, my grandfather"—while the

21 Not only is the text problematic, but placing it in absolute time poses challenges as well. The dates in the text are in Calendar Round form, uniquely identifying a day within a 52-year cycle but not specifying which 52-year cycle is implicated. The dates could fall during the reign of Ruler 4, but not Ruler 7, though they would conflict with accounts at Yaxchilan and elsewhere (O'Neil 2005, 208–15). The text could also refer to an even more distant past. While the names of the rulers do not fit any of the names known for the 52-year period preceding Ruler 4's reign, the text might plausibly refer to events in 601 (O'Neil 2005, 214, n. 49), a time for which the histories of both Piedras Negras and Yaxchilan remain murky (Martin and Grube 2008, 121, 140–42). In this case, the reference to the *mam* would invoke the extensional meaning of "ancestor" rather than referring to the literal grandfather of the youths on the panel. Tatiana Proskouria-koff (1964, 189) proposed that "Bat Jaguar" was an alternate spelling of "Bird Jaguar," the name of several famous rulers of Yaxchilan, but it might well be the name of yet another individual.

22 Another possibility is that this declaration of fealty is a dialogue among the lords to the left of the throne. Because the text is situated on the drape of the curtain above those figures, its relationship to the grouping is not entirely clear. If it is not said by the *ch'ok* from Yaxchilan (presumably the figure closest to the throne, though perhaps the central figure if the very damaged inscription next to the king's speech names the figure closest to the throne), it might be the utterance of one of the subsidiary figures. The leftmost figure, in particular, has his left hand across his shoulder in a recognizable gesture of fealty. (For the gesture, see Ancona Ha, Pérez de Lara, and Van Stone 2000; Pérez de Lara 2004).

The other text on the curtain is even more problematic. It includes the number 17, but it is not clear whether this text is part of the second-person speech (Bíró 2011, 297–300), calendrical context for the utterance (Simon Martin, cited in O'Neil 2005, 211 n. 44), or something else entirely (see also García Juárez and Bernal Romero 2019, 77). It is set apart slightly from the first-person text to its left, and there may have originally been a fourth glyph, destroyed when the curtain was damaged.

23 I am grateful to Stephen Houston (personal communication) for the observation.

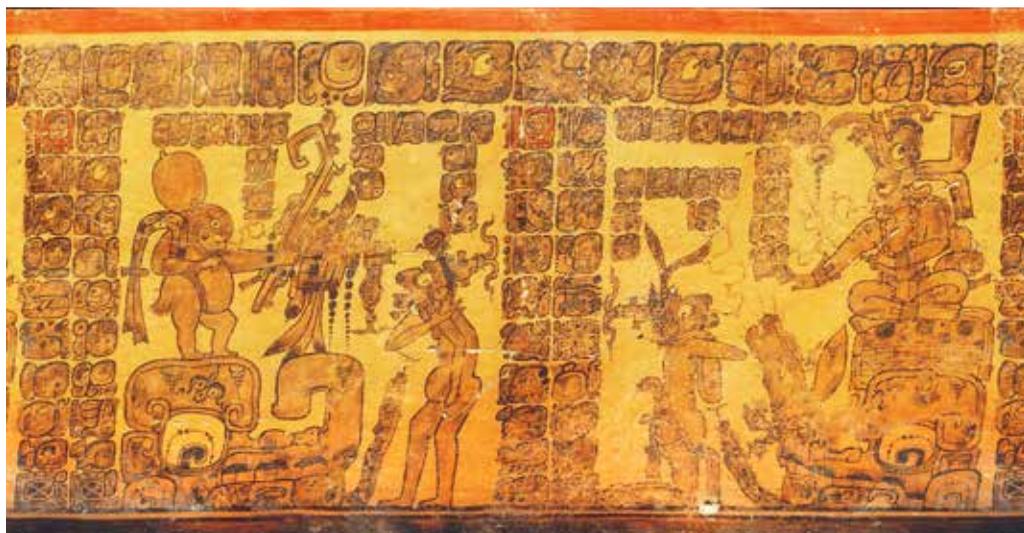


Figure 1.14. “Regal Rabbit” vase, eighth century CE. Photo by Justin Kerr, K1398.

rabbit hides behind him on the throne. On the other side of the vessel, the rabbit lords it over the aged merchant god, who begs for the return of his clothes, hat, and staff. As in the case of the direct speech on Piedras Negras Panel 3, this dialogue is the smallest text on the vessel. Circling the rim of the vessel is a standard dedicatory formula, sometimes called the “Primary Standard Sequence” (Stuart 2005); the two columns of text that serve to divide the scenes narrate historical events in the city of Naranjo (or possibly a story from the perspective of God L; Beliaev and Davletshin 2006, 24).

Returning to Piedras Negras, one more text on Panel 3 is rendered in such small and light relief that it seems barely more than a whisper—an apt suggestion, for it, too, is first-person speech, located just in front of one of the figures seated in front of the throne. The first two glyph blocks of the text read *aj winakeen*, or “I am your servant,” and the third glyph block specifies the recipient of this fealty, likely the Piedras Negras king (Bíró 2011, 294–95; Law et al. 2013, E28–E29, E44; Stuart, Houston, and Robertson 1999, 41–48).²⁴ Even if the text is dutiful, it is perhaps for us the most privileged part of the monument: an extraordinarily rare access to a nonroyal voice.

2.5. HIERARCHIES OF FIGURAL RELIEF

The textual inscriptions on Piedras Negras Panel 3 enact a hierarchy of diminishing relief and visibility, but what is especially interesting is that the figural relief operates in exactly the opposite way. In Western perspectival systems, we are used to the figures in the highest relief being the closest to the viewer (and the picture plane), while lower

²⁴ Peter Biró has suggested that we should read the third glyph as *Yokib*, the territorial title of the Piedras Negras lords, here being used as a personal form of address (Biró 2011, 294; see also García Juárez and Bernal Romero 2019, 76, 79). Law and colleagues (2013, E29) are more cautious and propose “Yop-?” as the reading. Still, it is likely that this address is directed to the Piedras Negras ruler, though were it not, it would be an even more fascinating gesture of individual autonomy.

relief signifies more distant figures (fig. 1.15). But, as Andrew Hamilton has observed in conversation, in much Maya sculpture the situation is reversed. The figures closest to the viewer are rendered in the lowest relief, while the most distant figures are in the highest (Hamilton, personal communication).²⁵

This strategy of rendering the most distant and highest-status figures in the most three-dimensional relief is dramatically present on Piedras Negras Stela 14, where the seated king is carved nearly in the round, while the woman standing in front of him is carved in relief that barely rises above the planar surface of the stela (see fig. 1.12). The first monument commissioned by K'inich Yo'nal Ahk III (Ruler 5), it shows him seated inside a tempo-



Figure 1.15. Lorenzo Ghiberti, Solomon and the Queen of Sheba, East Door, Baptistery of San Giovanni, Florence, 1425 CE. Photo by I, Sailko, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=22089165>.

rary scaffold throne erected for his accession, though it was likely dedicated in 761 CE, at the celebration of his first major period-ending in office (Clancy 2009, 136–39; Herring 2005, 189–201; Martin and Grube 2008, 151; O’Neil 2012, 76–78, 141–43, 185; for scaffold thrones, see Taube 1988).²⁶ The ruler’s mother standing in front of the throne is executed in moderate relief, the rounded contours of her body emerging at most a few centimeters above the surface of the stone as she looks up at her son. Nearly life-sized, she models the pose and action of prospective viewers (Herring 2005, 194, 197–200).²⁷ By contrast, Ruler 5, seated in the niche above, is rendered almost fully in three dimensions, his forearms entirely detached from the support behind. (The ruler’s left forearm was damaged—a casualty of the vulnerability of such three-dimensional carving—but is now reconstructed.) The feathers of his headdress wrap around the inner corners of the niche, straining against the confines of representation. In such instances it is important to remember that in stone sculpture, relief is a subtractive process: although Ruler 4 reads as more real and thus more immediate, his immediacy is the result of deeper excavation into the stone’s surface, and

²⁵ For accounts of how Maya painting likewise inverts Western spatial conventions, see Coe 2005 and Just 2017.

²⁶ Ruler 5 took the throne in 758 CE, but, as Stephen Houston and Megan O’Neil have argued, most Piedras Negras rulers dedicated their accession monuments not on the date of their accession but on the next period-ending, in this case 9.16.10.0.0 in 761 CE (Houston n.d.; O’Neil 2005, 223 n. 57; 2012, 141).

²⁷ To the right of the throne, in the very damaged lower section, a sacrificial victim may be splayed over a vessel, perpendicular to the surface of the stela, with his head, facing upside down, frontal to the viewer (Clancy 2009, 138; O’Neil 2012, 15; Stone 1989, 155). This figure is dramatically foreshortened and rendered in low relief.

it is the royal woman standing in front who is closest to the viewer and the highest point on the surface of the stela.

This same strategy is used even in more complex compositions, stratifying the multitude of figures on Piedras Negras Stela 12, dedicated by Ruler 7 around 795 CE (fig. 1.13; Clancy 2009, 162–67; Herring 2005, 196–99; Martin and Grube 2008, 152–53; Miller and Brittenham 2013, 106–7, 156–58, 166; Morley 1937–38, 3:262–71; O’Neil 2012, 84–87, 142–47; Stuart and Graham 2004, 60). Lightly incised lines suggest that the location of this tableau is the steps of a pyramid, a frequent place for the display of captives taken in battle (Miller and Brittenham 2013, 102–4; Miller and Houston 1987; for an alternative projection of the scene, see H. M. Herget’s illustration in Mason 1935, pl. 6). Each successive step is represented in deeper and deeper relief, as are the figures on it, so that as the represented pyramid recedes from the viewer, the figures become more solid and three-dimensional. The lowest stair is incised and serves as a ground line beneath the bottom mass of prisoners, their overlapping bodies shown as a barely modulated plane. With the captives stacked two or three bodies deep, this space is in fact the deepest one represented on the stela, but it is carved in the shallowest relief. The *sajals*, or “provincial governors,” who present their captives stand on an intermediate step. (Parrot Chahk, also represented on Panel 3, is on the left.) The next step, sloping slightly downward, supports a captive looking up at the king, while a drape of fabric in a damaged portion to the captive’s right hints at the presence of another step. The king’s outstretched foot likely rests on yet another step, perhaps slanting gently upward along a fissure where the stela was broken. The king himself is seated on the deepest and highest step—literally the apex of the social pyramid. He is also represented as the most massive, solid, and three-dimensional figure in the entire composition, his left leg radically foreshortened to give a sense of depth and his left shoulder almost completely detached from the stone support.

In the sculpture of Piedras Negras, this system of deeper and more distant relief has the felicitous effect of replicating social hierarchies: the king is the figure farthest from the viewer but also the one given the most emphasis through his nearly three-dimensional carving. Hierarchies of height—and in the case of Piedras Negras Stela 14, gender—also enter into the mix, as the ruler is invariably the highest figure in the composition and, from a distance, the most legible figure on the entire carving. The king seems more real than his attendants; while they interact with one another in the depicted space, only the king’s body seems to use the viewer’s space as a potential field for action.²⁸ By meeting the king’s depicted gaze, viewers are transformed into supplicants.

The same dynamics are present on Panel 3. Again, setbacks structure a space where height is hierarchy. The courtiers sit on a ground line that serves as the lower frame of the scene, so their names, incised on the surface below them, are actually the carvings closest to the viewer. The courtiers’ legs are rendered in relatively low relief, though their heads and torsos spring into higher relief as space opens behind them. Yet they sit outside the inner space of power, both literally and figuratively—as Flora Clancy has observed, if the curtains hanging in the upper corners of the panel were to drop, this outer row of lords would be cut off from the throne room within (Clancy 2009, 157, 160). (So, too, would the

²⁸ I am grateful to Richard Neer (personal communication) for this observation; see also Hopkins 2003.

Initial Series text, which provides a frame for the scene, as it also lies outside the space delimited by gathered curtains and deep pillars, on the same plane as the courtiers.) The throne room is also further separated from the outside space by a step of considerable height that rises to mid-chest on the bodies of the seated courtiers. This second step is also physically deeper, allowing the figures standing on it to be represented in greater depth and variety of poses, their bodies emerging more forcefully into three dimensions. When complete, these figures would have cast dramatic shadows on the back wall of the panel and perhaps even obscured some of the texts providing their names. The king is again the most three-dimensional figure. Before they were destroyed, his head and arms were sculpted almost completely in the round; his left arm reached across his body in a dynamic gesture, but all that now remains is his left hand, grasping the throne. His right arm, fully detached from the sculpted background, likely bent at the elbow to grasp a staff or spear or perhaps simply to gesture (Herring 2005, 156). From a distance, the king is the most legible figure on the entire panel.

There is thus a double hierarchy of relief carving on Panel 3. Seated on his throne in the back of the fictive space, the king is the most distant from the viewer but also the figure carved in the deepest relief. His attendants grow shallower (in both carving and undoubtedly achievements) as they cluster near the surface of the sculpture, where they form a barrier between the king and inquisitive hands or eyes. At the same time, the deepest and most visible text is the most public one: the Initial Series and the narration of historical events culminating in the dedication of the monument. Smaller and smaller texts give access to increasingly privileged information, requiring closer access that replicates the spatial spheres of knowledge and access at the royal court. While the names of the courtiers and sculptors are inscribed at middling size, the king's first-person speech, incised on the rear wall, can barely be seen. The king is the most visible figure, while his speech is the least visible inscription. And perhaps this is exactly as it should be: the king's body is dazzling, radiating with solar heat, a wonder to be seen and admired (Houston and Cummins 2004, 365, 385), but his speech is a more precious and measured commodity, accessible to only a privileged few.

One must approach the monument closely to read the incised dialogue between the king and the noble youths, just as in life one would have had to be very close indeed to the throne to hear this diplomatic conversation. In other words, hearing the king's speech requires the same kind of privileged physical proximity to the king that reading the record of that speech requires to the stone monument. Here we are reminded, as David Stuart and Stephen Houston have long argued, that images in the ancient Maya world were more than inert representations: they were agentive embodiments of the figures represented on them (Houston and Stuart 1996, 1998; Stuart 1996; Houston, Stuart, and Taube 2006, 57–101). If the sculpture of the king shares in his essence, then it is no coincidence that it should replicate the dynamics of royal presence.

In this light, it seems appropriate that this royal speech is, along with the king's body, one of the most vehement targets of iconoclasm in the entire monument (fig. 1.16). The heads of all the figures in the scene have been systematically removed or at least effaced, many of them rendered vulnerable by how fully in the round they were carved, sometimes entirely detached from the background. The seated ruler was the target of special fury, his head, headdress, and arms almost completely demolished. But the blow that shattered

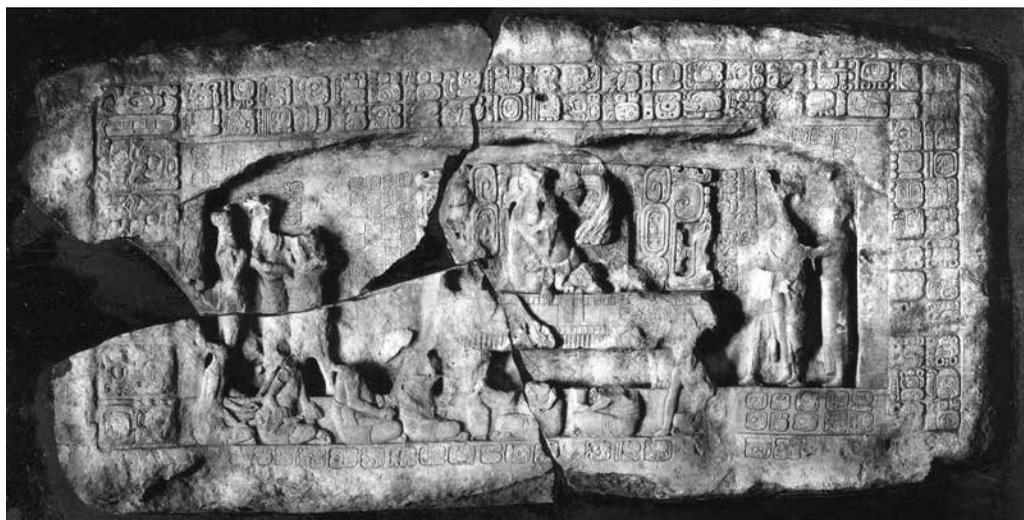


Figure 1.16. Piedras Negras Panel 3 before reconstruction.
 Courtesy of Penn Museum, image no. 175912.

the panel into four main pieces fell to the left of the ruler, at the base of the text in which he outlined a history of Yaxchilan's subordination to Piedras Negras. If the sculpture was indeed destroyed during Yaxchilan's 808 CE attack on Piedras Negras, when warriors captured Ruler 7 (Herring 2005, 156; Houston et al. 1999, 14; 2001, 70–77; Martin and Grube 2008, 153; O'Neil 2012, 180–82; 2013, 56–57; Stuart 1998b), then it seems especially appropriate that Ruler 4's alternative history of polity relations was one of the sites of most violent attack.²⁹ But it was also the thinnest part of the panel, so the sheer pragmatism of a destructive fury may be sufficient to explain the result, without needing to posit a literate iconoclast. As Megan O'Neil has discussed, many of Ruler 7's other commissions, including Stela 12, Stela 15, and his throne, were also explicit targets of this campaign of iconoclasm, deliberate in its intent to destroy even difficult-to-access monuments associated with this ruler (O'Neil 2012, 180–82). The pieces of Panel 3 fell facedown onto the upper terrace of Structure O-13, where they remained until their excavation by J. Alden Mason and the University of Pennsylvania expedition in 1931 (Mason 1935, 548).

3. CONCLUSION

In counterpoint to the ways in which figures are presented, the four genres of text on Piedras Negras Panel 3 instantiate—and perhaps also contest—the hierarchies of the court. The largest and highest-relief text, which is also the most visually elaborated, chronicles royal activities spanning generations and culminating in the dedication of the monument itself. In this text, extra weight is given to the opening date, rendered at double size in an

²⁹ Recall that the Yaxchilan royal youth pictured here never took the throne at that site; the mid-eighth century was a troubled period in Yaxchilan politics (Martin and Grube 2008, 127), and it may well be that the youth pictured here was considered a traitor and not treated with the reverence that an image of a Yaxchilan prince might usually command from his subjects. See n. 7 for further discussion of Yaxchilan politics.

elevated head-variant script that sets it apart from the rest of the text and demands an especially literate viewer. Next in size are two kinds of names: the captions naming the courtiers, and a statement naming the sculptors who created the monument. While the courtiers are pictured and the sculptors are not, the visual elaboration of the sunken relief script of the artists' signatures and their physical proximity to the king suggest a claim to scribal importance, a jockeying for power and representation. Finally, in the smallest and most lightly incised characters come the diplomatic speech of kings and princes and the devotion of a single attendant. The most privileged information—royal speech—is the most difficult to access visually; at the same time, the body of the king is most visible and deeply carved. Text and image thus enact inverse hierarchies of visibility demanding different kinds of looking on the part of the reader and the viewer.

Of course, Panel 3 may not have been easy for many to see in its original location. Exactly where the panel was placed is unclear, but it seems to have been on one of the upper platforms or on the superstructure of Pyramid O-13, raised far off the ground. Not everyone would have had the right to ascend the pyramid to look closely at the sculpture. All that would have been visible from the plaza (if the sculpture was indeed visible from the plaza and not placed in the interior of the structure) would have been the general outlines of the king and his court. The panel is a monument about elites, addressed to elites.

It is also important to recall that text on many Maya monuments may have been read aloud (Houston 1994, 30). In a world with limited literacy, the power of writing was amplified by its public performance, which might reach audiences unable to see—or read—the texts up close. Who had the right to approach and read aloud would still have mattered tremendously. Exactly how the public performance of text would work on a monument such as Panel 3, however, remains unclear. Some of the genres of text, such as the declarative record of celebrations and observances in the Initial Series text, could be read aloud without modification, though the bare-bones narrative of events might also be elaborated with further details of the events described. (Such embellishment might fall under the umbrella of what Stephen Houston terms “recitation literacy”; see Houston 1994, 30; Houston and Stuart 1992, 590–91). The captions beneath the seated figures, however, demand a different manner of reading. As a disjoint list of names, they could not be read as a single complete utterance, though they could prompt a kind of improvisational performance incorporating the names of the attendant lords into a larger narrative.³⁰ The direct speech incised on the rear wall would demand yet another kind of improvisational performance, either with multiple parties taking on the roles represented in the dialogue or with a single reader enacting multiple voices. In both cases, someone would have to dare to voice the speech of the king—or perhaps Ruler 7 would embody his own predecessor by reading his words aloud (see O'Neil 2005, 215–16). The small size of the monument meant that any reading would require closely approaching the panel. But even within that range, different texts would demand different kinds of positioning. The large Initial Series text could be read from a decorous, if minimal, distance, but reading the king's speech on the rear wall would require a dangerously intimate approach.

30 While the names of the sculptors could be read in a single utterance (it is a grammatically complete, if repetitive statement), doing so would pull the audience out of the time of Ruler 4's court, for all these sculptors were active during Ruler 7's reign.

In sum, different genres of text required different bodily engagement with the sculpted monument. Reading monumental texts at Piedras Negras consistently demanded an embodied response: Megan O’Neil has demonstrated that reading the inscriptions on many Piedras Negras stelae required their circumambulation in a counterclockwise direction, a ritually charged movement that may have activated and enlivened the words carved upon them (O’Neil 2012, 63–104, 183–87). In the case of Panel 3, the manner of engagement is more subtle—a matter of leaning perilously close or stepping slightly away; but even these subtle movements recreated and enacted hierarchies of the court. As we work to decipher and analyze texts, we should remain attentive to the ways in which writing can be seen, as well as heard.

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2 The Iconicity of the Vertical: Hieroglyphic Encoding and the *Akhet* in Royal Burial Chambers of Egypt's New Kingdom

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1. PRELIMINARY THOUGHTS ON NARRATIVE ART AND ARCHITECTURE AS PARATEXT

The well-known unity of art and writing in ancient Egypt permits one to “read” Egyptian narrative art as a kind of paratext¹ in which hieroglyphic elements writ large, as figural images, aid in the interpretation of the texts that annotate them, and vice versa.² In keeping with the conference theme of composition and iconicity as nonlinguistic yet still communicative aspects of early writing systems, this chapter will examine techniques for encoding one particularly iconic hieroglyph, , as a paratextual template that guided both the architectural and decorative layout of certain royal burial chambers during Egypt's New Kingdom.³ This discussion will focus on a group of cosmological Egyptian scenes,

1 Paratext, properly speaking, constitutes “titles and other bracketing information which culturally situates the text with which it is concerned,” for which statement see Hays 2012, 3–4 and n. 16, with additional references, noting the occurrence of paratextual spell titles, ritual instructions, et cetera, from the Middle Kingdom and later (see, e.g., the *Amduat* “operating instructions” at table 2.1 in the present chapter). In a seminal study, Genette (1997, 2) offers an insightful description of the phenomenon as “*threshold* . . . between the inside and the outside, a zone without any hard and fast boundary on either the inward side (turned toward the text) or the outward side (turned toward the world's discourse about the text),” which is “always the conveyor of a commentary that . . . constitutes a zone between text and off-text . . . at the service of a better reception for the text and a more pertinent reading of it.” This emphasis on paratext as framing device and liminal zone between text proper and those with whom it was intended to communicate is of particular importance in the case of the Egyptian material under consideration, which is concerned equally with iconography, architecture, and text as interdependent phenomena in the context of New Kingdom burial chambers.

2 For the unity of art and writing, see generally Fischer 1986; for the use of hieroglyphs as iconic elements in figural art, see generally Wilkinson 1992. Also note the use of iconic hieroglyphs within actual texts as miniature vignettes set upon the ground line of the inscription itself, attested already from the Old Kingdom (see Collombert 2016). For a particularly elaborate example from the New Kingdom, compare the cryptographic titulary of Sety I at Abydos, composed entirely of iconic microvignettes of royal and divine power, which function as hieroglyphic ciphers for the various elements of the king's name (Roberson 2013, 112–17).

3 The present chapter expands themes that I have treated previously in Roberson 2008, 2012.

the iconography and underlying symbolism of which may be described broadly as relating to the solar horizon, which the Egyptians termed $\frac{\text{☉}}{\text{☐}}$, *3h.t* (*akhet*). After a brief overview of the broader cosmological genre in which these scenes appear, I will discuss how heraldic symmetry, horizontality, and verticality were employed to draw focus to important moments of transition during the sun’s mythological voyage through the divine world. These scenes of transition functioned as integral elements in what may be termed a “hyperlogogram,” which I define here as a unified architectural-decorative program, within which the walls and ceiling were intended to be read in cyclical fashion—west to east, and east to west, according to the internal directionality of the monument—as an elaborate, three-dimensional expression of the *akhet*-hieroglyph. The development of hyperlogographic burial chambers during Egypt’s Ramesside period (Dynasties 19–20, c. 1292–1077 BCE) represented a new strategy for punctuating and orienting the resurrection narratives of the royal burial chambers in which they appeared through emphasis of the underlying *akhet*-concept and the cyclical rejuvenation of the sun that it implied.

2. OVERVIEW OF THE COSMOLOGICAL CORPUS AND RELATIONSHIP TO THE BOOKS OF THE DEAD

The various cosmological Books of the Underworld and Sky represent the zenith of ancient Egyptian speculation on the structure and function of the divine world, conceived broadly as a region of visible “sky” (*p.t*) and a corresponding, hidden region described variously as an inner sky, nether sky, or underworld, which the Egyptians called the *duat* (*dw3.t*) (see Allen 1988, 1–7; Zago 2019, 2022).⁴ As a realm that was generally inaccessible to living beings, the divine world also represented, from the human perspective, the world of the afterlife. The cosmological books, which describe and define these regions of the hereafter, survive primarily, though not exclusively, in royal tombs from Egypt’s New Kingdom (Dynasties 18–20, c. 1529–1077 BCE).⁵ In such mortuary contexts, they were employed to ensure a successful transition through the afterlife. As such, they occur in parallel to, and often in conjunction with, another major genre of New Kingdom mortuary literature, the so-called Books of the Dead.⁶

The most striking feature of the cosmological books—one that sets them quite apart from contemporary as well as earlier magical-funerary corpora, such as the Book of the

4 The present discussion concerns primarily the expression of these terms in New Kingdom cosmological books. However, the precise significance and meaning of these and other Egyptian cosmological terms changed over time. For a thorough, diachronic investigation of texts relating to the Egyptian *duat*, sky, and related cosmological regions from the Old Kingdom (Pyramid Texts) through the end of the New Kingdom, including comprehensive overviews of prior academic literature, see Zago 2022.

5 For an overview of the ancient genre and the increasingly vast body of academic literature surrounding it, see Darnell and Darnell 2018, 1–60; Roberson 2016; and Hornung 1999. For a collection of English translations, including most of the New Kingdom books that relate primarily to the underworld, see Darnell and Darnell 2018; the latter authors have also announced their intention to collect translations of those books that relate primarily to the sky (Darnell and Darnell 2018, 60 n. 91), but that work has not appeared at the time of this writing. For the post–New Kingdom history of the cosmological books, see Manassa 2007; Roberson 2013, 136–40; 2012, 461–62; von Lieven 2007; Niwinski 1989; Sadek 1985.

6 For sources, German translations, vignettes, and more, see Bonn Totenbuch-Projekt 2017; for English translations, see, for example, Quirke 2013.

Dead—is their emphasis on narrative iconography, which was expressed through the almost obligatory use of illustrations depicting the sun god’s passage through sequential regions of the underworld and sky, from day to night and back again (Hornung 1999, 26–27, 114–17).⁷ That said, Book of the Dead spells were also often illustrated.⁸ However, those illustrations always take the form of so-called “vignettes,” or isolated snapshots “summarizing the intent or the content of a spell in concise pictorial form” (Hornung 1999, 14),⁹ which lack the sequential, visual narrative found in most cosmological books (Hornung 1999, 26).¹⁰

3. ENCODING MULTIDIMENSIONALITY IN THE REGISTER SYSTEM OF THE *AMDUAT*

The visual narrative of the solar journey in all the cosmological books was oriented primarily along a horizontal plane. The eye follows instinctively this horizontal progression through observation of the directionality of the figures, which appear to process from one side of a given register to the other and, more generally, from the beginning of the composition to its end. However, this horizontality, which appears at first glance to be a simple, linear progression from left to right (or vice versa), probably always encoded more complex, four-dimensional models of space-time in the divine world.

Egyptian figural art did not employ illusionistic techniques, such as shadow and perspective; rather, the artists preferred figures and scenes in which multiple views of a three-dimensional object or area were assembled into a composite, two-dimensional image, with no attempt to trick the eye into thinking that image and observer occupied the same space (Schäfer 1986, 259–76, 335–46). Features such as volume, depth, and relative position must be inferred on the basis of rules and techniques that governed the creation of

7 But compare also the so-called “short version” of the *Amduat*, which lacks illustrations and presents also an abridged version of its various texts (see Hornung 1967); the composition known as the Book of the Heavenly Cow, which includes only a single cosmographic representation of the sky goddess and her attendants (Hornung 1982); and the Litany of the Sun, which was illustrated with individual deities corresponding to the various *hpr:w*-“manifestations” of the sun god (Hornung 1975–76). Scholars usually group the latter two compositions as a separate, but closely related, genre from the Underworld Books proper (thus Hornung 1999, 136–52: “special compositions”; Roberson 2016, 319–21: “etiological compositions,” including also the so-called Book of Nut).

8 Note that illustrations occur only rarely in Book of the Dead spells prior to the Ramesside period (Hornung 1999, 14–15).

9 See generally Munro 2017; for the occasional disjunction between Book of the Dead “vignettes” and their accompanying texts, see Lucarelli 2004.

10 Exceptions to this general rule may be observed in the cosmological Books of the Earth, attested from the Nineteenth Dynasty and later (after c. 1290 BCE), which describe various locales from the nocturnal solar journey but lack a well-defined, internal narrative connecting the individual episodes. Their illustrations assume, therefore, the character of discrete vignettes similar to those employed in Books of the Dead (Roberson 2012, 12, 130). Significantly, it is the external narrative of the burial chamber’s unified, architectural-decorative programs that provide orientation to the Book of the Earth scenes (§§8–10 below). Regarding the use of the term “vignette” in the context of the Book of the Earth, note also a critique by Werning (2014, 98), who unfortunately misrepresents the word’s use in Roberson 2012 as referring to their “primary” versus “secondary” status relative to the accompanying texts rather than the discrete nature of the individual images and their lack of interconnected narrative.

these composite images. One such technique, attested in many of the cosmological books, is the vertical stacking of horizontal registers, most often three in number.¹¹

In the earliest of the New Kingdom cosmographic books, the *Amduat*, this tripartite register system appears to reflect thematic considerations. Thus the upper register includes phenomena relating to the underworld generally, while the lower register includes details specific to the particular hour of the night/region of the underworld. The middle register depicts, both literally and figuratively, the hour's "central" theme (Hornung 1999, 32). However, we should not conclude, on the basis of these thematic divisions, that the registers of the *Amduat* necessarily depict three discrete zones, layers, or strata in the underworld.¹² Significant in this regard is the fact that the *Amduat*'s middle register was reserved in all cases for images of the solar boat. Accompanying texts refer repeatedly to the sun god's navigation along a chthonic waterway or portage over stretches of sandy desert while passing various fields and other locales inhabited by gods and the blessed dead.¹³ Thus one might reasonably interpret the lower and upper registers, in most cases, as the near and far sides, respectively,¹⁴ of the solar boat's path through the middle register (fig. 2.1).

This interpretation is supported by texts in which the *Amduat* describes the sun god as speaking to and interacting with—rather than being separate from—the figures in the upper and lower registers, whom he passes on his journey through the middle register. For example, an annotation to the upper register of the second hour explains: *Jw=sn dw3=sn ntr pn 3 m-ht spr=f r=sn. Jn hrw=sn sšm sw r=sn*, "They adore this Great God [i.e., the sun god], after he reaches them. It is their voice that guides him toward them" (*Amd*, 183).¹⁵

11 Note that some later cosmological books might include as few as two registers (e.g., the Book of the Earth from the tomb of Ramesses VII) or as many as five (e.g., the Book of the Day; Book of the Earth from the tomb of Ramesses VI). Earlier books also include exceptions to the tripartite system—for example, the first hours of the *Amduat* and Book of Gates, each of which includes four registers, or the judgment scene from the Book of Gates, inserted as a single, large register between that composition's fifth and sixth hours.

12 Note that some examples of registers as discrete zones may be observed, for instance, in the fourth hour of the *Amduat* where the zigzagging *w3.wt š3.wt n.t R3-sšw*, "secret paths of Rosetjau" (*Amd*, 347, 350) cut a diagonal course that descends through the three registers, leading to the burial site of Osiris (*Amd*, 352–53), followed by the *w3.t š3.t n.t t3 Skr*, "secret path of the land of Sokar" (*Amd*, 436), which was concealed within an earthen pyramid in the bottom register of the fifth hour. Such discrete locales might be described as "unseen" (*jw3 m33=f*; *Amd*, 344) by the sun god, who "cannot pass" (*nj 3 p.n=f*) the gods within, though he can still hear their voices call out to him (*Amd*, 351).

13 The introduction to the *Amduat* offers a concise explanation of these relationships: *rh sb3.w w3.wt 3pp.t ntr 3 hr=sn rh šm.wt wnw.wt ntr:w=sn rh w3šy.w htmy.w*, "Knowledge of the gates and pathways, upon which the Great God [i.e., the sun] passes. Knowledge of the journeys of the hours and their gods. Knowledge of the Ones Who Flourish [i.e., blessed dead] and of Those Who Are Annihilated [i.e., the damned]" (*Amd*, 106). Elsewhere—for example, in an annotation to the *Amduat*'s sixth hour—the middle register might be described explicitly as *w3.t n.t wj3 n R'*, the "path of the barque of Re [i.e., the sun]" (*Amd*, 494).

14 In Egyptian iconography, vertically stacked figures often represent parallel rows, with figures closest to the viewer at the bottom and figures farthest from the viewer at the top (see Schäfer 1986, 166–67, 189–205, 218–24). For representations of water surfaces and boats, and their relationship to the shore, also see Schäfer (1986, 238–39), who notes that "If there are objects such as ships on top of a straight stretch of water it is only possible to deduce from the objects themselves whether they are on the water or the banks." To Schäfer's "objects themselves" we should add any texts that annotate and explain the images and their relationships to one another, as well the scene as a whole.

15 Similar interactions between the sun god, in the middle register, and the deities in the upper and lower registers occur throughout the *Amduat*: for example, *Amd*, 140 (first hour, lower register, gods greeting

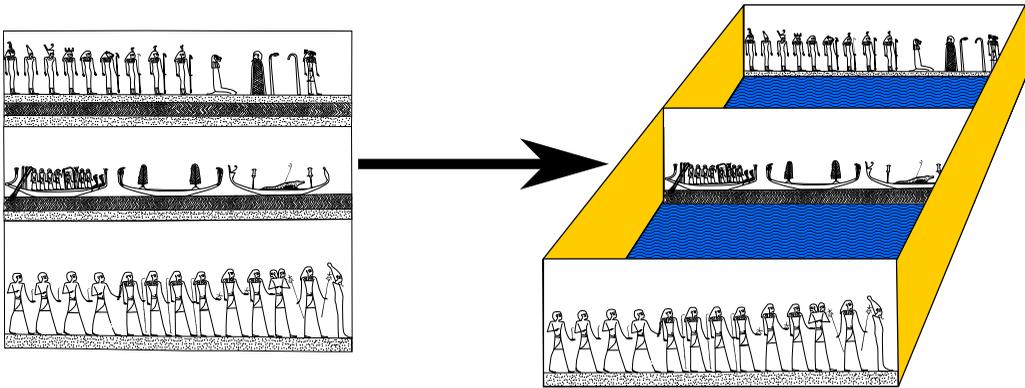


Figure 2.1. Left: *Amduat*, second hour (excerpt), illustrating the tripartite register system. Right: Schematic diagram of tripartite register system as the course of the sun (middle register), flanked by the near (bottom register) and far (top register) shores of the sun's path. Image © 2017 J. A. Roberson.

In addition, we may cite numerous textual references to *jdb(.w)* and/or *npr:(w)t*, “river-bank(s)” or “shore(s),” that occur in all three registers and so indicate that the water/shore dichotomy was not limited to the middle register alone. Thus, for example, we encounter *s3w jdb.w*, the “guardian of the shores,” in the upper register of the fifth hour (*Amd*, 403, no. 340); a description of the god Thoth from the middle register of the sixth hour as *smn jdb.w n nn n ntr:w njw.t tn m dw3.t*, “one who makes firm the shores, on behalf of these gods of this locality in the underworld” (*Amd*, 489); a description of a crocodile that lies in wait *hr jdb n s3(y)*, “upon the sandy shore,” in the bottom register of the seventh hour (*Amd*, 578); and a general description of the gods in the third hour as *npr:tjw*, “shore-dwellers” (*Amd*, 270). Therefore, when understood as a composite, “bird’s-eye view” of the sun’s course,¹⁶ the tripartite register system encodes not only length and height but also depth. These three dimensions were then united by the passage of time, as measured implicitly through the transit of the sun god and explicitly through association of each chthonic locale with a specific *wnw.t*, or “hour.”¹⁷

4. THE SPIRAL STRUCTURE OF THE UNDERWORLD AS DESCRIBED IN THE *AMDUAT*

Viewed solely on the basis of iconography, the *Amduat* appears to depict a simple, linear progression from the first hour of the night, at sunset, through the twelfth hour, at sunrise.

the sun god’s arrival with music); *Amd*, 279–80 (third hour, upper register, speaking to and adoring the arriving sun god); and *Amd*, 465 (sixth hour, upper register, sun god speaks to the gods of the field).

16 Note that such “bird’s-eye views,” in which the register line corresponds to the literal ground on which figures stand, appears to be an innovation of post-Old Kingdom art, as discussed in Schäfer 1986, 193–95.

17 Cosmological books that feature a regular division into twelve hours include the *Amduat*, Book of Gates, Book of the Night, and Book of the Day; other cosmological books might mention the hours, their creation, and their destruction but do not partition or otherwise organize the compositions themselves according to an hourly system. For the creation and destruction of the hours, see Manassa 2007, 1:56–66; Roberson 2012, 179–91.

However, the textual annotations reveal a more complicated system at work. The introductory texts to each hour, as well as the introductory text to the book as a whole, dictate specific cardinal directions where the events of the hour were supposed to take place and/or where the relevant images were to be inscribed (table 2.1). These “operating instructions,” so to speak, do not describe a linear course around the walls of the burial chamber but instead skip from west to south to north to east (fig. 2.2).

Already by the 1970s, Winfried Barta recognized that the nonlinear sequence of hours, if followed around the perimeter of the burial chamber, appears to suggest a spiral shape (Barta 1969–70, 167–68; 1974, 197). In fact, the shape the *Amduat*’s instructions imply is even more complex.

Thus the book begins with the setting sun’s entry into *ʿrry.t jmn.tt n.t 3h.t*, the “western gate of the horizon” (first hour; *Amd*, 110); reaches its midpoint at *md.t*, the “abyss” or “deepest point” of the underworld (sixth hour; *Amd*, 456); and ends with the rising sun’s elevation from *3h.t j3b.tt n.t p.t*, the “eastern horizon of the sky” (twelfth hour; *Amd*, 819). These facts demand that we view the underworld in vertical terms of descent and ascent in addition to horizontal terms involved in spiraling around the cardinal directions, thus suggesting a shape similar to the illustration in figure 2.3.

One of Barta’s most important insights with regard to the layout of the *Amduat* was his recognition that the instructions for the placement of its texts seem to have influenced the ovoid shape of the burial chamber of Thutmose III (early Dynasty 18, c. 1479–1425 BCE). That monument includes the earliest, completely preserved *Amduat* and is the only (preserved) royal exemplar executed strictly according to the book’s prescribed, nonlinear sequence of hours. In that ideal sequence, the first hour (east wall) and twelfth hour (west wall) begin and end, respectively, from the same point, namely, their juncture with the south wall.¹⁸ The union of beginning and end and the merging of cardinal directions—in particular, east and west—was employed as a standard trope in New Kingdom religious iconography, which was intended to evoke the solar journey as a perpetual cycle (Hornung 1981a, 220–21; 1981b, 192, 196). In the tomb of Thutmose III, this blending of directions was emphasized further by

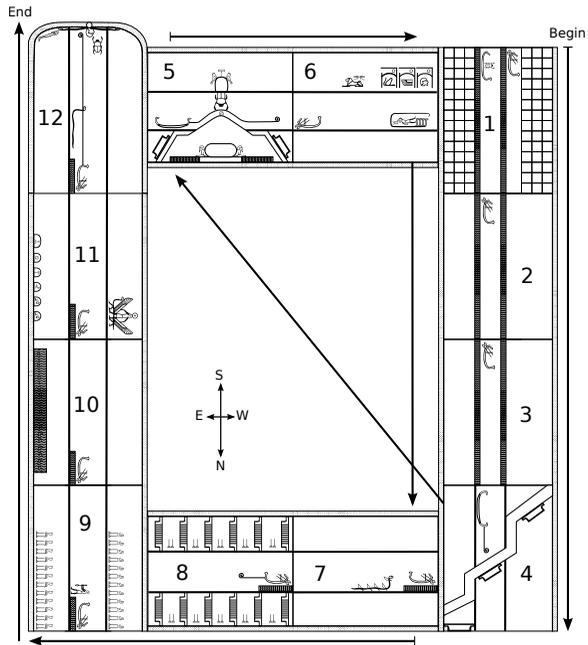


Figure 2.2. Schematic diagram illustrating ideal spatial organization of the hours in the *Amduat*, by cardinal direction. Arrows indicate the direction of the solar barque’s travel. Image © 2017 J. A. Roberson.

¹⁸ For detailed discussion of the relationship between the individual hours of the *Amduat* in the tomb of Thutmose III, the walls on which the hours appear, and their connections to another cosmological text, the Litany of the Sun, painted on the pillars in the center of the burial chamber, see Richter 2008, 78–92.

Table 2.1. Internal instructions for ideal spatial organization of the hours in the *Amduat*, by cardinal direction.

Hour	Instruction
(intro.)	<i>ḥ3.t wp jmn.t</i> , “The beginning is the foremost tip (lit. ‘horn’) of the west” (<i>Amd</i> , 101–2).
1	<i>ḥ3.t ntr pn m ḥrry.t jmn.tt n.t 3ḥ.t</i> , “This god enters through the western gateway of the akhet/horizon ” (<i>Amd</i> , 110).
2	<i>jw jr.tw nn sšm.w n B3.w dw3.tjw m sš mj qd pn m jmn.t n.t dw3.t ḥ3.t sš r jmn.tjw</i> , “These images of chthonic <i>ba</i> -souls are fashioned in writing, according to this template [lit. ‘form’], in the secrecy of the underworld (\approx tomb): The beginning of writing with respect to the western areas ” (<i>Amd</i> , 180–81).
3	<i>jw jr.tw nn n sšm.w n b3.w šṭ3.w mj qd pn ntj m sš m jmn.t n.t dw3.t ḥ3.t sš r jmn.tjw</i> , “These images of mysterious <i>ba</i> -souls are fashioned according to this template, which is written in the secrecy of the underworld: The beginning of writing with respect to the western areas ” (<i>Amd</i> , 275–77).
4	<i>jw jr.tw sšm pn nty m sš m jmn.t n.t dw3.t ḥr jmn.t ḥ.t jmn.t</i> , “This image, which is inscribed in the concealment of the underworld, is fashioned on the west of the hidden chamber (\approx burial chamber)” (<i>Amd</i> , 348–49).
5	<i>jw jr.tw nn mj sšm pn nty m sš m jmn.t n.t dw3.t ḥr rs ḥ.t jmn.t</i> , “This is fashioned according to that image, which is inscribed in the concealment of the underworld, on the south of the hidden chamber ” (<i>Amd</i> , 391).
6	<i>jw jr.tw sšm pn m sš mj qd m jmn.t n.t dw3.t ḥr rs ḥ.t jmn.t</i> , “This image is fashioned according to this template, in the secrecy of the underworld, on the south of the hidden chamber ” (<i>Amd</i> , 463).
7	<i>jw jr.tw nn mj qd ḥr mh.t ḥ.t jmn.t m dw3.t</i> , “These are fashioned according to this template, on the north of the hidden chamber , in the underworld” (<i>Amd</i> , 529–30).
8	<i>jw jr.tw nn mj sšm pn ḥr mh.t ḥ.t jmn.t m dw3.t</i> , “These are fashioned according to this image, on the north of the hidden chamber , in the underworld” (<i>Amd</i> , 585).
9	<i>jw jr.tw nn m rn.w=sn mj sšm pn ntj m sš ḥr j3b.tt ḥ.t jmn.t n.t dw3.t</i> , “These are fashioned by means of their names according to this image, which is inscribed on the eastern side of the hidden chamber of the underworld” (<i>Amd</i> , 650–51).
10	<i>jw jr.tw nn mj sšm pn ntj m sš ḥr j3b.tjw ḥ.t jmn.t n.t dw3.t</i> , “These are fashioned according to this image, which is inscribed on the eastern parts of the hidden chamber of the underworld” (<i>Amd</i> , 701–2).
11	<i>jw jr.tw nn mj qd mj sšm pn ntj m sš ḥr j3b.tj ḥ.t jmn.t n.t dw3.t</i> , “These are fashioned according to this template and according to this image, which is inscribed on the eastern side of the hidden chamber of the underworld” (<i>Amd</i> , 748–49).
12	<i>jw jr.tw nn mj sšm pn ntj m sš ḥr j3b.tjw ḥ.t jmn.t m dw3.t</i> , “These are fashioned according to that image, which is inscribed on the eastern parts of the hidden chamber , in the underworld” (<i>Amd</i> , 798).

the room's smoothed or curving "corners," which effectively neutralize any hard-and-fast separation of one wall from the other. As Catharine Roehrig notes, the layout of the *Amduat* along the ovoid walls of the burial chamber "allows for a fluid interpretation of where one cardinal point ends and the next begins, and on one level the burial chamber quite literally becomes the 'hidden chamber of the netherworld,' in which the texts are to be found" (Roehrig 2006, 243–44). In other words, *the architecture of the burial chamber and its decorative program worked together to create a microcosm of the divine world such that the afterlife of the individual king was assimilated to the processes of solar regeneration and rebirth that were believed to sustain the created world* (see §§6–7 below).¹⁹

After the reign of Thutmose III, the spiral layout of the *Amduat* was abandoned in favor of a simplified, linear progression through the twelve hours of the night (Barta 1974; Richter 2008, 92–101). Some of the later cosmological books, including the Book of Gates (terminal Dynasty 18), Book of the Night (Dynasty 19), and Book of the Day (Dynasty 20), borrowed the *Amduat*'s basic division into twelve hours, but none of those later books included explicit instructions for the hours' placement, which default in each case to a simple, linear sequence. Already by the late Eighteenth Dynasty, in the reign of Tutankhamun (c. 1234–1224 BCE), the newly attested Book of the Solar-Osirian Unity ceased to employ a division by hours and instead depicted the divine world as two symmetrical halves. By the early Nineteenth Dynasty, from the reign of Sety I (c. 1290–1279 BCE), a parallel representation of the chthonic realm as a series of six caverns, divided again broadly into two symmetrical halves, came to be employed in the so-called Book of Caverns. From the same period, we observe also the earliest so-called Books of the Earth, diverse compilations and ad hoc arrangements of scenes and text, which nevertheless represent the divine realm consistently as two symmetrical halves. The introduction of these new cosmological books from the early Nineteenth Dynasty coincided also with major changes in the architecture of the royal burial chamber and the development of new decorative programs, to which we shall return below (§§8–10).

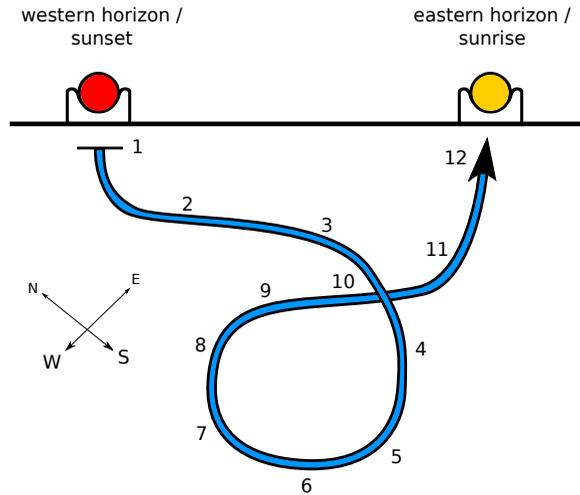


Figure 2.3. Schematic illustration approximating the path of solar descent and ascent through the twelve hours of the night, as described in the *Amduat* (south and west in foreground, north and east in background). Image © 2017 J. A. Roberson.

¹⁹ Note that the *Amduat*'s influence was not limited to the burial chamber or to the single, well-preserved exemplar of Thutmose III. The entire structure of virtually all Eighteenth Dynasty royal tombs, including the direction and shape of their major axes and descending corridors, the placement of their chambers and pillars, and the placement of the sarcophagus itself, appears to reflect the cosmic geography of the *Amduat*, thus creating a series of nested microcosms (see Richter 2008; Roberson 2008; 2012, 19–24; and additional discussion and summary at §7, and §10, below).

5. CONCLUDING REPRESENTATIONS, HERALDIC SYMMETRY, AND THE UNIFIED GOD RE-OSIRIS

Some of the most striking images employed in many of the cosmological books are the concluding representations, depicting the boundary between unobservable, nocturnal regions of the divine world and the observable, daytime sky, which two regions the sun god was believed to transit in a perpetual, twenty-four-hour cycle. Although the content of the concluding representations varies considerably from one book to another, their basic “shape” remains consistent: A symmetrical border, in the form of a great curve, toward which various figures converge on a terminal, central point, where the solar disc makes the transition from its nighttime sojourn in the underworld into the visible sky at dawn (Hornung 1981a; 1981b, 187–90) (figs. 2.4, 2.5; also figs. 2.7, right; 2.12, top left).

Building on an earlier analysis by Heinrich Schäfer, Erik Hornung demonstrated that, in addition to depictions of the final moment of the night as a punctuated event, the underworld books’ concluding representations served also as programmatic summaries of the entire solar journey (Hornung 1981a, 217). Hornung noted also that other iconic scenes from the cosmological corpus, as well as the Book of the Dead, seem to have served similar programmatic functions (Hornung 1981a, 220; 1981b, 190). In those other scenes, we find always a heraldic arrangement of figures consisting of a symmetrical pair (or multiple pairs) of arms flanking a solar disc or the solar barque and accompanied frequently by one or more symbols of the god of the dead, Osiris. In all cases, the arms may be understood simultaneously as receiving the setting sun in the west and elevating the rejuvenated sun in the east (Hornung 1981a, 223). The daily maintenance and integrity of the cosmos, expressed in Egyptian terms as *Ma’at* (a sort of divine blueprint for the created world), was believed to hinge on these events. It was, for instance, at the moment of sunrise when the enemies of creation were incinerated and ultimately nullified by the fires of the rising sun. This fiery annihilation event was depicted occasionally, in certain highly iconic images, as the unified super-god, Re-Osiris, whose gigantic body spans the cosmos itself, with his head in the upper regions of the sky and his feet in the depths of the underworld (Darnell 2004, 374–424).²⁰ Already by the Middle Kingdom (Coffin Texts), the Egyptians had equated Re and Osiris as the *ba*-soul and corpse, respectively, of a single divine being, whose physical and spiritual components would unite when the sun reached Osiris at the midpoint of the nocturnal journey in the deepest reaches of the underworld (Bickel 1998, 48–53). During the New Kingdom, the union of the solar *ba* and Osirian corpse was construed, on the one hand, as a punctuated event resulting in the temporary consolidation of the two gods, after which Re would continue on his travels and Osiris would return to his inert or slumbering status (Hornung 1981a, 226). On the other hand, the union of Re and Osiris was expressed also as an “omnipresent, universal deity” (Darnell 2004, 374) who functioned something like an *axis mundi* for the cosmos, which he both created and sustained (see Darnell 2004, 423–24). In this dual capacity—as a punctuated, nightly *event* and as a universal *deity*—images associated with the union of Re and Osiris appear frequently

²⁰ For additional discussion of the unified Re-Osiris, his iconography, and meaning, see Niwinski 1987–88; Onstine 1995; Morenz 2006; Manassa 2007, 1:386–87 and s.v. Deities index, 531, entries for *Db3-dmd*; Roberson 2012, 30–31 and s.v. General index, 588, entries for “Re-Osiris.”

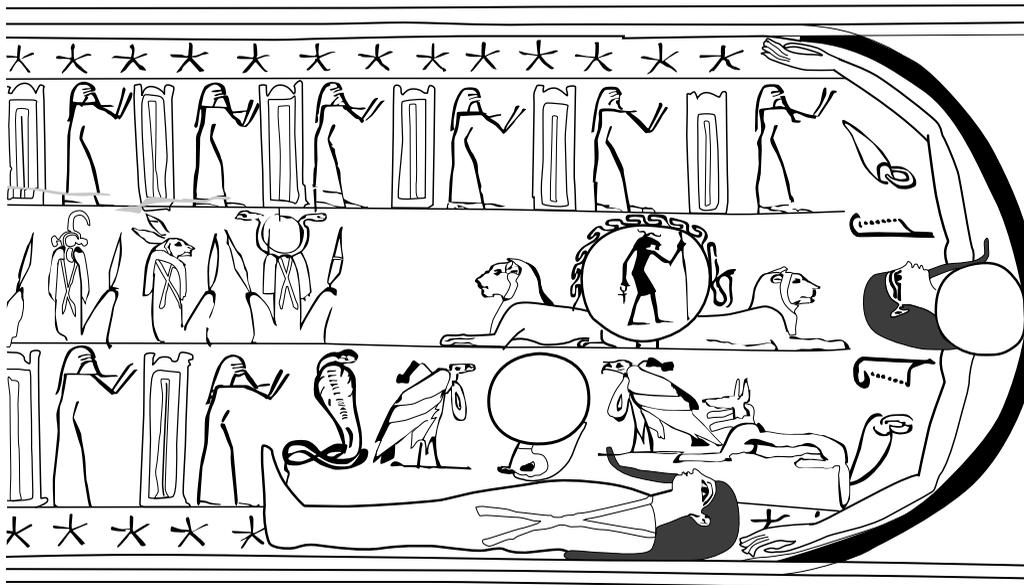


Figure 2.4. Concluding representation from the funerary papyrus of Gautsushen, Dynasty 21, c. 1000–945 BCE, including elements from the *Amduat* and Book of the Earth. Metropolitan Museum of Art acc. no. 25.3.31. Image after Roberson 2012, pl. 38a.

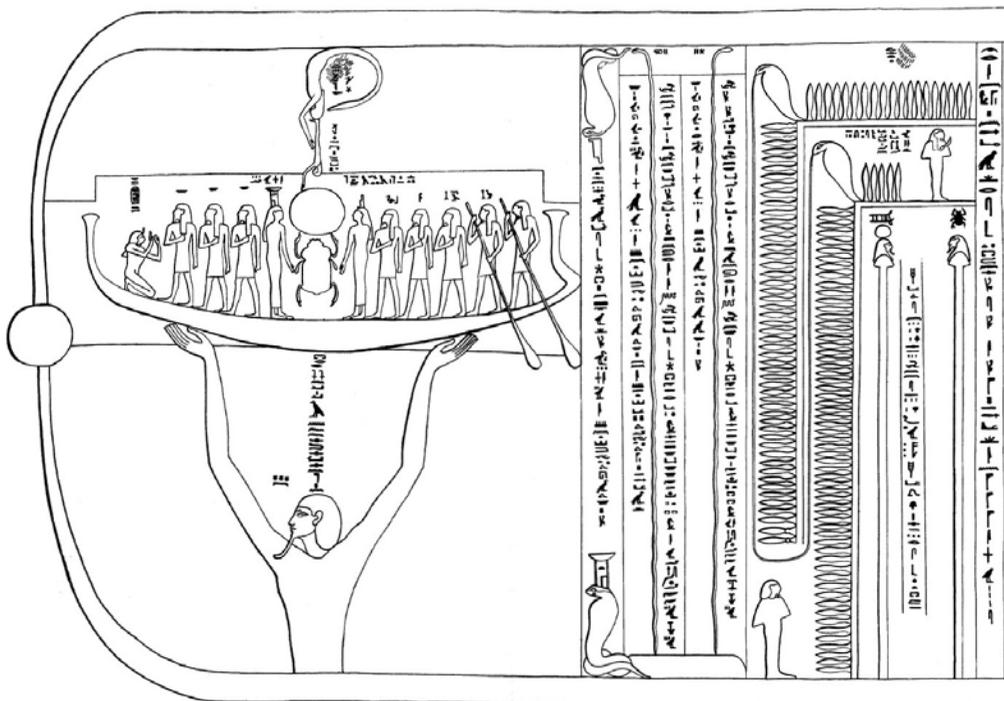


Figure 2.5. Concluding representation from the Book of Gates, in the Osireion at Abydos, Dynasty 19, reign of Sety I–Merneptah, c. 1290–1203 BCE. Image after Murray 1904, pl. 13.

at the midpoint of symmetrical tableaux. These sorts of images functioned also as programmatic expressions of the sun's transition from day to night and back again (§§9–10).

6. THE *AKHET* AS A ZONE OF TRANSITION

Visual emphasis on symmetry and the heraldic arrangement of figures provide vital clues that point to the underlying meaning of the concluding representations and related images of arm pairs, giant figures, et cetera. In each case, such images depict the moment of transition as the sun passes from the unobservable nethersky into the daytime sky, where the god's physical avatar—the sun itself—becomes observable to the human world. In terms of Egyptian cosmology, this zone of transition was defined specifically as the *akhet*.

The Egyptian word *akhet* (*3h.t*) appeared frequently in the earliest religious literature, the Pyramid Texts of the Old Kingdom, and remained in use through the rest of pharaonic history (*Wb* 1:17.12–23; *Belegstellen* 1:3). In English, the word is translated usually as “horizon,” which sense is conveyed quite clearly by its normal ideogram: . The sign includes a heraldic arrangement of two symmetrically paired hills flanking a central solar disc, which might be interpreted either as a vertical rising above/setting behind the depression between the two hills or as a horizontal transit above and between them (see Assmann 1980, §A, 3–4 n. 2). Unlike the modern concept of “horizon,” the Egyptian *akhet* was conceived originally as a specific and concrete locale in the sky, as opposed to an imaginary line where earth and sky appear to meet (Assmann 1980, 3).²¹ In the period under consideration (New Kingdom), the *akhet* was described frequently as a dual structure (*3h.tj*, “two horizons; double horizon”) or as an “eastern” (*j3b.tt*) *akhet* and “western” (*jmn.tt*) *akhet*, which might be associated with either the sky or the earth. In the latter case, the *akhet* was conceived also in terms of a far-eastern mountain, known as *Bakhu*, and a far-western mountain, known as *Manu*, which were believed to stand at the edges of the world as the twin poles from which the sun rose and set, respectively (Assmann 1980, §A, 3–4, §C, 5–6).

The solar disc in the *akhet*-hieroglyph was painted usually red, suggesting the nocturnal form of the sun, as opposed to the conventional yellow color of its diurnal counterpart (see Wilkinson 1994, 83). However, such color “rules” were broken with some regularity, and it would be a mistake to attach too much significance to the color of individual solar discs as indicative of night, day, morning, or evening specifically. Instead, the disc-and-hills combination of the *akhet* hieroglyph appears to depict the more fundamental, mythological “reality” of solar transition: the perpetual cycling of the sun from unobservable regions to regions of observability, thus uniting the starting point of the journey with its destination, which is to say the characteristic functions of the *akhet* itself (Assmann 1980, 3).

The importance of the *akhet* as a feature of cosmic geography cannot be overstated: The continued existence of the human and divine worlds was believed to hinge upon the sun's successful passage through this liminal zone on a daily basis. Owing to this cosmological significance, the image of paired mountains flanking a central solar disc became, by the

²¹ Note that the conception of the *akhet* as a “horizon” in the English sense of an imaginary line does occur, albeit rarely, in ancient Egyptian sources, as suggested, for example, by the description of foreign tribesmen as *3h.tjw*, “people of the horizon; horizon-dwellers,” in the biographical text of Harkhuf (Dynasty 6, reign of Pepy II, c. 2210 BC; text in Sethe 1933, 128, line 16).

New Kingdom at least, one of the most iconic elements in the Egyptian artistic repertoire. The underlying symbolism extended also to paired architectural features (e.g., obelisks, temple pylons) and statues, which might be arranged on both sides of processional routes to evoke the heraldic symmetry of the *akhet*-image (fig. 2.6).²² Entire temples, royal palaces, and necropolises, as well as both royal and private tombs, might also be identified in text or image as individual expressions of the *akhet*-concept (Assmann 1980, §B, 4–5).²³



Figure 2.6. Luxor temple, symmetrical pylon gateway, paired statues, and obelisk(s) (one of two standing), as a monumental *akhet*. Photo © 2008 J. A. Roberson.

7. AMDUAT SYMBOLISM AND THE AKHET IN THE BURIAL CHAMBERS OF THE EARLY NEW KINGDOM

The cosmic imagery of the *akhet* appears to have influenced certain architectural features in the royal burial chambers of the Eighteenth Dynasty as a component of the so-called book of *Amduat*. As discussed above (§4), the *Amduat*'s distinctive, spiral layout was reflected in the architecture of those royal tombs in which it served as the primary decorative motif. This layout received its fullest expression in the tomb of Thutmose III (KV34), where it influenced the physical placement of storage chambers, doorways, long and short walls, and other architectural elements (Roehrig 2006, 244–46). Most importantly for our purposes, the *Amduat* dictated the oblong shape of the room. The curved “corners” alluded to, among other things,²⁴ the great curve of the concluding representation, which appeared ideally in the southeastern corner of the room (Roehrig 2006, 245) (fig. 2.7). As a result, this most iconic scene, which is to say the great curve of the eastern *akhet*, dominated the most

²² For *akhet*-associations in temple contexts, where the local god's procession was equated with the course of the sun, see Brunner 1970, 31–33; Derchain 1966; and, more generally, Baines 1976.

²³ See thus *Wb* 1:17.19–22, ʕh.t (n.t) nhh , “horizon (of) eternity.” For a depiction of a private tomb as an *akhet* from the early New Kingdom (Dynasty 18), see Wilkinson (1994, 80 and n. 7), who discusses a Book of the Dead papyrus belonging to a certain Neferwebenef that includes an illustration at spell 92 in which the roof of the deceased's tomb assumes the form of the ʕh.t -hieroglyph. For a textual example from the royal sphere, see already the Great Pyramid at Giza (Old Kingdom, Dynasty 4), which was named ʕh.t-Hw=f-wj , “*Akhet* of Khufu” (also cf. Edel 1955, 157–58 §364, interpreting the name as ʕh.t(j)-Hw=f-wj , “Khufu is *akhet*-like”).

²⁴ The oval shape of the chamber is pregnant with meaning. As Roehrig (2006, 245) and Richter (2008, 78) note, the shape evokes various associations, including the curvature of the underworld, the oval-shaped Cavern of Sokar in the *Amduat*'s fifth hour, and, in conjunction with the royal sarcophagus, the cartouche ring, which encloses the royal name and was itself associated with the solar cycle.

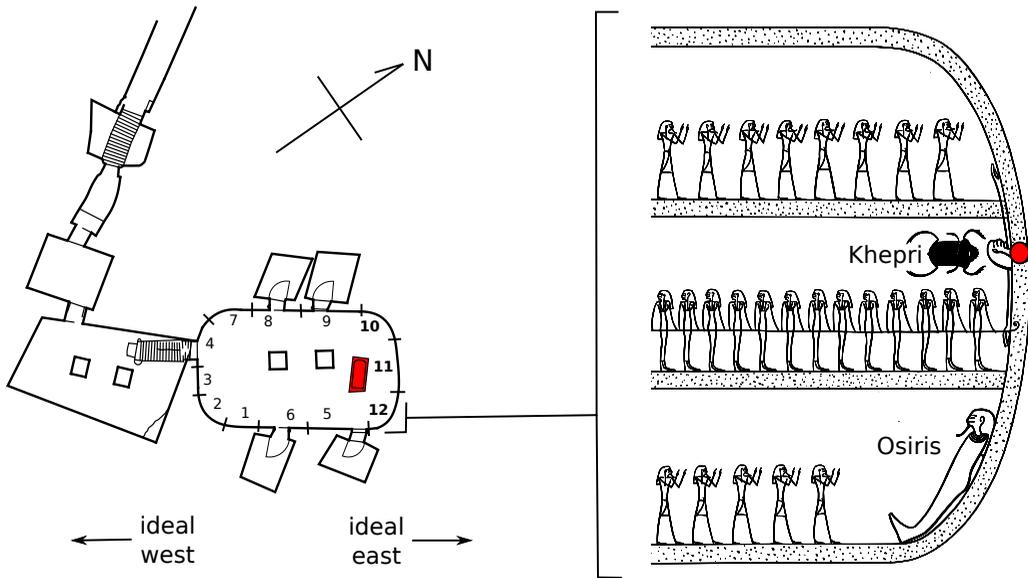


Figure 2.7. Left: Plan of the tomb of Thutmose III (KV34) showing cardinal plus ideal orientation and locations of the twelve hours of the *Amduat* (concluding hours 10–12 in bold type), sarcophagus (red), and concluding representation. Adapted by J. A. Roberson from plan of KV34 © Theban Mapping Project. Hour divisions after Hornung and Abt 2003, 18, fig. 11. Right: *Amduat* concluding representation, detail from the twelfth hour. Drawing adapted from Piankoff 1954, fig. 87.

striking architectural feature of the burial chamber, namely, its creation of curved space in relation to the royal sarcophagus.²⁵

With regard to the placement of the king's body, Richter notes that the sarcophagus commanded a view of several key episodes on the walls (*Amduat*) and pillars (Litany of the Sun) that relate to the union of Re and Osiris and to the rejuvenation of the king as a hypostasis of those deities (Richter 2008, 83–91). However, one additional point merits special consideration: The placement of the sarcophagus does not appear to have been dictated solely by line-of-sight considerations and simple proximity to the concluding image in the twelfth hour. Instead, the sarcophagus's location near the center of the rear wall replicates in three dimensions the position of the rejuvenated sun as it passes through the terminus of the two-dimensional, concluding representation, in which the sun god appears simultaneously as the scarab Khepri (hypostasis of the newly rejuvenated, daytime sun) and as a red, which is to say, nocturnal, solar disc (fig. 2.7). Between these two solar manifestations we observe the head and arms of the air god Shu, *wpp p.t r B r kkw-sm 3w*, “who separates sky from earth and from the primordial darkness” (*Amd*, 818). The location where Shu receives the rejuvenated sun god, immediately prior to his elevation at dawn, is described explicitly as *3h.t j3b.tt n.t p.t*, the “eastern *akhet* of the sky” (*Amd*, 819).

²⁵ The present discussion is concerned only with the architecture and decoration of the rear wall (ideal “east”) and adjacent sarcophagus emplacement. Similar interactions, beyond the scope of the present chapter, occur between the architecture and decoration along the curved front wall (ideal “west”) and entrance to the burial chamber, particularly as regards the first and fourth hours of the *Amduat*, for which see Barta 1969–70, 165–67; Richter 2008.

The analogy between the iconography of this eastern *akhet*, as depicted in the *Amduat*'s concluding image, and the architecture of the ideal "east" end of the burial chamber extends further. Some scholars have noted that, while Thutmose's decorative plan follows the prescribed layout of the *Amduat* as closely as possible, the narrowness of the ideal "west" and ideal east walls appears to have necessitated minor alterations, or displacements, of certain scenes, notably hours 1 to 2 (moved south and east from ideal west) and hour 9 (moved north and west from ideal east) (Hornung and Abt 2003, 18; Barta 1969–70, 167). It is possible, however, that the latter (dis)placement reflects an even more subtle aspect of Thutmose's original decorative program. Thus the resulting division of the curved ideal east wall into three evenly spaced hours (10, 11, and 12) mirrors the divisions of the tripartite register system relative to the curved border of the concluding representation. Textual support for the intentionality of this layout comes from the "operating instructions" of the *Amduat* itself. In those instructions, hours 10 and 12 are the only divisions from the ideal east wall that prescribe a location in the plural, as *j3b.tjw .t jmn.t*, "the eastern parts of the hidden chamber" (see table 2.1 above). It hardly appears coincidental that the supposed "displacement" of hour 9 to the east side of the north wall resulted necessarily in the symmetrical opposition of hours 10 and 12 in the curved "corners" at the rear of the burial chamber, precisely where ideal east merges into ideal "north" and "south," thereby yielding a plurality of cardinal associations.²⁶ We observe additional, iconographic support for this interpretation in the location of the all-important twelfth hour, in the southeastern curve of the burial chamber kitty-corner to the king's sarcophagus. The location of this scene echoes the locations, within the concluding image itself, of the recumbent mummy of Osiris along the curved lower register, kitty-corner to the rejuvenated sun, as the scarab Khepri. This spatial convergence is unique to the tomb of Thutmose III insofar as Osiris's relative position within the two-dimensional scene coincides with the physical location of the scene itself within the three-dimensional space of the burial chamber. As a final point of convergence between "real" and "ideal," we observe that the very stone of Thutmose's sarcophagus seems to allude to the king's other divine identity as the nascent sun god Re. The red quartzite echoes the red coloration of the nocturnal disc in the concluding representation, while the lighter yellow, visible in the incised hieroglyphs, appears to hint at the color the disc will assume in its diurnal form (thus already Roberson 2008, 17). Again and again, the artists and architects have stressed Thutmose's dual identity as Osiris and Re, body and soul of the unified super-god, who emerges from the eastern horizon at dawn.

After the reign of Thutmose III, the architecture and decoration of the royal burial chambers, and their cosmological symbolism, became increasingly schematized. The previously ovoid room came to be executed in a much simpler, rectangular style, while the textually mandated spiral layout of the *Amduat* was superseded by a simplified, linear

²⁶ Note also that the only other hours for which a location was prescribed in the plural, hours 2 and 3, both occur on the ideal west wall, which presents a mirror image of the "eastern" architectural curve; however, while hour 2 does occur in the southwest curve, hour 3 appears on the adjacent, flat surface. For discussion of the evident intentionality and purpose in the stacking of registers and other space-saving techniques in the first four hours, as executed in Thutmose III's burial chamber, see Barta 1969–70, 167.

progression of the twelve hours around the chamber's perimeter (§4).²⁷ However, even in later Eighteenth Dynasty exemplars, the sarcophagus continued to be placed at the end of the room centered relative to the rear wall, near the twelfth hour and its concluding representation, in each case in allusion to the convergence of Re and Osiris at the eastern *akhet* immediately prior to sunrise (see Richter 2008, 92–93, figs. 15–16 [Amenhotep II], 100–101, figs. 23–24 [Amenhotep III]).²⁸

8. EXPRESSION OF THE *AKHET* AS A “HYPERLOGOGRAM” IN THE ARCHITECTURE AND DECORATION OF THE RAMESSIDE-ERA ROYAL BURIAL CHAMBER

The importance of the *akhet*-concept in the *Amduat*-influenced tombs of the Eighteenth Dynasty permits us to understand better a number of major alterations that took place in the royal burial chambers during the following Ramesside era (Dynasties 19–20).²⁹ Over the course of the Nineteenth and Twentieth Dynasties, decorative programs in the royal burial chambers employed a number of newly attested compositions, including the Books of the Earth, Book of Caverns, astronomical diagrams, and Books of the Sky, while the *Amduat* was relegated mostly to rooms and corridors nearer the entrance to the tomb.³⁰ With regard to the architecture, we observe three key innovations (fig. 2.8; also fig. 2.11): a 90-degree horizontal rotation of the burial chamber's axis, perpendicular to the preceding corridors; a 90-degree vertical rotation of the curved walls (ideal east and ideal west in the earlier, *Amduat*-style tombs), thereby creating two symmetrically arched sidewalls and a gently vaulted ceiling; and movement of the sarcophagus to the center of the chamber, embellished in some cases with a depression for the sarcophagus emplacement.³¹

The convergence of these features was realized most fully in the burial chambers of Merneptah, Tawosret, Ramesses III, and Ramesses VI, illustrated in figure 2.8. It is these four architectural-decorative programs that I identify here as “hyperlogograms,” which is to say monumental expressions of the *akhet*-hieroglyph in the three-dimensional decorated space of the burial chamber itself.³² Interpretation of the hyperlogogram itself is

27 For discussion of these changes, see Richter 2008, 92–101, noting that the later Eighteenth Dynasty texts still retain a cyclical character, insofar as the sequential progression around the walls necessarily results in the first and twelfth hours appearing adjacent to one another.

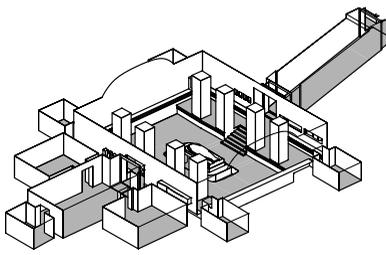
28 For Thutmose IV, whose burial chamber remained undecorated when the tomb was originally sealed, see Porter and Moss 1964, 560, Sarcophagus Chamber H. The remaining Eighteenth Dynasty rulers (Akhenaten, Tutankhamun, Aye, and Horemheb), operating during and in the immediate aftermath of the Amarna heresy, each exhibit unique variations in the architecture and decoration of their tombs that are beyond the scope of this chapter.

29 I have described these changes elsewhere as a shift away from the earlier “*Amduat*-style” chambers—which included necessarily an *akhet*-component in their design—toward a distinctively “*akhet*-style” chamber, in which every major element of the architecture and decoration may be read collectively as a monumental expression of the *akhet* itself (Roberson 2008; 2012, 55–59).

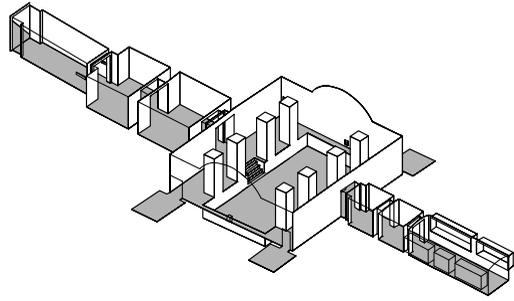
30 Note that, with the exception of the New Kingdom Books of the Earth, which occur only in the burial chamber, other “new” compositions might also appear in preceding rooms and corridors.

31 For a detailed summary of these changes, see Roberson 2012, 32–45.

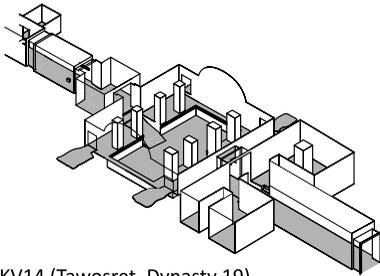
32 The extent to which the “hyperlogogram” concept might apply to other Ramesside-era royal tombs—executed often in haste, with attenuated architectural plans and decoration, owing to the early demise



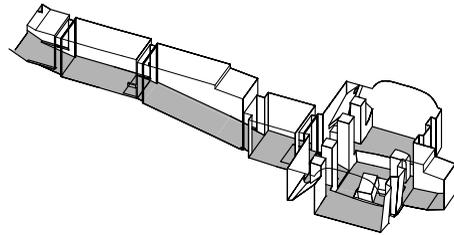
KV8 (Merneptah, Dynasty 19)



KV11 (Ramesses III, Dynasty 20)



KV14 (Tawosret, Dynasty 19)



KV9 (Ramesses VI, Dynasty 20)

Figure 2.8. Selection of Ramesside-era royal burial chambers, plus adjacent rooms and corridors, exhibiting perpendicular axes relative to the descending corridor, arched sidewalls plus vaulted ceiling, and central sarcophagus depressions (KV8, 9 only). Isometric views © Theban Mapping Project.

relatively straightforward: chthonic texts and images (Books of the Earth, Caverns) appear on the symmetrical, arched sidewalls flanking the central emplacement for the king's corpse, while celestially themed compositions (astronomical diagrams or Books of the Sky) appear on the vaulted ceiling, thus expressing quite clearly the Egyptian concept of the *akhet* as a microcosm: sky above twin mountains of earth, concealing a hidden underworld, from the center of which rises the rejuvenated sun in hypostasis as the deceased and deified king.³³

The astronomical diagram included on the ceiling of Merneptah's burial chamber depicts the constellations of the southern sky, including "divinities in barges, planets and zodiac-like representations," and northern sky, showing figures crowned with red discs (Mostafa 2001–2, 220).³⁴ This celestial decoration, which has suffered extensive damage, appeared originally as two equal halves oriented toward the chamber entrance (southern sky) and rear wall (northern sky), thus creating necessarily a left/east–right/west axis across the

of many late New Kingdom rulers—lies beyond the scope of the present chapter, but see, for instance, Roberson 2012, 42–45 (Ramesses VII, IX).

33 Compare the microcosmic iconography of the "world image" from the tomb of Ramesses X, discussed in Schäfer 1928, 89–90 and fig. 4.

34 For a complete photographic record of the deities of the southern sky in the burial chamber of Merneptah, see the University of Chicago ISAC Museum's photos 9313–9315 (with thanks to Anne S. Flannery, ISAC museum archivist); also see discussion at the following note. For the astronomical ceiling template, see Parker 1950, 42–41, pl. 1, illustrating the fully preserved, and significantly more elaborate, private exemplar from the tomb of Senmut (with additional discussion at *ibid.*, §§220–223).



Figure 2.9. Tomb of Merneptah (KV8), burial chamber, left sidewall, concluding representation, with adjacent ceiling decoration showing deities and barques of the southern sky, toward chamber entrance (upper right) and one partially preserved deity of the northern sky, crowned with a red disc, toward the chamber's rear wall (upper left). Photo © 2008 J. A. Roberson.

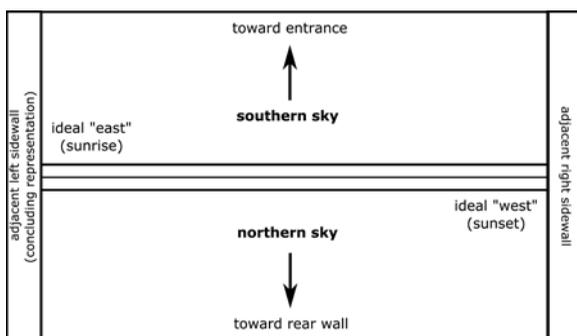


Figure 2.10. Schematic diagram of the northern and southern skies from the tombs of Merneptah (KV8) and Tawosret (KV14), vaulted burial chamber ceiling, rotated 90 degrees toward an observer facing the chamber's entrance. Image © 2017 J. A. Roberson.

length of the ceiling (figs. 2.9–2.10). The ideal, cardinal directionality of the ceiling's axis was complemented and reinforced through the addition of a concluding image (ideal east) on the left sidewall (fig. 2.9 and §9).

The astronomical ceiling in the burial chamber of Tawosret includes a diagram that is similar to, albeit better preserved than, the decorated vault from the tomb of Merneptah. Again, we observe the southern and northern skies as two regions of equal size, oriented toward the chamber entrance and rear wall, respectively,

and separated along the central axis by a border that runs the length of the chamber.³⁵ As in Merneptah's tomb, the orientation of the southern and northern skies associates necessarily the left side with ideal east, as reinforced again by the placement of the concluding representation on the adjacent left sidewall (fig. 2.10; also fig. 2.13, upper left), and the right side with ideal west.

35 Contra Porter and Moss (1964, 531), who state incorrectly that the ceiling includes only the northern constellations. For a complete photographic record of Tawosret's burial chamber ceiling, see the University of Chicago ISAC Museum's photos 9319–9324, especially photograph 9319, in which the boats of the southern sky are clearly visible on the side nearest the chamber entrance, and photo 9324, in which the northern deities, crowned with discs, are clearly visible on the side nearest the chamber's rear wall (with thanks to Anne S. Flannery, ISAC museum archivist).

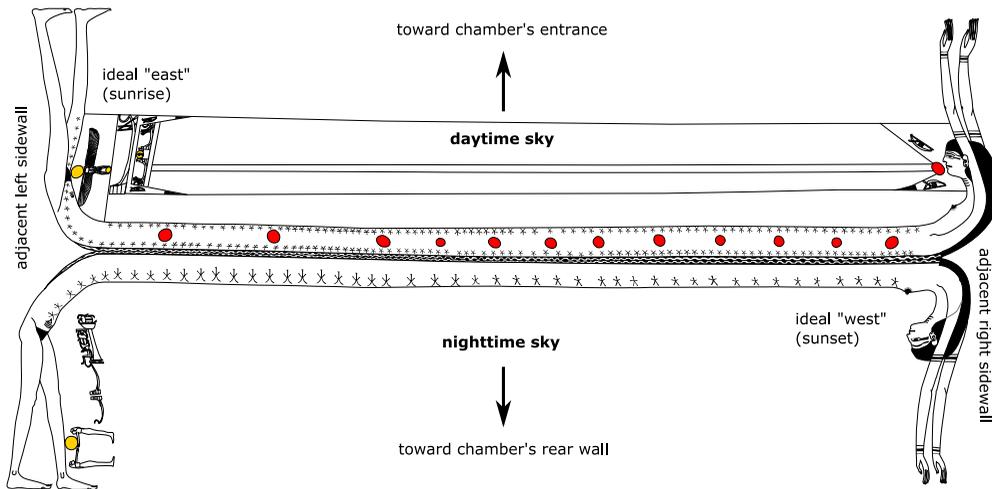


Figure 2.11. Celestial representation of the double sky (Books of the Day and Night) from the tomb of Ramesses VI (KV9), vaulted burial chamber, rotated 90 degrees toward an observer facing the entrance. Left/ideal east (sunrise): Birth of the infant sun from the womb of the sky goddess Nut. Right/ideal west (sunset): Nut swallows the evening sun. Image © 2017 J. A. Roberson.

The burial chamber of Ramesses III has suffered extensive damage due to flooding, which has removed any trace of decoration on the ceiling (see Roberson 2012, 36 n. 155, with additional references). However, the partially preserved decoration of the sidewalls beneath the vaulted ceiling replicates the placement and orientation of scenes found already in the tombs of Merneptah and Tawosret.³⁶ Those preserved traces suggest that the ceiling of Ramesses III's burial chamber, whether decorated originally or not, was probably conceived similarly as a celestial expanse divided along a left/east–right/west axis across the length of the chamber.

The ceiling of the burial chamber of Ramesses VI includes the most complex decoration of the four tombs under consideration and the most explicit orientation to the ideal cardinal directions. In this monument we observe the daytime and nighttime heavens as twin, anthropomorphized bodies of the sky goddess Nut resting back-to-back (fig. 2.11). The goddess's feet, above the left sidewall, stand necessarily in the ideal east, where she gives birth at dawn to the rejuvenated sun, which appears in various hypostases, including a yellow disc and the winged scarab Khepri. At the same time, the goddess's head and upper body, above the right sidewall, rest necessarily in the ideal west, where she swallows the aged sun, in the form of a red disc, at sunset (for detailed discussion, see Müller-Roth 2008; Roulin 1996).

Viewed in isolation, the ceiling decoration in the burial chamber of Ramesses VI constitutes a complete, microcosmic account of the sun's daily (east–west) and nightly (west–east) journeys through the heavens (thus Werning 2014, 98–99). Of course, the ceiling

³⁶ Note that the sidewalls of Ramesses III's burial chamber also included additional scenes (now mostly destroyed), which appeared beyond the ceiling arch and were not part of the template established under Merneptah (see Roberson 2012, 35–37, with additional references).

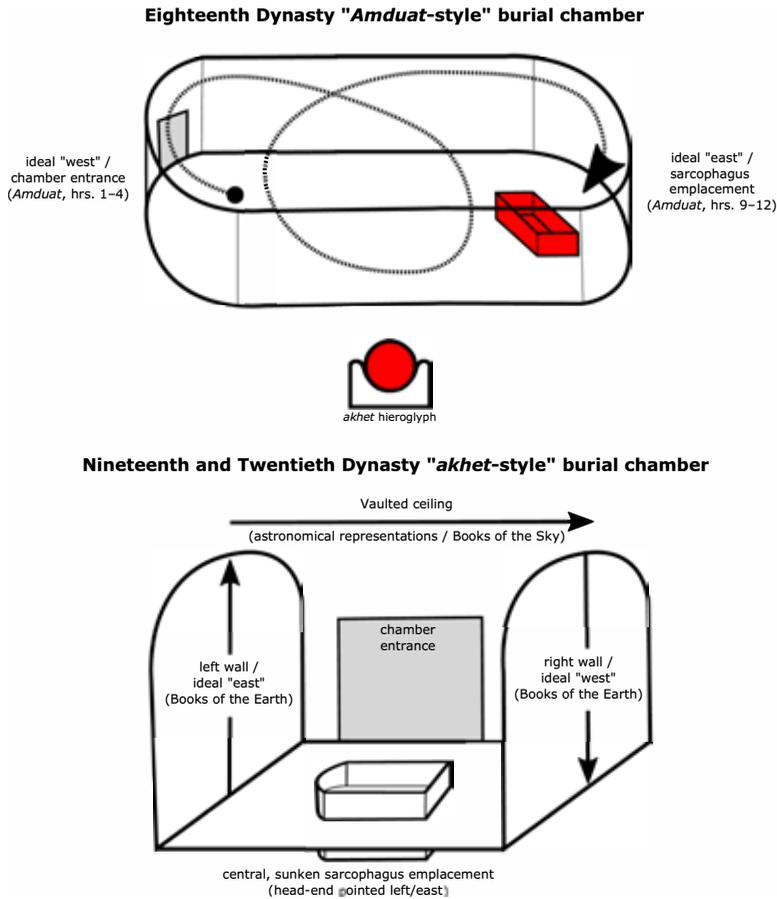


Figure 2.12. Schematic diagram of idealized, Eighteenth Dynasty burial chamber versus idealized Ramesside (Dynasties 19–20) sarcophagus chamber illustrating *akhet*-influenced architectural and decorative elements, as well as textually and iconographically mandated cardinal orientation and directions of solar travel. Image © 2017 J. A. Roberson.

does not occur in isolation; rather, the celestial image of the double sky constitutes one of several nested microcosms within the greater cosmos of the burial chamber (§10) and of the burial chamber within the greater cosmos of the tomb itself. Similarly closed, microcosmic “loops,” so to speak, may be observed in the decoration of sarcophagi (Manassa 2007, 1:7) and in the many programmatic scenes of solar rising/setting (§5; §10, end). However, insofar as the vaulted ceiling functioned as an architectural “sky,” it provided literally “overarching” orientation to the left and right sides of the burial chamber as a whole (§9, final paragraph). Such Ramesside configurations stand in sharp contrast to the flat (i.e., unvaulted) ceilings of earlier, *Amduat*-style burial chambers, which were decorated invariably with a simple field of stars on a blue-black background, thus effectively nullifying any sense of celestial directionality.

From the perspective of a unified architectural-decorative program, the sun in the Ramesside hyperlogogram appears to set in the ideal west, descending along the right sidewall, before rising in the ideal east, up the left sidewall, following the lengthwise axis

of the ceiling back to the ideal west and repeating the cycle in perpetuity (fig. 2.12). The identification of individual walls with left/east/sunrise and right/west/sunset was clarified further through the addition of concluding representations, depicting the eastern *akhet*, and visual cues suggesting descent or ascent along vertical and/or horizontal axes (§§9, 10). Furthermore, in the tomb of Merneptah—the only *akhet*-shaped burial chamber in which the royal sarcophagus was found intact, in its original location—we observe that the king’s body was oriented with the head toward the left wall and the moment of solar rebirth in the ideal east. The ideal cardinal directionality of the left and right sidewalls was reinforced also through their scenes’ relative locations “left” (*j3bj*) and “right” (*jmn*),³⁷ which Egyptian terms evoke the etymologically related designations for “east” (*j3b.t*) and “west” (*jmn.t*), respectively (*Wb* 1:30–31, 85–86).

9. HERALDIC SYMMETRY AND VERTICALITY IN THE BURIAL CHAMBERS OF MERNEPTAH, TAWOSRET, AND RAMESSES III

The use of heraldic symmetry on the walls and ceilings of *akhet*-style burial chambers draws the eye toward a central axis that extends from one side of the chamber to the other, thereby connecting the celestial and chthonic decoration, in evocation of the sun god’s perpetual circuit.³⁸ This arrangement is evident most clearly in the shared decorative program employed on the sidewalls of the burial chambers of Merneptah (KV8), Tawosret (KV14, illustrated in fig. 2.13), and Ramesses III (KV11).³⁹

We observe here, on the right/west wall (when facing the tomb entrance), an opening scene in which a sequence of six stars and six discs flank a centrally placed seventh disc, thus forming a semicircle around and above a recumbent mummy. Beyond the semicircle of stars and discs, two pairs of standing mummies, each wearing the white crown of Upper Egypt, face inward, thereby extending the heraldic symmetry to both ends of the upper register. The discs represent the sun god, an iconographic trope common to all the later New Kingdom underworld books (Hornung 1999, 26). The recumbent mummy, equivalent surely to Osiris at the time of his union with Re (see discussion at §10), bears here the oblique annotation *ntr 3 jmj qrr:t=f*, the “Great God, who is in his cavern” (Roberson 2012, 270, caption 1), confirming the scene’s chthonic locale. The disc-plus-star groups can be read as hieroglyphs yielding a sixfold repetition of the phrase *dw3 R*, “praising Re/praising the sun” (Roberson 2012, 271). Each star may be read also as a logogram designating a *wmw.t*, “hour.” The inclusion of six “hours” is significant, being precisely half the

37 Relative orientation “left” and “right” are described here in terms of the ancient Egyptians’ perspective, that is, of an observer standing inside the tomb and looking out toward the entrance (see thus Černý 1973, 30, with additional discussion in Roberson 2012, 24 n. 74).

38 This Egyptian practice anticipates the later use of soaring architecture and elaborate ceiling decoration in Christian cathedrals—executed similarly for the purpose of drawing the eye upward, toward the celestial regions of “heaven”—by more than twenty-five hundred years.

39 Note that, due to flooding, the tombs of Merneptah and Ramesses III have suffered almost total destruction of their lower registers. For detailed discussion, see Roberson 2012, 293–94 et passim.

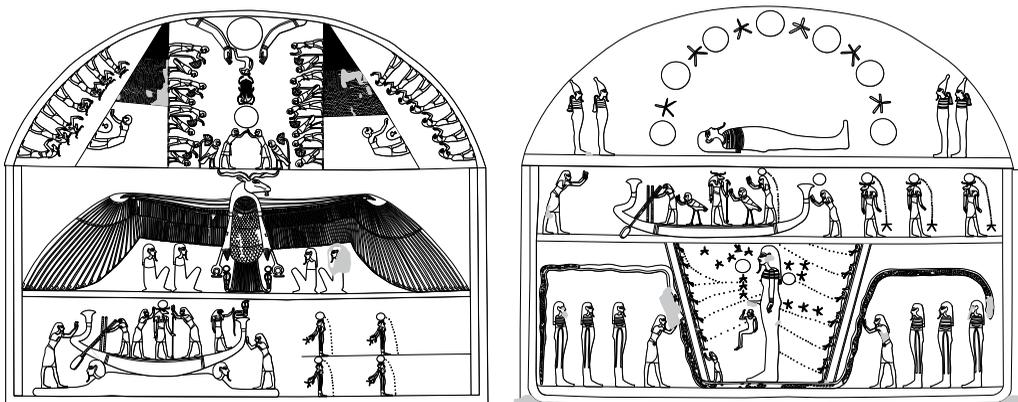


Figure 2.13. Left (ideal east) and right (ideal west) sidewalls from the burial chamber of Tawosret (KV14). Images after Roberson 2012, pls. 2–3.

twelve-hour, nocturnal solar journey—a journey depicted here and on the wall opposite as two symmetrical halves of three registers each.⁴⁰

The heraldic symmetry that defines the upper register’s central axis resumes in the bottom register. There, two halves of a great serpent form two arching mounds around two groups of four mummiform deities each, all of whom face inward toward a funnel-shaped depression. The inward-sloping, almost arrow-like sides of this depression draw the eyes naturally down toward its terminal point, from the center of which rises a giant, ithyphallic mummy. This central figure alludes once again to the union of Re and Osiris, specifically to the rejuvenation of the *ba*-soul and the restoration of creative potency (see Manassa 2007, 1:38–41), which a later annotation describes in terms of fire and blood, resulting ultimately in the incineration of the damned.⁴¹ Viewed as a whole, the iconography of the lower register, with two mounds flanking a central depression from which the giant, Solar-Osirian figure rises, evokes quite clearly the heraldic symmetry and horizon symbolism of the *akhet*-hieroglyph.

The inward-facing, heraldic symmetry of the upper and lower registers leads the eye toward their shared, vertical axis, along which the central Solar-Osirian drama unfolds. At the same time, the upper and lower registers stand in obvious contrast to the horizontal progression of the solar barque in the middle register, which lacks symmetry and cuts across the vertical axis of the scenes above and below. However, the very juxtaposition of an asymmetrical register with solar content between two symmetrical registers centered

40 A striking numerical convergence may be observed here between the twelve hours of the nocturnal solar journey, attested in earlier compositions such as the *Amduat*, and the tripartite register system of these three Ramesside burial chambers. The decoration of these later chambers was distributed in two symmetrical halves and labeled at the beginning of the west side with six *wnw.t*-“hours,” yielding 2 halves \times 3 registers = 6×2 hours per register = 12 hours total. However, lacking additional textual support, we might instead (and more safely) regard this convergence as merely fortuitous.

41 Thus from the version of Ramesses IX: *Ntr pn m šhr pn. Wtt=f sd.t* [. . .]. *Snyf šsp=f. ʿq.hr ntr pn* [. . .] *dj=f sd.t m Htmy.w*, “This god in this form. It is [. . .] that he begets flame. The Bloody One—he receives (it). Then, this god inevitably enters [. . .], that he might set fire to the damned [lit., ‘annihilated ones’]” (Roberson 2012, 398, text 9, with a different grammatical interpretation of the second clause).

on Osirian figures might be viewed as an additional heraldic arrangement along the vertical plane.

Turning to the opposite wall (fig. 2.13, left/east), we observe another prominent, vertical axis, this time featuring a number of unmistakable images of solar ascent, culminating in the moment of sunrise. Beginning from the bottom register, we observe the solar barque, which proceeds necessarily along the horizontal plane of the craft itself, resting atop the back of a double sphinx, known as Aker. The symmetrically opposed forequarters of Aker represent the entrance to and exit from the divine world. In other words, Aker himself personifies the transitional zone known as the *akhet* (see references at Assmann 1980, §C, 5 n. 24; Roberson 2012, 138 nn. 72–75). This personification is described explicitly in an annotation from a variant in the tomb of Ramesses IV, which names the sphinx’s symmetrically opposed heads as *‘q nfr*, “beautiful entrance,” and *pr(t) nfr*, “beautiful emergence,” that is, the location of the sun’s setting and rising into and out of the divine world. Moreover, the physical shape of the god evokes the paired mountains of the eastern and western horizons. Aker’s symmetrically opposed heads create between them a depression, in which rests the solar barque. Thus, while the barque itself implies horizontal movement, its placement atop the back of Aker implies the sun’s vertical ascent and descent through the *akhet*. This convergence of horizontal/vertical motion is also appropriate to the location of the Aker image insofar as the beginning/bottom register of the “eastern” wall constitutes a conceptual border with the end/bottom register of the opposing, “western” wall.

As we turn to the middle and upper scenes, the iconicity of the vertical takes over as the dominant visual trope. Just as the lower register of the opposite wall included a downward pointing “arrow,” we observe here another arrow-like shape oriented in the opposite direction. The great ram-headed solar bird, with frontal body, wings unfurled symmetrically to both sides and above pendant feet and uraei, can be interpreted as only in the act of flying.⁴² As such, the bird follows the sun’s eastern course up and toward the visible sky. Likewise, the triangles in the upper register, representing the waters of primordial chaos on the boundary of the created world, point clearly upward, toward the terminus of the curved wall. Directly beneath the center of the curve, we observe an elaborate variation of the heraldic, paired-arm motif (§5). In the center of this tableau, two gods elevate a small disc, above which a ram-headed scarab combines the nocturnal and diurnal forms of the sun god, followed by a child, representing the rejuvenated sun, followed in turn by a large disc, which is received by two pairs of arms and pulled through the curve of the horizon into the sky above. The emphasis on heraldic symmetry as an expression of vertical ascent is underscored when we consider that this final scene actually represents an expanded variant of the concluding tableau from the Book of Caverns. In its original form, that scene was oriented horizontally, comparably to the concluding images employed in the *Amduat* and Book of Gates (cf. Hornung 1999, 95, fig. 52). It is only in the conspicuously *akhet*-shaped burial chambers of Merneptah, Tawosret, and Ramesses III that the scene was rotated and expanded to function as a vertical scene.

42 Compare hieroglyphic representations of birds standing (, , ) , flightless chicks waddling () , and flying birds landing or alighting with outspread wings and hanging feet (, ) , versus frontal representations of the flying, winged solar disc (, ) . For cosmological associations of this last type of image, see the discussion in Gardiner 1944, 46–52.

As a final point regarding the ideal orientation of the burial chamber, the very fact that a concluding representation appears on the left sidewall associates that wall necessarily with the east and sunrise. Thus a text from the original Book of Caverns scene names the locale specifically as *dw j3b*, the “eastern mountain” (Piankoff 1945, 47). The placement of that same concluding representation beneath the explicitly “eastern” half of the astronomical diagram on the ceiling of Merneptah’s tomb (§8) confirms that the ceilings and sidewalls were not executed in isolation but constitute instead a unified decorative program. By extension, the opposite sidewall, located beneath the “western” half of the astronomical diagram, must represent the western half of the chthonic realm within the individual, microcosmic space of that same burial chamber.

10. THE ICONICITY OF THE VERTICAL: BOOK OF THE EARTH, RAMESSES VI

The status of the Ramesside royal burial chamber as a hyperlogogram, i.e., an architectural-decorative program executed in the form of a monumental *akhet*-hieroglyph, finds its most complex expression in the tomb of Ramesses VI. As in the burial chambers of Merneptah and Tawosret, celestial images on the vaulted ceiling—in this case, the Books of the Day and Night (fig. 2.11 above)—orient the chamber as a whole to ideal east (left) and ideal west (right). On the sidewalls beneath these celestial images, we observe an exceptionally complex configuration of chthonic scenes (figs. 2.14–2.15), the content of which both expands on and diverges considerably from the much simpler decorative programs discussed in the preceding section. At first glance, these scenes present a bewildering collage, the organizational principles of which are not immediately apparent. However, certain highly iconic images permit us to assign internal directionality to both sidewalls, thus effectively “activating” the cosmological decoration as a working model of the solar cycle.

Turning first to the center of the upper register on the right/west sidewall, we observe a conspicuously heraldic arrangement with a depiction of the sun and Osiris united at the midpoint of the solar cycle: Twelve small stars and twelve small discs in a semicircle flanking a larger, central disc above a standing mummy,⁴³ who stands in turn upon an additional, still larger solar disc.⁴⁴ Two symmetrically paired goddesses extend their arms below the semicircle of discs and stars. Beneath the largest central disc, two gigantic, disembodied arm pairs, representing the primordial waters of chaos at the boundary of the ordered world,⁴⁵ simultaneously receive the setting sun and elevate the rejuvenated disc as a concise summary of the entire solar journey (§5). A pair of coiled uraei flank the standing

43 The annotations refer to the mummy as *snk-jb*, “Dark-of-Heart” (Roberson 2012, 317, text 2, 1), and *h3.t pn* (sic.) *3(.t) snk-jb s33w jmj.w t3 k3rj=f*; “this (sic.) great corpse, Dark-of-Heart, whose shrine is guarded by those who are in the earth” (Roberson 2012, 319, text 4, 2–3). Osiris, identified explicitly as such, appears within his *k3rj*-“shrine” in the scene to the immediate right, discussed below.

44 Note that an elaborate variant of this scene occurred also in the tomb of Ramesses III adjacent to the scenes discussed at §9 above. For this earlier variant, see Roberson 2012, 200–201, with additional references.

45 An annotation to the scene names the central Osirian mummy as *h3.t jmj.t Nww*, the “corpse that is in Nun/the primordial waters” (Roberson 2012, 317, text 2, 1). The image anticipates the explicitly labeled “arms of Nun” that appear in the center of the lower register on the opposite wall.

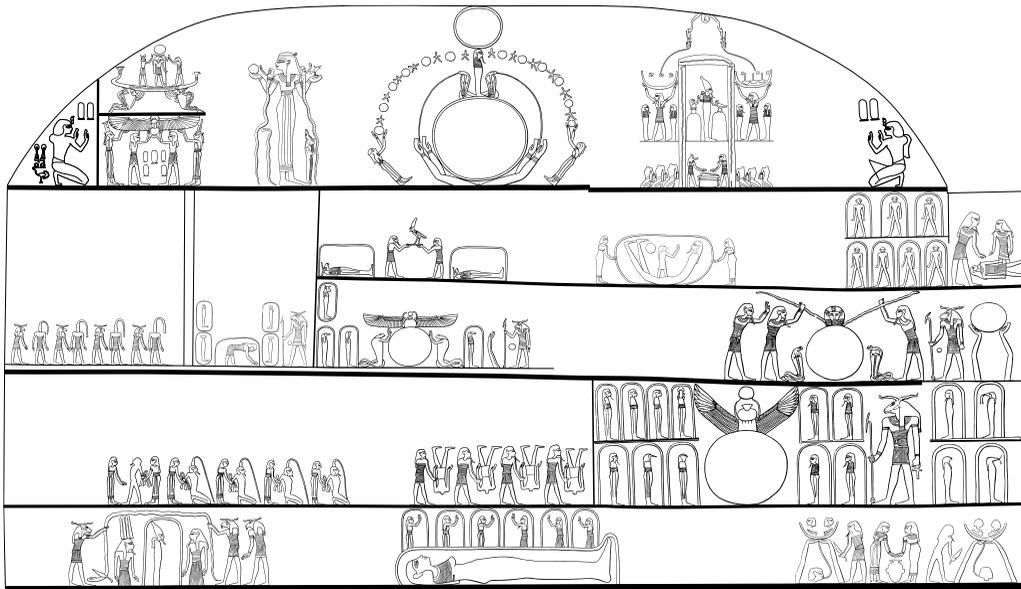


Figure 2.14. Right (ideal west) sidewall from the burial chamber of Ramesses VI. Composite image after Roberson 2012, pl. 7.

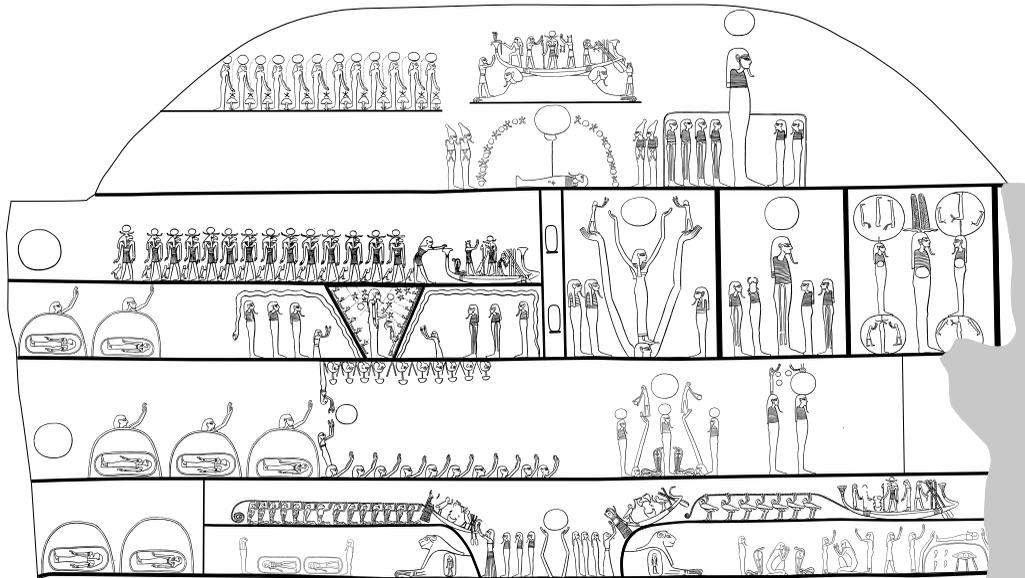


Figure 2.15. Left (ideal east) sidewall from the burial chamber of Ramesses VI. Composite image after Roberson 2012, pl. 9.

mummy atop the largest, central disc, with lines of fire extending from their mouths to the open palms of the gigantic arm pairs. The symmetrical arrangement of multiple paired figures with Solar and Osirian motifs, placed at the midpoint of the wall's upper arch, directly beneath the celestial image of the setting sun, is more than sufficient iconographic evidence to identify the location of this scene as an *akhet*. Nevertheless, the accompanying annotations provide explicit clarification, stating *wnn ntr pn m shr pn ḥꜥ=f ḥr-tp 3ḫ.t=f*,

“When this god is in this form, he stands atop his *akhet*” (Roberson 2012, 318, text 3.1–2), and *prr sd.wt jr.t tn m nbj.w 3h.t tn 3.w ˆ.wj šB šsp.n=sn sw*, “When the flames of this uraeus emerge from the fires of this great *akhet*, already have the two mysterious arms received it [=the solar disc]” (Roberson 2012, 320, text 6.1–5).

Flanking the central *akhet* image on the left is a left-facing personification of the underworld and, on the right, a right-facing image of Osiris in his *k3rj*-“shrine.” Additional, symmetrical images featuring the punishment of the damned flank the exterior of Osiris’s shrine. A final, symmetrical image of the jackal-headed god Anubis and a human-headed deity appears directly beneath Osiris; Anubis and his companion extend their arms protectively over a centrally placed chest, equivalent probably to the canopic chest that holds the embalmed viscera of Osiris himself (Roberson 2012, 282–83). At the far ends of the register, two symmetrical, inward-facing images of the praying king complete the overarching, heraldic arrangement. However, one additional tableau, adjacent to the praying figure on the left, lacks a symmetrical counterpart on the right side of the register. Upon closer inspection, we observe that this conspicuous outlier is, in fact, a self-contained heraldic representation of the horizon personified, as well as a concise, programmatic summary of the entire solar journey. The scene depicts a variation of the solar barque atop the double sphinx Aker, whose symmetrical heads personify the eastern and western transitional zones of the *akhet* itself (§8). The sun god, in his nocturnal, ram-headed form, stands in his barque atop the double sphinx, replicating the position of the solar disc in the *akhet*-hieroglyph. The entire Aker group is supported by a winged scarab, representing the sun in his rejuvenated, daytime form as he is elevated from the depths of the underworld by symmetrical, paired goddesses and paired images of the king, each of which is personalized with the names of Ramesses VI in adjacent cartouches. This complex scene encodes both a horizontal plane of motion from left to right, as indicated explicitly by the direction of the sun god’s boat, and a vertical plane of motion, in which the nocturnal (ram-headed) sun descends into his miniature horizon while the diurnal (scaraboid) sun ascends from it.

I believe that this last programmatic scene was placed here, in conspicuous violation of the overarching, heraldic symmetry of the upper register, to provide a “beginning” to the otherwise ceaseless solar cycle⁴⁶ such that the deceased king might enter the hyperlogogram at this exact point in order to insert himself into the sun’s daily course. This hypothesis is strengthened by the scene’s annotation, *jw nj-sw.t bj.tj* [Ramesses VI] | *tw3=f Rˆ*, “The dual king [Ramesses VI], he elevates Re/the sun” (Roberson 2012, 316, text 1). This text is the only one on either sidewall to mention the king by name in conjunction with multiple, personalized images of the king himself. Such unparalleled repetition and emphasis on the specific identity of the individual king within a single cosmological scene surely holds special meaning for the composition, burial chamber, and tomb as a whole. Significant in this regard is the placement of the royal cartouches relative to the paired royal figures, which constitute yet another nested heraldic arrangement. The duplicate figures stand symmetrically on each side of the king’s names, written in two symmetrical cartouche pairs, which flank the central cartouche in the annotation mentioned above. In this

46 The identity of the left side of the upper register as the chthonic scenes’ beginning is indicated also by the enigmatic hieroglyphs that appear behind the left-hand image of the praising king (see fig. 2.14, with additional references and discussion at Roberson 2012, 13 n. 106).

way, the vertical course of the sun's passage down and then up through the western and eastern mountains of the horizon (i.e., the symmetrical body of Aker) appears to follow the central axis of the king's own name, which text replicates also the central placement of the solar disc in the *akhet* hieroglyph.

The overarching, heraldic symmetry of scenes in the upper register—centered quite literally on the sun itself—evokes through both text and image the transitional zone of the *akhet*, the central axis of which lies directly beneath that of the western sky on the ceiling above, comparably to the “western” celestial and chthonic scenes discussed in the preceding sections (§§8–9). The second, third, and fourth registers, in stark contrast, include various symmetrical and asymmetrical groups, with no clear directionality or orientation along the central vertical axis. However, as in the earlier tomb of Tawosret, et cetera, the vertical axis resumes in the bottom register with a giant figure—in this case, a recumbent female mummy and personification of *htmy.t*, “the place of destruction,” where the damned were annihilated—who appears directly beneath the Solar-Osirian images in the upper register. The giant female mummy is surmounted by a group of four inward-facing symmetrical figures and flanked by two additional groups of figures, each of which exhibit their own, internally symmetrical arrangements.

Turning to the left/east sidewall (fig. 2.15), we observe again the iconicity of the vertical, expressed through heraldic symmetry, as well as the conspicuously central placement of the royal name. However, here at *dw j3b.tt*, the explicitly named “Mountain of the East,”⁴⁷ the overall progress of the solar journey is reversed from that on the opposite wall by beginning at the bottom and moving up, toward the eastern half of the sky, which begins on the edge of the ceiling directly above it. This mirroring of directions extends also to the internal orientation of the bottom register. Whereas the “western” wall began in the *uppermost* register with asymmetrical placement of the solar boat to the *left* of a central tableau featuring heraldic symmetry, we observe in the bottom register of the “eastern” wall an asymmetrical placement of the solar boat to the *right* of a centrally placed heraldic image. In addition, the sun boat's heading was also reversed, thereby exploiting the linguistic interplay between the relative and cardinal directions: the lone solar barque from the upper register of the right/west wall traveled from left to right (i.e., westward bound), while each of the four solar boats depicted on the left/east wall progress from right to left (i.e., eastward bound). Finally, the annotation to the asymmetrically placed barque in the bottom register of the ideal east wall describes the scene as *šsp w3.t nfr:t jn ntr pn 3*, “Taking the good path by this great god” (Roberson 2012, 374, text 65.1), a verbal idiom that connotes the beginning of a journey (*Wb* 4:533.13), in this case, the beginning of the sun's ascent from the east.

The most visually striking aspect of the left/east sidewall is its prominent verticality, which reinforces the sense of solar ascent from the depths of the chthonic netherworld toward the moment of sunrise and the visible sky. This verticality takes the form of a central axis that cuts through three of the four horizontal registers. At the center of the bottom register, we find a heraldic representation of the double sphinx Aker, depicted in this case

47 The location is named as such in the annotation to the goddesses who tow the solar boat in the bottom register: *S3 ntr pn 3 jn ntrw.t . . . r psd m dw p(n) j3b.tt*, “Towing this Great God by the goddesses . . . in order to shine in this Mountain of the East” (Roberson 2012, 375, text 69, 1).

with lions' heads, flanking the solar disc, as it is first received into and then elevated out of the primordial waters, personified as *ḥwy Nnw*, the “arms of Nun/the Primordial Waters” (text at Roberson 2012, 145, 4). As in the Aker images discussed previously, we observe here a combination of horizontal and vertical motion. On the one hand, the solar boat travels horizontally from right/west/night to left/east/day, as indicated by the nocturnal form of the boat on the right and the diurnal form of the boat on the left (see discussion and additional references at Roberson 2012, 151 nn. 159–66). On the other hand, the elevation of the sun disc by the “arms of Nun,” at the center of the heraldic scene, initiates a vertical axis of solar ascent. The vertical axis resumes in the third register from the bottom, where we observe a conspicuously demarcated column containing the names of the king, which pass directly through the middle of the register, through two “upward”-pointing cartouches serving quite obviously as ersatz solar discs. Directly above this column, in the upper register, the vertical axis passes next through the recumbent mummy of *ḥ3.t jmj R*ᶜ, “the corpse in which Re is” (Roberson 2012, 270). The Osirian figure is surrounded in turn by a semicircle of twenty-four discs and stars flanking a larger, central disc. This group—the penultimate scene along the vertical axis of the eastern wall—constitutes a more elaborate variant of a scene that appeared first in the burial chambers of Merneptah, Tawosret, and Ramesses III, albeit on the opposite, western wall (§9). The shifting of this scene to the ideal east in the tomb of Ramesses VI, which might appear to a modern observer as strange or even arbitrary,⁴⁸ should remind us instead of the multivalence and complexity of these sorts of images. Thus individual programmatic representations that summarize the entire solar cycle imply necessarily the totality of cardinal directions, merging the “beginning” and “end” of the sun's journey in a single image (see §5, above, with detailed discussion in Hornung 1981a).⁴⁹ Such programmatic tableaux should not be viewed as inherently or exclusively “eastern” or “western,” but they could be (and were!) nested within larger decorative programs and architectural spaces that were governed by superordinate systems of orientation. Ultimately, it was the (literally) overarching directionality of the celestial decoration on the ceiling, with its explicit east–west axis, as well as any accompanying concluding images on the walls, that oriented the architectural space of the hyperlogogram as such, thereby providing a unified orientation to the various discrete images and nested, microcosmic tableaux from which its decorative program was composed.⁵⁰

Returning to the upper register of the left/east wall in the burial chamber of Ramesses VI, we observe the vertical axis passing finally through a third image of the double sphinx bearing the solar boat. As in all such images, the orientation of the boat itself implies horizontal movement, right to left in the present case, toward the eastern/daytime half of the double sphinx, labeled here as *pr(t) m 3kr*, “Emerging from Aker” (Roberson 2012, 136); the verb used implies movement up and out of the realm of the dead and into the daytime sky (*Wb* 1:520.10–14). From the perspective of iconography, the symmetrical form of the double sphinx and centrally placed solar boat—yet another elaborate personification of

48 Thus Werning 2014, 98–99.

49 For the interchangeability of poles in the *akhet*, see Assmann 1980, §C, 5.

50 Put otherwise, the directionality of individual, programmatic scenes was multivalent and therefore ambiguous, but the directionality of the decorative program as a whole, including the specific architectural setting in which it appeared, was never ambiguous.

the *akhet* hieroglyph—serves as the final point of the vertical axis, directly beneath the images of sunrise in the eastern sky on the ceiling above. In this liminal space, at the very moment the nocturnal journey ends, the programmatic representation both encompasses and anticipates the resumption of the cycle, on the opposite wall. In the closing lines of the annotation to this critical episode (see Roberson 2012, 354–55, text 43.20–22), the Egyptian text evokes the perpetuity of the sun’s transit through the *akhet* in grammatical terms that are explicitly durative—a fitting “conclusion” to a journey without end: *Wnn rd.wy=sn m t3 s33=sn hr b3 3h.tj. Sšmw dwj ntr:w sšm=f R^c hr w3.wt šb.wt. Wnw.wt R^c sšm=sn*, “So long as their feet shall remain in the earth, so shall they stand guard over the *ba* of the *Akhet*-dweller. The leader who calls the gods—he leads Re upon the secret paths. The hours of Re—they lead.”

ABBREVIATIONS

- Amd* *Amduat*; hieroglyphic edition in Erik Hornung, *Texte zum Amduat*. 3 vols. (continuous pagination). Aegyptiaca Helvetica 13–15. Geneva: Éditions de Belles-Lettres, 1987–94
- hr(s). hour(s)
- ISAC Institute for the Study of Ancient Cultures
- KV Valley of the Kings
- Wb* Adolf Erman and Herman Grapow, eds., *Wörterbuch der ägyptischen Sprache*. 7 vols., plus 5 vols. *Belegstellen*. Berlin: Akademie-Verlag, 1935–71

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3

For the Eye Only: Aspects of the Visual Text in Ancient Egypt

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1. INTRODUCTION

Instrumentalist ideologies of writing—harkening back to Aristotle in the West (Glassner 2000, 85) and powerfully reinforced by Enlightenment ideologies of the instrumentality of language itself (Silverstein 2014, 130)—emphasize writing as an ideally transparent vehicle for speech. Writing’s essence would be realized most fully when it affords the most direct, or transparent, access possible to linguistic meaning, when it effaces itself, as it were, behind the linguistic sequence it stands for—when, in other words, writing becomes ideally invisible as such. In actual practice, things are of course very different, and writing is often foregrounded as such, at all times and in all places: suffice it to think, for example, of displayed or exposed writing (both on portable artifacts and in space), of calligraphy and aesthetic or virtuosic investment into writing more broadly.

Egyptian writing is one of two major traditions of hieroglyphic writing, the other being the Mesoamerican one. Among the broader set of complex, logophonetic scripts, hieroglyphic scripts are characterized by their thorough integration with a broader visual culture, their semantic and aesthetic excess with respect to language, and a particular ontology seen notably in the nature of their signs as inviolable entities (Houston and Stauder 2020). Hieroglyphic writing entices; it often attracts attention to itself beyond its representational function of standing for something else, namely, the sequence of speech. A great many modes of Egyptian writing thus involve aspects to be “seen, not heard.” Among them, “enigmatic writing” (also referred to, less adequately, as “cryptography”) comprises a diverse set of extended practices of Egyptian hieroglyphic writing that are set against immediate decoding and toward foregrounding the iconicity inherent in hieroglyphic writing (see, most recently, Klotz and Stauder 2020; Darnell 2020). Inviting a more absorbed engagement by the beholder and at times even a form of experiential reading, enigmatic writing reveals additional levels of meaning. With a partly different scope, another term is “visual poetry” (Morenz 2008). Enigmatic writing or visual poetry can be seen as exploring the very essence of Egyptian hieroglyphic writing and thus as implicit metacommentaries on how this writing could have been viewed by some of its most erudite and virtuosic ancient users.

In the present essay, I follow a somewhat different focus by concentrating on aspects of the text to be seen that are in excess of the linguistic sequence, or verbal text, which writing never ceases to stand for. In the first part, I consider selected spellings of words in relation to their effects on the pragmatics of the texts in which they occur. I discuss graphic dissimilation, which makes the written text more inclusive or encompassing; semantic determinatives/classifiers, as they support the rhetoric of a text on the written level; double entendres, as they enrich the meaning of the written text; and enigmatic spellings in private self-presentations, as they call on the beholder to engage the inscription more deeply and bring about a bond of complicity with that person. In the second part of this essay, I consider the whole of the written text as a visual composition. I present cases in which a visual patterning of the unfolding continuous text in the bidimensional field of the inscription reinforces or adds to the patterning of the verbal text, as well as a case in which intratextual connections extending over an entire text are realized on the graphic level only. The implicit background in all cases is with the people who fashion the visual text in ways to make it more effective, often with a strongly addressive dimension.¹

2. PRAGMATIC ASPECTS OF THE VISUAL TEXT

2.1. GRAPHIC DISSIMILATION: MAKING THE WRITTEN TEXT MORE ENCOMPASSING

In the following sentence from Unis's Pyramid Texts (c. 2350 BCE), two occurrences of the same inflected form of the same verb in the two otherwise symmetrical parts of a balanced sentence are dissimilated visually. The first one is purely phonetic, the second one purely logographic:

hw.w [𓆎𓆎𓆎𓆎] *wnis* *hw(.w)* [𓆎] *itm*
 “Whenever Unis will be hit, Atum will be hit” (Pyr. 492c^w [PT 310]).

Both spellings are playful. The first one is based on a reading out of what meets the eye: 𓆎𓆎𓆎—three instances of the sign 𓆎, a phonogram for *h*. Given the convention that graphic triplication stands for plurality, this group of signs can be read out, quite literally, as “*h*'s,” that is, in Egyptian, “*h-w*” (with *-w* being the regular plural ending of nouns).² Per

1 For practical reasons, hieroglyphs are given mostly in digital font, and in lines running from left to right regardless of their positioning (often in columns) and orientation (more often than not, from right to left) on the original monument; hieratic, moreover, is transcribed into hieroglyphs. Particularly in a study concerned with the visual aspects of writing such as this one is, it must be emphasized that digital-font hieroglyphs represent a modern standardization and thus a step of abstraction away from the actual incarnations of hieroglyphic signs (Meeks 2004, i–xvii; 2007), yet one that should not adversely affect the specific argument developed here. Drawings or photographs preserving the original orientation and forms of the signs are given when crucial to the argument.

2 Such pseudoplurals are not uncommonly used in writing various words; for example, 𓆎𓆎𓆎, “*h*'s,” in *hw(i)*, “protect” (Edel 1955–64, §49). A more pronounced ludic intent is demonstrated in words in which this type of spelling is more exceptional. Further examples of the latter in the Pyramid Texts include, for example, 𓆎𓆎𓆎, “*h*'s,” in Egyptian “*h-w*,” as a rare spelling of *hw*, “long” (e.g., Pyr. 427a^{wTPNNI} [PT 286]), or 𓆎𓆎, “*h*'s,” as a rare spelling of *hw* (a clause-initial complementizer; e.g., Pyr. 1179bMN [PT 515]; for further examples, see Weill 1930 [with analyses now outdated]). Implying a repetition of words like the example developed in the main text, another instance of graphic dissimilation is the following, with the first spelling similarly also based on a pseudoplural triplication: “these cool waters have come forth [*pr.w* 𓆎𓆎𓆎] (i.e.,

rebus,  is thus made to represent the segment *hw* in the (final-weak) verb *hw(i)*, “strike” (with  marking the prospective passive ending *-w*). In the second spelling, , a stick is seen striking the sign . This reduced form is typical of the Pyramid Texts,³ notably of , a sign that is interesting in its own right and warrants a short digression. In , the man, which itself has the logographic value *hw(i)*, “strike,” quite literally strikes his phonetic complement *h* (). The combination  and, similarly, its reduced form  imply a rupture of semiotic planes between depiction (the direct representation of a man striking: ) and phonography (, not seen as the depiction of twisted flax, its visual referent, but as “an *h*,” the sole value for which it regularly stands). The overall result is a triple bind between the sign () and its value:  individually has the logographic value *hw(i)*, “strike”;  adds the phonogram , *h*, representing the only strong root consonant of the verb; and the same , furthermore, points to the action of “striking” through the implied rupture of semiotic planes. Specifically, the rupture of semiotic planes (a depiction acting on a phonogram) passes precisely where the action of “striking” takes place, namely, at the juncture of the two individual component signs. It therefore has deictic force, pointing to the very action of “striking” that takes place. Visual incongruity thus achieves a yet higher level of visual coherence.⁴

The example just presented is an elaborate instance of graphic dissimilation—the deliberate variation in the written form of the same word, or sign, in one text.⁵ Graphic dissimilation is pervasive in Egyptian inscriptions of all genres, types, and periods and can almost be seen as one characteristic of the practice of hieroglyphic writing. In the above example, it also comes with a seeming paradox: by definition, graphic dissimilation is for the eye only, yet the Pyramid Texts were inscribed in the sealed-off funerary apartments of the pyramid, not to be seen after their inscription. Certainly, *Vorlagen* for such inscriptions existed and were kept and to be seen: behind these texts lurk people who composed them in their written form. In an example such as the one presented here, one almost senses the wit of ancient actors, perhaps even a form of playful emulation between peers. Yet the fact that the texts in their final, not-to-be-seen inscriptional form include such graphic elaboration is what merits attention here. It demonstrates in an exemplary fashion that graphic dissimilation can enhance the text in a fundamental way, make it richer, more inclusive or

pr-r^{PLUR-w}] from your son, *have come forth* [*pr:w*  (*pr-r-w*)] from Horus” (Pyr. 22aW-d [PT 32]); “(. . .) these cool waters *have come forth* [ (*pr*^{PLUR})] from your son, *have come forth* [] from Horus” (Pyr. 22aNt-d [PT 32]); other attestations of the same spelling (PT 32) in the pyramids of Unis and Neith, as well as in the other pyramids, have the regular  throughout.

3 For this phenomenon, classically referred to as “sign mutilation,” in the Pyramid Texts, see Kammerzell 1986; Lacau 1913; in the Coffin Texts, see Schenkel 2011.

4 Similar principles are seen in a series of other signs: for example, , “carry, lift,” based on  with similar value (among others), where the phonogram *f* () is, quite literally, “carried,” replacing the basket in a sign () that in itself already stands for *fi*, “carry, lift”; or , “give birth,” where a woman gives birth, quite literally, to the phonogram *ms* (). Slightly different is the case of , a phonogram for *nh*, where the phonogram  (*h*), replaces, and thereby deictically emphasizes, the visually distinctive feature of the guinea fowl (), itself the basic phonogram for *nh*. This type of sign formation is productive from early times on:  and  are documented from the Old Kingdom forward (Fischer 1977, 9),  from the Fourth Dynasty forward (Schweitzer 2005, 213), and  already by late archaic times (Kahl 1994, 432, a17).

5 For the parent notion of “linguistic dissimilation,” see Vernus 1996, 164–65.

encompassing, more able to reflect the created world—regardless of whether or not this graphic text will meet an actual eye.

2.2. FORM AND SELECTION OF GRAPHIC CLASSIFIERS: SUPPORTING THE RHETORIC OF THE TEXT

Semantic determinatives/classifiers, which do not correspond directly to any segment in the sequence of speech, contribute to the meaning of the text to be seen.⁶ I present two cases in which they do so on a level that is fundamental to the rhetoric of the overall text. In the first case, the selection of signs achieves a double entendre that is essential to the rhetoric of a literary text. In the second, variations in the form of depictive signs contribute to the visual rhetoric of an inscription.

In the Ramesside *Tale of Horus and Seth* (c. 1150 BCE; hieratic), a lengthy argument pits Horus and Seth against each other for a span of some eighty years over who will inherit the royal function from Osiris. At one point during this competition, Isis, having transformed into a beautiful maiden, tells Seth the story of a son deprived of his dead father's "cattle" (*i3wt*), thereby prompting Seth to respond that the cattle must be given to the son as the proper heir and to none other (6.12–13). Revealing her true nature, Isis exclaims to Seth that he has just condemned himself (6.14–7.1), for he has in fact spoken of the "office" (*i3wt*) of kingship. In lieu of making a proper argument, Isis has tricked Seth through a wordplay.⁷ In the *spoken* exchange, and similarly in any possible performance of the literary text before an audience, Seth (and the audience) could not have known in advance of Isis's ploy to trick him; both Seth and the audience have the same level of information. In the linguistic context of the dialogue in which it first occurs, *i3wt* stands unambiguously for "cattle." For the audience and for Seth alike, the linguistic paronomasia thus reveals itself only after the fact, once Seth has effectively been tricked into condemning himself. On the manuscript that bears the text (P. Chester Beatty I), by contrast, the trick is made clear to the astute reader. The first occurrence of *i3wt* is written not with its proper classifiers (𓆎 or 𓆏) but with the classifier of the word *i3wt*, "office" (𓆑). The text as written down thus anticipates the rhetorical conclusion on the visual level: the duplex signification of the written form, in linguistic context *i3wt* ("cattle") but graphically *i3wt* ("office"), reflects Isis's duplicity, with which the reader is made complicit (Broze 1996, 137–45; Coulon 1999, 126–27).⁸

A millennium earlier, Weni's autobiographical inscription (c. 2275 BCE), the longest one from the Old Kingdom, presents graphic elaboration in addition to considerable elaboration in its verbal rhetoric. In the first of three major sections, two passages resonate contrastively with each another on phraseological and semantic grounds: "I used to instruct every case, alone with the *vizier* () in every secret matter" (col. 3); then, "His Majesty had me go down to instruct the case alone, there being no *vizier* () nor any official,

6 To avoid entering a terminological debate on a matter that is not the topic of the present chapter, I use here "semantic determinative/classifier" once, then simply "classifiers." For an analysis of these signs as "classifiers," see Goldwasser 2002; Goldwasser, in press, and the studies by Goldwasser and Selz in this volume.

7 On social representations of rhetoric in Ramesside literature as a game of deceit entirely disconnected from any ethic values, see Coulon 1999, 117–32.

8 The *Tale of Horus and Seth* is rich in further such "graphic manipulations"; see Broze 1996, 129–56.

except me, alone” (cols. 10–11).⁹ In the first instance, the classifier of the word “vizier” is a seated man holding a baton. In the second instance, in what seems to be a reference to a foiled plot (to which decorum permits allusion only obliquely), the overly common sign of the seated man (holding no baton) is used (el-Khadragy 2002, 62, 72, fig. 3). Although regular in itself, this classifier contextually contrasts with the exceptional form of the classifier of the same word, the seated man holding a baton, in column 3. In the rhetoric of self-presentation of the “event autobiography” (Stauder-Porchet 2017, 225–73), the exceptional nature of Weni’s action for the king in the second situation is thereby subtly highlighted on the visual level.

In the second section of the same inscription, Weni is sent out by the king to lead an army of “many tens of thousands” against “the Asiatics who are on the sand.” The classifier of *mšꜥ*, “army” (cols. 15, 17, 23–27) appears as a seated man with a fillet and streamer, underscoring on a visual level that this army led by Weni consists substantially of foreigners (el-Khadragy 2002, 64–65). Preceding the classifier, the logogram of the same word is also remarkable. It is usually a kneeling man holding a quiver and an arrow. In Weni’s inscription, the quiver is exceptionally substituted with a mace (el-Khadragy 2002, 63–64): . The mace, a royal insignia, is the weapon the king wields in the foundational visual icon that shows him smiting the enemy. In the logogram for *mšꜥ*, “army,” the mace recurs only once elsewhere (in an inscription in the Wadi Maghara in the southern Sinai), in association with precisely that visual icon (Gardiner, Peet, and Cerny 1952, 1:pl. 8.16; Urk. 1:92.1; in the caption to the scene itself, the presence of the mace in the spelling of the verb *sꜥti*, “strike,” is also noteworthy [Urk. 1:91.12]). While the detailed geography of the expeditions led by Weni remains under discussion, the southern Sinai seems to have been a general target of these attacks. In Weni’s autobiographical inscription, the substitution of the quiver with a mace alludes to the visual icon of the king smiting the enemy. The exceptional form of the logogram thereby underscores that this army is a royal one on a purely visual level. Furthermore, the sign expresses that these expeditions are performances of what the fundamental visual icon of the king smiting the enemy itself stands for. In an inscription that is all about projecting royal agency (Richards 2010; Stauder, in preparation), Weni himself is thus framed as the king’s acting arm.

2.3. DOUBLE ENTENDRES: WORDS INCORPORATED INTO THE SPELLINGS OF OTHER WORDS

While hieroglyphic writing allows for much variation, words have regularized spellings (one or several) that are significantly more common than other possible ones at a given period of time and in a given type of text broadly understood. Given these regularized spellings, a visual double entendre can be achieved through any contextually appropriate deviation from the conventional spelling(s) associated with a given word, whereby the deviation involves the insertion, into the written representation of that word, of (the) signs

⁹ The images for Weni’s inscription are courtesy of Philippe Collombert (photo Arnaud du Boistesselin).

standing for another word. The phenomenon is pervasive, and I limit myself to supplying a few lesser-known examples from various types of texts.¹⁰

Beginning with funerary literature, in a passage in the Pyramid Texts the sequence *-mwt* in *šmwt*, “goings,” is rendered with a triplicated , a phonogram for *mt* or *mwt*, and also a logogram for “mother” (*mwt*). On the graphic level only, the meaning “mother” is thereby included in the spelling of “going” so that “these your goings” and “Horus’s goings” can also be seen as pointing to “these goings of your mother” and “the goings of Horus’s mother,” respectively, thus alluding to the mythic constellation that associates Isis with Horus and Osiris. In a passage in the Coffin Texts, the interrogative *pty*, “what” (regularly written  and the like) is rendered graphically by the homophonous , *pty*, “two heavens.”¹¹ The result is a visual pun between *t3*, “land” (present in the linguistic sequence, heard and seen) and *pt*, “dual heaven” (present in the ludic writing of the interrogative word *pty*, “what,” seen only):

*iws*w *šmt*=*k* *tn* *iws*w *šmwt*=*k* [  ] *iptn* *šmwt* [  ] *hr* *m* *zhnw* *it*=*f* *wsir*

“Alike^[12] is this your going, alike are these your *goings*—*these goings of your mother* to Horus’s *goings*—*the goings of Horus’s mother* in search of his father Osiris” (Pyr. 1860a–c^N [PT 659]; sim. 768a–b^{PMNNT} [PT 424]).

“*What*—*dual heaven*  is this *land* (*t3*) of the horizon-dwellers?” (CT IV 222/3c M7C, M8C).

In Bebi’s funerary self-presentation (el-Kab 8bis, c. 1600 BCE; Kubisch 2008, 274–79), the word *šmw*, “summer” (regularly , *š-mw*-TIME) is realized as  (Š-*m3*-*3*-SEASON): the sign of the sickle  (phonetically *m3*, hence *m* + vowel) which replaces  (phonetically *mw*, hence *m* + vowel) is playfully incorporated into the semantically allied word “summer.” Just before, the phonetic substance of the god of grain, *npr*, is written exceptionally with the near-homophonous sign , otherwise a logogram for *nfr*, “good.” On the visual level, the god Nepri becomes “the Good One.”¹³ In the context of a funerary self-presentation, the overly common topos of the speaker provisioning for his town is here given an entirely original expression on the visual level (Morenz 2006):

10 Phrased in these general terms, the same principle also underlies much graphic play in the first millennium. It is one core principle, for example, of “unetymological” spellings in Demotic, especially in sacerdotal milieus, with various, not mutually exclusive functions (e.g., Widmer 2004, 672–83; 2014; Quack 2011; Stadler 2017, 94–99). Besides making it possible to write a word that has no received (i.e., historical, “etymological”) orthography in Demotic (e.g., an ancient word in an ancient ritual text), unetymological spellings can, through incorporation of the spelling of another word or phrase that sounded similar in the contemporary spoken language, serve to indicate a word’s or phrase’s pronunciation more accurately than the received conventional (historical, “etymological”) spelling would do. By the same process, an unetymological spelling can carry a supplemental semantic load associated with the word or phrase it incorporates, thus resulting in double entendres on the visual level only. Here as well, the fact that words have received conventional spellings, and that other similarly sounding words have other received conventional spellings, is key.

11 Noted by Borghouts 2010, 2:90. On pseudoduals, a phenomenon akin to pseudoplurals mentioned above, see, for example, Borghouts 2010, 1:77.

12 The meaning of *iws*w is disputed; I follow Oréal’s (2011, 252–63) interpretation of the term as expressing an analogy.

13 On the alternation *p~f* in this and related texts, see Vernus 1987.

ink ir it mry nfr [𓂏𓂏𓂏] *rs-tp m prt kn-^c m šm?* [𓂏𓂏𓂏] *iw ḥkrw ḥprw*

“I am a maker of barley, one beloved of *Nepri*^{the Good One}, one watchful in winter, one with valiant arm in *summer*^{sickle}. Famine occurred” (Bebi, tomb el-Kab 8bis, 3–4a+4b).

In the main manuscript of the Middle Egyptian literary *Neferti* (P. Petersburg 1116B, c. 1400 BCE, date of composition debated;¹⁴ hieratic), the narrative past morpheme *-in-* (usually written 𓂏, phonetically *i-n*) is once written 𓂏, as though it were the verb *ini*, “bring, fetch.” The latter is thereby included in the spelling of *st3.in.tw*, an inflected form of *sβ*, “introduce”:¹⁵

st3.in'.tw <*n*> = *f hr-^c* [𓂏𓂏𓂏𓂏𓂏𓂏𓂏𓂏]

“(Go and bring [*is in*] to me the Council of the Residence that has come out from here from [today’s] Salutation.) Then there was *introducing*^{and bringing} to Him [i.e., His Majesty] right away” (*Neferti* 1h, P. Petersburg 1116B, 4–5).

As the ludic writing here makes explicit, an “introducing” to the king (*st3*) implies a “bringing” (*ini*) before the king. Further, it evokes the formulaic expression *is in n=i*, “go and bring to me,” present in the preceding line. While *Neferti* 1h has *sβ* on the linguistic level, the ludic spelling of the verbal morphology includes *ini* on the written level.¹⁶ Another case presents itself when two different words or phrases are regularly written similarly: provided an appropriate context to support it, the graphic double entendre can result naturally, without further elaboration in writing. In the Middle Egyptian literary *Debate of a Man and His Ba* (manuscript c. 1800 BCE, composed perhaps some decades earlier; hieratic), the anaphoric strophes of the Man’s third litany begin with *mk b’h rn=i mk* [𓂏] *r* [. . .], “Look, my name reeks, *look*, more than [. . .]” In written form, *mk*, “look,” is homograph with *m-^c=k*, “due to you” (both 𓂏), thus allowing an alternative reading as “Look, my name reeks, *due to you*, more than (. . .)” (Parkinson 2002, 221). Such double entendre is possible on the written level only, as any performance would have had to choose between the two words written similarly on P. Berlin 3204. Significantly, both readings are found in Egyptological reception of this passage.¹⁷

2.4. APOSTROPHE AND IN-GROUP INDEXICALITY: ENIGMATIC SPELLINGS IN FUNERARY SELF-PRESENTATIONS OF THE LATE FIRST INTERMEDIATE PERIOD AND EARLY MIDDLE KINGDOM

Unique and/or visually very elaborate signs attract the beholder’s eyes. Unusual spellings challenge the beholder’s mind and call upon that person’s knowledge and cleverness. I illustrate these addressive dynamics of writing in funerary self-presentations of the late

14 See the discussion in Stauder 2013, 337–433.

15 Contrast this spelling with the regular spelling in the similar formula in the same text, 𓂏𓂏𓂏𓂏𓂏𓂏𓂏𓂏, *st3.in.tw=f n=f hr-^cwy*, “Then he [i.e., Neferti] was introduced to Him right away” (*Neferti* 2g, P. Petersburg 1116B, 11–12).

16 The same playful spelling recurs once, in the inscription of Nakhtmin at el-Salamuni (Gabolde 2015, 455–64; Kuhlman 2007; Ay, c. 1325 BCE), l. 11, in a similar context also evoking the genre of the *Königs-nouvelle*. The inscription of Nakhtmin is here arguably alluding to *Neferti* (Stauder 2019).

17 For discussions and translations of this passage, see Allen 2011, 79–80.

First Intermediate Period and early Middle Kingdom. In them, writing can be affirmative of an aspect of one's identity. It can be strongly interpellative, drawing attention to one's funerary monument. And it can establish a bond of complicity with the beholder able to appreciate the out-of-the-ordinary sign or spelling that is presented. As a result, such an extended and often virtuosic practice of writing can itself become an index of a social group—those versed in and able to appreciate these graphic plays—and conceivably a token of competitive emulation within that group.¹⁸

Among other tokens of a rich graphic elaboration, Antef son of Myt's stela Ny Carlsberg Glypt. 1241 (Mentuhotep III, c. 2000 BCE; *TPPI* §32) has a unique sign—, used as classifier of *sḥ*, “erect”—in the sequence  *sḥ.n(=i) 3w=s*, “I have erected its columns” (l. 11).¹⁹ The sign is made to stand out visually even more strongly by its reversed orientation, not facing the reader (Morenz 1998, 243–46, with further discussion). In Weha's slightly earlier stela ISAC Museum 16956 (c. 2100 BCE; Dunham 1937, 102–3, pl. 32; Teeter 2003, 33–34), *ḥtr*, “span of oxen, yoke,” is written logographically with a sign that seems to be unique as well (see fig. 3.1). The pictorial elaboration of that sign, and its sheer length (extending over what would be two quadrats) attracts further attention. The sign occurs in an otherwise fairly standard phraseological sequence, expressing the speaker's economic autonomy, as is recurrent in the First Intermediate Period: lines 5–6, “I am an excellent independent man, who lives on his [own] goods, who ploughs with [his own] *span of oxen*, who sails in his [own] boat.” This expression is here enhanced and made unique on the visual level. It is probably not coincidental that the sign sits just above the place at which the pictorial representation of Weha looks, as though emanating from it. The visual presentation makes it appear almost as though Weha were the “creator” of a sign that, in its out-of-the-ordinary nature, accrues to his distinction.

The eye is also enticed when reading meets resistance. Enigmatic spellings in nonroyal monuments²⁰ entice because of their out-of-the-ordinary visual nature and because they require additional attention by the reader. Instead of accessing the linguistic sequence immediately, the beholder is called upon to dive deeper into the signs of writing themselves. Turning back to Antef son of Myt's self-presentation, the following sequence does not correspond to any regular sign combinations at the time (Antef son of Myt, Ny Carlsberg

18 Similar dimensions of in-group indexicality and competitive emulation are present in other historical contexts than the ones illustrated below, for instance in sacerdotal milieus of the Ptolemaic and early Roman periods. A remarkable case in point is a short Ptolemaic hymn to Isis at Philae, in which the same initial phrase is repeated at the beginning of all five columns of the inscription, each time in a different written elaboration. What is more, the outer columns are relatively easier to read than the highly virtuosic middle ones: the difficulty of writing is graded, the outer columns providing cues for reading the middle ones, in a graphic composition in which the author of the inscription plays games with the reader (Klotz 2015). Through such virtuosic writing, priests celebrate not only the inexhaustible richness and diversity of divine attributes but also their own identity as a group.

19 The signs are here reproduced in their original orientation, from right to left, so as to highlight the reversed orientation of the classifier under discussion.

20 I use “enigmatic” (following Darnell 2004) rather than Drioton's “cryptographic.” While the latter is more entrenched in Egyptological parlance, it is a misnomer, as it would wrongly imply an intent to hide contents through writing and a key to decode them. For enigmatic writing on nonroyal monuments, see, for example, Diego Espinel 2014, 2020; Darnell 2020; Klotz and Brown 2016; Morenz 2008; Darnell 2004, 1–2; Seidlmayer 1991; Drioton 1933a, 1933b. For enigmatic writing in the New Kingdom more generally, see the studies in Klotz and Stauder 2020 and the lexicon of values by Roberson 2020.



Figure 3.1. Left: Weha stela ISAC Museum 16956, line 6 (close-up). Right: Lines 5–7 with top of pictorial representation. Courtesy of the ISAC Museum, University of Chicago.

Glypt. 1241; *TPPI* §32, l. 4; Morenz 1998, 246–48): . Upon repeatedly inspecting the sequence, a skilled and imaginative reader would realize that the spelling is based on a description of what meets the eye: “horns [*wp*] and fish [*bs*] above [*hr*] heads [*tp*],” whence, per rebus, *hri-tp wp bs*, “a superior who opens the initiation.” In the context, Antef son of Myt describes himself as “the like of Ptah in [completing] his mind, who gives rules to the directors of all crafts, a superior who opens the initiation [] into all crafts.” The enigmatic spelling concerns precisely the phrase that is about restricted knowledge: writing itself becomes a representation of that restricted knowledge (Morenz 1998, 248).

Irtysen’s roughly contemporary inscription (Louvre C 14) is all about the display and staging of restricted knowledge as defining the speaker’s trade as a sculptor (Fischer-Elfert 2002; Stauder 2018). Among many things that Irtysen claims to “know” is the “hidden knowledge of hieroglyphs” (*sšt n mdw-ntr*, l. 7), a claim that is reflected in the considerable graphic elaboration and enigmatic qualities in several parts of the inscription. These include instances of double entendre resulting from a reduced determinacy of meaning in spellings that lack classifiers. In lines 8–9, the context thus indicates that *šdt* is “taking out,” conceivably in reference to sunken and raised relief sculpture.²¹ One could accordingly be tempted to read: “I know the parts [*ršw*] of the . . . [?],²² the taking out [*šdt*] and allowing in as it goes out or in.” Yet the spelling of *šdt* () lacks any classifier (cf. regular ) with the classifier , a graphic underdetermination that opens the possibility for an alternative reading as “reciting,” from a homophonous root regularly written with another classifier (, ). The metric line that has *šdt* forms a pair with the preceding metric line in which Irtysen speaks of his knowledge of the “parts [*ršw*] of the . . . [?],” conceivably in relation to the canon of proportions(?). The unusual writing of *ršw* with triplication () attracts the beholder’s attention by suggesting that more may be at stake here. Under the possible alternative reading of *šdt* as “reciting,” *ršw* could itself be read alternatively as “formulae” rather than as “parts.” Both terms then resonate with the ritual knowledge that Irtysen emphasizes at the beginning of his self-presentation (ll. 6–8). The underdetermination resulting from the lack of a classifier in *šdt* thereby opens a whole additional layer of possible meaning in the text:

²¹ For the interpretation of this entire, much discussed section, see Stauder 2018, 245–46, 254–55, with references to previous discussions.

²² *Bšgw*, a crux. See references to previous discussions in Stauder 2018, 245–46.



Figure 3.2. Irtysen, l. 10, detail. Courtesy of Dimitri Laboury.

“I know the *parts*^{-formulae} [𓂏] of the . . . [?],
the *taking out*^{-recitation} [𓂏] and allowing in as it goes out or in.”

In the beginning of line 10 (see fig. 3.2), *ks*, “bent,” is written not with its regular classifier, 𓂏 (indicating bent and the like), but exceptionally as 𓂏, with the classifier otherwise found in 𓂏, *ꜥt*, “striking power (of the king).” The written form of the word thus evokes overtones that enhance the context: “the bent^{-striking power} of the one [i.e., the king] who strikes a single captive.” The graphic realization of the following clause, 𓂏𓂏𓂏𓂏, is playful too: upon a first approach, 𓂏𓂏𓂏 is *snt* (*sp-2*)=*s*, “sister [twice], its”; whence, unpacked, *snt snt*=*s*, “sister, sister, its”; whence, by homophony of the words “two [feminine]” and “sister” (both *snt*), *snt 2*=*s*, “its two sisters.” Moreover, the sign read *sp* (O) in *sp-2* is in fact not the sign in its regular form (O) but a morphologically similar one, the “pupil [of an eye]” (*dfd*), itself susceptible of standing metonymically for the eye (Bryan 2017, 7 n. 1). Going further, the sequence 𓂏𓂏𓂏, *snt* (*sp-2*), lends itself to an alternative punning reading: “*snt* [twice]”; whence “*snt* [dual],” that is, read out, “*snty*”; thus, by homophony, *snty*, “likeness, representation,” a term that has further resonances in a sculptor’s self-presentation. Spanning through this metric line, a visual chain thus expresses how the king’s gaze as a manifestation of his “striking power” (𓂏) meets and terrifies the gaze of the ritually bound enemies he smites, both the objects of the sculptor’s representations.

“[I know. . .]
the *bent*^{-striking power} [𓂏] of the one who strikes a single captive [𓂏],
how the *eye* [𓂏] looks [𓂏] at *its two sisters*^{-eye’s pupil-representation} [O],
and the *making fearful*^[23] of the *face* [𓂏] of the bound enemies [𓂏].”

By yet another graphic double entendre, the speaker’s very name (conventionally rendered as “Irtysen”) can be read either *irty=sn*, “Its-two-eyes,” or *ir-ir(w)=sn*, “Maker-of-their-form,” a fitting self-description for a sculptor. Either way, its graphic form, 𓂏𓂏𓂏, is conceivably punned upon in the graphic chain just described: 𓂏 – 𓂏 – 𓂏 – O – 𓂏 – 𓂏.

Enigmatic spellings conceal: they make reading difficult at first, and possible at all only to the few. Enigmatic spellings also reveal supplemental layers of meaning beyond the verbal sequence and, as Antef son of Myt’s and Irtysen’s inscriptions illustrate, reinforce indexicals of the speaker’s restricted knowledge (Stauder 2018; Loprieno 2001, 16–19; Morenz 1998). In these inscriptions, the play with writing creates a bond of complicity with the astute reader and is integral to the speaker’s self-presentation. By definition, restricted knowledge cannot be exposed as such; it can only be hinted at obliquely. Here this hinting is done reflexively, in

23 On the verbal level, *ssnd*, “make fearful (the face of the enemy),” is in alliterative resonance to the preceding *snt snt*=*s*, “its two sisters.”

and through writing itself. In Irtyzen's inscription, additional layers of meaning are revealed only slowly and upon repeated inspection, and indeterminacy remains in several cases. The reader is left with the idea that there is probably more than what he is able to grasp. The experience of incomplete decoding is itself made a figuration of the restricted knowledge that the inscription is all about, a knowledge that can never be fully revealed.

3. THE WRITTEN TEXT AS A VISUAL COMPOSITION

3.1. VISUAL PATTERNING REINFORCING OR ADDING TO THE PATTERNING OF THE VERBAL TEXT

Through features of layout that are immediately visible, written texts are structured and made to express significations in ways that go beyond what they convey in solely linguistic terms. In complex administrative documents, for example, the tabular format is functional, structuring the information visually as well as being expressive of a claimed orderliness of practice (Kemp 2006, 163–71). As a framing indexical (Foley 1997, 360–71), layout marks genres (for example, the format of the royal decree—*wꜥ* in Egyptian—which in the Old Kingdom consists of a horizontal line above a series of vertical columns, the first with the royal name) or evokes them (for example, in Weni's autobiographical inscription discussed above, where the visual framing as a *wꜥ* points to the importance of royal agency in the inscription [Richards 2002, 82, 96]). In structuring the overall visual field, layout can, furthermore, be expressive of cultural hierarchies. In the trilingual sacerdotal decrees of Ptolemaic times (e.g., the Rosetta Stone), for example, the text in the high-prestige hieroglyphic script (linguistically in the equally prestigious *égyptien de tradition*, an artificial form of Egyptian emulating varieties of the language that harken to times past) is inscribed in the topmost position, above the text in the Demotic script (and in a variety that, albeit formal, corresponds to the contemporary language), while the text in Greek script and language are in the lowermost position (Vernus 2016, 1). In contrast to cases such as the above, various other features of layout concern the inner structure of a text's continuously unfolding sequence of lines and columns. Such features of "internal layout," as they could be called, are not immediately manifest and require repeated attention to be noticed. Elements of the structure of the underlying verbal text can be mirrored in its internal layout ("seen and heard"). Layout can create visual patterning that not only reinforces but also adds to the patterning of the verbal text ("seen, not heard"). Subtle features of inscriptional layout can be deployed on a wall in relation to pictorial representations that form a unit with the textual inscriptions. In this section, I illustrate how internal layout can be integral to framing the inscribed text and its significations, and how it calls for a particular engagement of the beholder and reader.

In general, texts, and particularly inscriptions, are written as continuous strings of lines or columns, so the often elaborate poetic structure of the underlying verbal text is not immediately visible ("heard, not seen"); verse, for example, is generally not manifest visually in an inscription.²⁴ On occasion, however, part of this poetic structure of a text is

24 The stychic layout of lines 13–23 of Thutmose III's Poetic Stela (Urk. 4:611–19, c. 1430 BCE; e.g., Goldwasser 1995, 60–62) is exceptional.

mirrored visually in the layout of the inscription. Thus, in Hezi's autobiography (c. 2300 BCE), the verbal text consists of a complex, tripartite symmetric form with framing palindromic elements in its outer parts. On the doorjamb on which this text is inscribed, signs are spaced or squeezed in such ways that the three parts of the verbal text are made to correspond neatly to the columns (cols. 1–2, col. 3, and cols. 4–5, respectively). The central section, the rhetorical high point of the inscription, is thus concentrically focused both in the verbal text and in the layout (Stauder-Porchet 2015). Inscriptions of the Old Kingdom more generally present a number of features of layout attesting to the care that has gone into crafting them—not only as verbal texts but also as visual compositions that were meant to be engaged with as localized dimensional artifacts (Stauder-Porchet 2021a). While the verbal text mirrors a sequence of implied speech, the inscribed text—in columns, lines, or both—exists as a visual composition in a typically bidimensional field. In this field, meaningful units, such as sentences, can be fitted to columns (or lines) even within the unfolding continuous text. Salient elements or articulations can be fitted to the top, or less commonly bottom, of columns (or lines), and in these distinguished positions they can be made to resonate with one another across a distance; the text can be laid out so that elements resonating with one another are horizontally adjacent across successive columns.

Werre's inscription (c. 2450 BCE), for instance, tells of the consequences of an unwarranted and potentially disruptive encounter between Werre's foot and the king's *ames-club* during a ceremonial occasion. Through his speech, the king makes sure that Werre is left unharmed by the encounter and orders his words to be turned into the inscription that we see. The layout of the inscription mirrors this articulation of the verbal text: the royal word is set twice on top of the column (top of col. 4, *wd3.ti*, "You are safe!"; top of col. 5, *wd3=f*, "that he be safe"), and so is the place to which this royal word is destined as an inscription (top of cols. 7 and 10, *hr/m iz=f*, "on/in his tomb"). At the juncture between these two elements—the royal word that Werre should be whole and Werre's tomb inscribed on the king's order—is an expression of what justifies this extraordinary royal favor: *sk sw špss* ⁽⁶⁾*hr hm=f r z nb*, "as he [Werre] was eminent [top of col. 6] with His Person [the king] more than any man." In the ten-column-long inscription, this expression of Werre's unique eminence with the king is wrapped precisely around a virtual central axis, with Werre in the lower part of column 5 and the king, fittingly, in the upper part of column 6 (Stauder-Porchet 2021b).

Similarly, extending over a whole facade, Harkhuf's inscription at Qubbet el-Hawa (c. 2250 BCE) presents a great many significant features of inscriptional layout (see detailed analysis in Stauder-Porchet 2020a, 2020b). The event autobiography, for instance, is laid out so that the various foreign lands traveled by Harkhuf surround the pictorial representation of the standing official on the right side: in column 6 along his staff of authority and in the shorter columns 8–13 surrounding his head. Through the iconic semantic classifiers, even not fully literate viewers could have recognized that these words were names of foreign lands: a synthetic visual biography expanding the standing figure of the expedition leader Harkhuf. In the royal letter inscribed on the outer right of the same facade, the king anticipates the reception of his own inscribed words by future generations in the exact central columns of the letter (cols. 11–12, between cols. 1–10 and cols. 11–22). Like the inscriptions of Hezi and Werre, the royal letter to Harkhuf is laid out so as to mirror its centrally focused structure visually.



Figure 3.3. Irtysen, ll. 5–9, detail. Courtesy of Dimitri Laboury.

To a lesser extent, Middle Kingdom inscriptions also present significant features of inscriptional layout. Line breaks at meaningful junctures have been observed, for instance, in the inscription of Hor (Wadi el-Hudi 143, c. 1950 BCE; Galán 1994, 66) and Khusobek (Manchester 3306, c. 1850 BCE; Baines 1987, 54). An example of vertical adjacency in an inscription in lines is seen in the sculptor Irtysen’s self-presentation, discussed above. At the beginning of the inscription, the speaker defines his craft in terms of restricted knowledge and the associated ritual dimensions that form a source and model for the efficiency of a craft that is presented as a transformative process, an art that is truly creative in the sense of bringing things about. Visually, Irtysen’s title as a *ḳsti*, “sculptor” (middle of l. 6) sits just above the phrase *ḥk3 nb ꜥr.n(=i) sw*, “all generative force, I equipped myself with it” (middle of l. 7),²⁵ itself just above the phrase *m rḥt.n=f*, “through what he knows” (middle of l. 8) (see fig. 3.3). Through such vertical adjacency of significant elements, layout provides a succinct summary of Irtysen’s craft as “sculptor” (*ḳsti*): a “knowledge” (*rḥ*) of “all generative force” (*ḥk3*). These elements are part of the continuous strings of words that make the inscription; the vertical alignment reveals itself only upon repeated engagement with this inscription.²⁶

Relationships over a distance are illustrated by Nesimontu’s stela (Louvre C1, c. 1950 BCE; Obsomer 1993, on which the following is based). A tight relation between the autobiographical inscription (ll. 5–16) and the royal titulary above (the rounded top of the stela: ll. 1–4) is established by a series of graphic and visual devices (Obsomer 1993, 116, fig. 6). In the final part of the autobiographical inscription, the signs for *n* and *r* are in four instances

25 The vertical adjacency of the first two was noted already by Baud (1938, 24).

26 Further features of internal layout in Irtysen’s inscription concern the structure of the composition. The inscription has a single instance of the autobiographical self-characterizing construction: *ink* (. . .) “I am (a . . .)”; this statement, which is central to the inscription, opens a new line (l. 8: “I am, therefore, an expert-artist efficient in his art, one who has come out on top through what he knows”). A second, shorter section of the inscription is about how Irtysen’s restricted knowledge is to be divulged to his own son only. This new section also begins with a new line (l. 13: “There is none revealing it to anyone except me alone with my eldest bodily son”). On another level, lines 9 and 11 both begin with the same word (*f3t*) and echo each another through further graphic play (Stauder 2018, 259–60).

rotated clockwise by 90 degrees (ll. 14, 16: $\begin{matrix} \text{I} \\ \text{I} \end{matrix} \text{ } \begin{matrix} \text{I} \\ \text{I} \end{matrix}$)²⁷ so as to project virtual vertical lines that meet four instances of *mswt*, “birth,” in the royal names in the upper part of the inscription (ll. 2–3). Line 3 is itself framed by the expression *s3 rʿ*, “son of Re,” which occurs twice—once at the beginning of the line (introducing the name “Amenemhat”), then again at the very end of the same line (introducing the name “Senwosret,” displaced to the beginning of the next line). The first line of the autobiographical inscription (l. 5) is similarly framed by the expression *nsw*, “king,” both at the beginning and end of the line (for this and the following elements, see Obsomer 1993, 124, fig. 8). Phonetically, *nsw* echoes the name of the speaker, *ns-mntw* (“He-belongs-to-Montu”), in the middle of the same line. Layout, therefore, brings about what would otherwise have remained an only virtual paronomastic relation between the two. The autobiographical text itself is structured by four instances of the self-characterizing construction *ink*, “I am [one who]” (ll. 6, 8, 10, 12), a framing indexical of autobiographical discourse. On Nesimontu’s stela, these instances of *ink* form a diagonal spanning the whole autobiographical part of the inscription, from the upper left corner in line 5 to the lower right corner in line 16. The diagonal of *inks* thus has its visual, hence semantic, origo in the framing *nsw*, “king,” mentioned above, from which Nesimontu’s self-characterization is presented visually as emanating. As in Irtysen’s inscription, such visual structure of Nesimontu’s inscription—or “internal layout”—becomes visible only upon repeated inspection yet is no less effective in framing the core significations of the inscription, thus reinforcing and complementing its verbal text.

Elements of central symmetry are illustrated, for instance, in the already mentioned stela of Khusobek. The autobiographical inscription in the lower part of the stela consists of twelve columns. In them, the royal name occurs twice, in the central columns 6 and 7. This type of layout is not unique. In the New Kingdom, the Kurkur stela (c. 1325 BCE; Darnell and Haddad 2003) has a thirteen-column-long inscription. The term *pr-ʿ3*, “Pharaoh,” occurs once, right on top of the central column 7.

As already illustrated in the case of Harkhuf’s inscribed facade, meaningful features of inscriptional layout can also be deployed on a wall in relation to pictorial representations that form a unit with the textual inscriptions. Here I consider two appointment inscriptions in the broad halls of the T-shaped funerary chapels of Thutmose (early New Kingdom) officials in Sheikh abd-el-Qurna, in Thebes (for further aspects of these inscriptions, see Stauder, forthcoming a and b, respectively). In Qenamun’s funerary chapel (TT 93, c. 1400 BCE), the *Appointment of Qenamun* (de Garis Davies 1930, pl. 8) is a visually impressive inscription of thirty-six columns (monumentality itself being part of the expression). The first thirteen columns occupy the upper part of the wall, above a now-lost pictorial representation of the appointee Qenamun being introduced to the king in the presence of other officials; the remaining columns (14–36) span the whole height of the wall. The text, which adopts the generic format of the *Königsnovelle* (Stauder 2021, §8), stages the king and the courtiers in a ceremonialized dialogue on the appointment of Qenamun as overseer of Perunefer (successively the king’s speech, the courtiers’ speech, the king’s second speech, the courtiers’ second speech). Inscriptional layout underscores some of the composition’s core features. The central axis of the textual composition, after the first speeches of

27 For such rotations, also otherwise found in the Eleventh and early Twelfth Dynasties, see Polotsky 1929, 18; Schenkel 1962, 29–30; Morenz 1998, 242.

the king and courtiers (cols. 1–16) and before the second speeches of the king and courtiers (cols. 17[bottom]–34), introduces the official to be appointed: “⁽¹⁷⁾Conforming to what had come forth from the king’s mouth [. . .] he [i.e., Qenamun] was found entering through the gate” (⁽¹⁷⁾*gm.n.tw=f hr ꞗ m rwt hft prrt m r3 n nsw*). The sentence—possibly a nod to the Middle Kingdom literary *Eloquent Peasant* (B1 65–66)—is prominently placed on the wall: it begins with a new column, right at the middle of the overall inscription.²⁸ In their preceding speech, the courtiers had addressed the king with a triple rhetorical question (with implied “of course not” answers to each), hence demonstrating complete agreement with the king’s preceding speech: “⁽¹³⁾Is Horus who is in the sky guided in his heavenly navigation? ^(14a)Are standards of knowledge given to the august Ptah who presides over crafts? ^(14b)Is Thoth taught [w]ords [. . .]?” (⁽¹³⁾*in-iw ssm.tw hr imi pt hr skdw m hrt* ^(14a)*in-iw dd.tw tp-rd n rh n pth špss hr-ib hmwt* ^(14b)*in-iw sb3.tw dhwtj r [m]dwt* [. . .]). Such sequences of rhetorical questions are tropes in Middle Egyptian literature²⁹ and, accordingly, a display of literary culture in the context of the present inscription. The first question occupies the whole height of the last of the thirteen columns above the pictorial representation; the second occupies the upper part of column 14, the first of the twenty-three full-height columns of the inscription, down to the point where the preceding column 13 ends; the third occupies the remainder of column 14. The three rhetorical questions are thus placed precisely at the boundary between the pictorial representation and the associated inscription. As an instance of eloquent speech by the courtiers, they mediate between the pictorial representation of the courtiers before the king and the textual inscription that records their linguistic interaction with the king.

Also at Sheikh abd-el-Qurna, the slightly earlier *Appointment of the Vizier* (tomb of Useramun, TT 131, c. 1450 BCE; Dziobek 1998, 3–22, pl. 1) is one of several compositions combining text and image that form the Thutmoside vizierial cycle (Vernus 2010: 59; Stauder 2021, §8). On the wall, the composition displays equally significant elements of layout. The inscription consists of thirty-six columns, of which the first twenty-eight reach to the full height of the wall, while columns 29–36 occupy only the lower portion of the wall. Column 28, the last to have full height, begins: “⁽²⁸⁾It is the son who protects behind the father; it is the flesh that makes the woodwork for the bones” (⁽²⁸⁾*in s3 mkk h3 it in hꞗw whri n ksw*). The very occasion of the text, the transmittal of the vizier’s office from father (Aametju) to son (Useramun), is here synthesized—and emphasized by its distinguished position in the inscription’s overall layout. Just atop the pictorial representation of the aging vizier Aametju, represented with a stoop, columns 8–12 read: “⁽⁸⁾‘The office [/old age: *i3wt*] counts its hour.’ These courtiers said: ‘. . . (?), Sovereign, our lord, that the vizier, he has reached the age of distinction, some stoop has alighted on his back . . . Ponder ⁽¹²⁾this occasion which is beneficial for your Dual Land, let attention be directed to the staff of old age [/of the office: *i3wt*].’” The text, which alludes intertextually to the culturally paradigmatic

28 Columns 34–36 are additional to the *Königsnovelle* proper, as they consist of Qenamun’s final self-eulogizing phrases, so that column 17 is the middle column of the main part of the inscription (cols. 1–33). Note, moreover, that this corresponds to the exact center of the inscription as a visual composition, but not to that of the underlying text as a composition of words (cols. 1–13 being only half the length of cols. 14–33).

29 *Eloquent Peasant* B1, 179–81; *Teaching of Amenemhat* 9a–d; *Teaching of a Man to His Son* 3.1–3; *Ipuwer* 5.8 (see Stauder, forthcoming a). For the same rhetorical device in execration texts and apotropaic spells, see Enmarch 2008, 40.

description of old age in the Middle Egyptian *Teaching of Ptahhotep*, puns on *i3wt*, “office,” and *i3wt*, “old age,” the “staff of old age” being a reference to the successor in office, ideally the son (Blumenthal 1987). The first occurrence of *i3wt* is at the beginning of column 8, the second in the lower part of column 12; through their placement in the inscription, the two occurrences of *i3wt* frame a segment of text that is inscribed precisely above the pictorial representation of the aging vizier who is to hand over his office to his son.

3.2. INTRATEXTUAL CONNECTIONS ON THE GRAPHIC NETWORKS

Intratextual connections can be spun on the graphic level only, thereby adding a level of structure or signification to a passage in a text or a composition as a whole. In the Middle Egyptian literary *Debate of a Man and His Ba*, already discussed above (at §2.3), *qrs*, “burial,” thus occurs twice in close proximity, with different classifiers (translation adapted from Allen 2011):³⁰ “who will attend to the tomb on the day of *burial* [*qrs*, ] and will transport a bed to the necropolis” (cols. 53–55, end of Man’s second speech); then, “As for your evoking *burial* [*qrs*, , it is headache, it is bringing tears by saddening a man; it is taking a man from his house so that he is left on a hill” (cols. 56–59, beginning of Ba’s third speech). Here is the turning point in the debate, namely, when the Ba and the Man adopt each other’s positions (Allen 2011, 147–48, 157–58; cf. the different interpretation by Parkinson 2002, 218, 220). The Man had been arguing that a premature death would affect his prospects for the afterlife negatively. The Ba now takes up the word *qrs*, “burial,” to develop a contrary perspective that emphasizes the sadness of burial (more generally the nonlasting nature of funerary provisioning), in terms similar to the Harper’s Songs of later attestation. As suggested by Allen (2011, 147), the classifier of the mummy case () in the Man’s speech could reflect his perspective, thereby pointing graphically to the importance of bodily integrity and the associated funerary rites (note, e.g., “[funerary] bed” in close vicinity); the coffin classifier () in the Ba’s speech would then, by contrast, be a token of the material provisioning the Ba subsequently describes as nonlasting and illusory (e.g., “so that he is left on a hill,” that is, abandoned, and further developments in the Ba’s speech).

Intratextual connections at the graphic level such as just described can extend over an inscription as a whole. A remarkable case in point is the inscription Wadi Hammamat 110 (Nebtawyre Mentuhotep IV, c. 2000 BCE; Couyat and Montet 1912–13, 77–78, pl. 29; Jambon 2012, 133–39) (see fig. 3.4). The main part of the inscription, concerning the king, consists of six columns followed by two lines (henceforth cols. 1–6 and l. 1–2); two additional lines give the titles and name of the expedition leader, the vizier Amenemhat. In the main part of the inscription, a series of noteworthy spellings and signs of writing span a rich network of significations. The conjunction *n-mrwt*, “so that” (l. 1), is exceptionally written , with a  added to its regular written form. Visually, *n-mrwt* thus incorporates the word  (and similarly), *wt*, “embalm, bandage.” Because of the funerary overtones it carries, this ludic writing resonates with one core aspect of the text: the quarrying of a block designed to be the lid of the king’s sarcophagus (col. 4).

30 On further aspects of the context sensitivity of classifiers, see McDonald 2004; Loprieno 2003; Linke and Kammerzell 2012, 101–4; Linke 2011, 99–105.

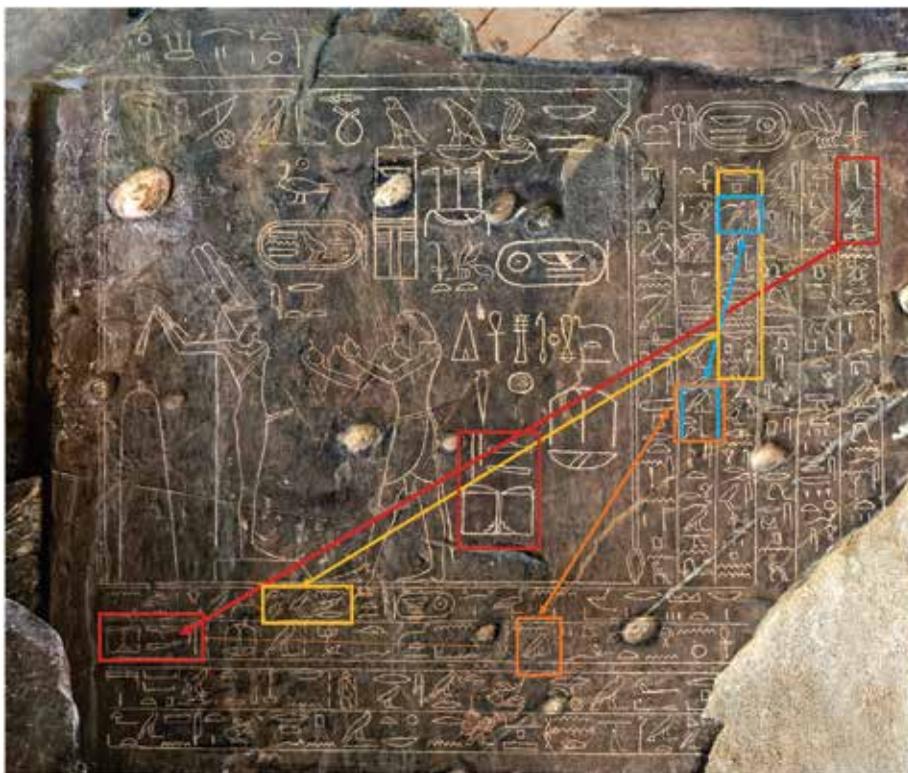


Figure 3.4. Wadi Hammamat 110. © 2016 Manna Nader, Gabana Studios Cairo.
<https://www.flickr.com/photos/manna4u/25999366416/in/album-72157665818623750/>.

“This ^awonder [𓂏𓂏𓂏𓂏] that has happened to His Majesty:

The coming down of desert game to him; the coming of a pregnant gazelle to him, walking with her face directed at the people in front of her—her eyes were looking straight ahead and she did not turn back until she reached this august mountain and this block ^cthat [𓂏𓂏] was in its place to be ^bthis lid of this sarcophagus.

She gave birth on it—this expedition of the king was looking on. Her ^dneck [𓂏] was then ^dcut and united^[31] with it [i.e., the block] in a holocaust. It [i.e., the block] came down in peace.

It was the Majesty of this god, lord of the deserts, who gave a present to his son Nebtawyre, living in eternity ^bso that [𓂏𓂏𓂏] his heart be glad, that he be alive on this throne ^dforever [𓂏] and in eternity, that he may perform innumerable ^ased-festivals [𓂏𓂏𓂏].”

In the central section, just before column 4, *iw=f*, “it [i.e., the block],” is written 𓂏𓂏, with the flesh sign (s), like *iwf*, “flesh.” While found elsewhere, this writing of *iw=f*, “it,” with s resonates in the present context with 𓂏𓂏, *nḥbt*, “neck,” also with the flesh sign (col. 5). In the inscription, the neck is that of a pregnant gazelle that, after having given birth

31 The reading follows a suggestion by Vincent Morel (personal communication).

unexpectedly on the block to be quarried, is sacrificed (“Her *neck* was then cut,” col. 5); through the sign , the block for the king’s sarcophagus (col. 4) is thus related visually to the neck of the gazelle that is sacrificed on it (col. 5).

Moreover, the form of the phonogram *nh* in *nhbt*, “neck,” is highly unusual: . Underlying such a play is, conceivably, the already semisplayful form , itself an elaboration of regular  (discussed above in 2.1 n. 4). Here the sign’s original form has what could be seen as blood dripping from the neck of the guinea-fowl, the sign’s visual referent (see below), thus bringing about a contextual echo to the gazelle’s “neck” (the word in which the sign is used phonographically) that is “cut” (the preceding word). A similar exceptional form of the phonogram *nh* recurs later, in *nhh* “eternity” (l. 1): . Here, fluid—blood—is clearly seen dripping from the bird’s throat. This second echo expresses visually that the sacrifice of the gazelle accrues to the king in eternity.

Yet another visual resonance connects the very first and last words of the main inscription by way of a formally identical classifier (\Leftarrow): , *bi3t*, “wonder” (top of col. 1, top right of the inscription), and , *hbw-sd*, “*sed*-festivals” (end of l. 2, bottom left of inscription).³² Connected through common classifiers, these two words, the first and the last of the main part of the text, frame the inscription, thereby projecting a diagonal from the top right to the bottom left. They are also key to the inscription’s signification: the “wonder” (the inscription’s contingent occasion, the unforeseen appearance of a pregnant gazelle that gives birth on a block to be quarried for the king’s sarcophagus and its subsequent sacrifice on the same block) and the inscription’s everlasting consequentiality (the “millions of *sed*-festivals” the king is to perform).

Taken together, these graphic networks express on the visual level the transformative process the inscription is all about.

4. CONCLUSION

This brief study has illustrated various aspects by which the written or visual text is in excess of the sequence of words—the verbal text—that writing represents. A general feature of the written text is the pervasive practice of graphic dissimilation (variation in the written representation of the same word), also in places where the text is not to be seen. Graphic dissimilation makes the written text more inclusive, more encompassing, more effective in relation to the diversity of the created world.

Hieroglyphic writing carries meaning in excess of the verbal sequence it represents. Through the selection of semantic determinatives/classifiers or their specific iconic variation or realization in a given text, aspects of the verbal rhetoric of that text can be amplified. Further, important parts of the rhetoric of a text can be made to unfold on the visual level alone. Through the incorporation of spellings of words into other words, double

³² In *bi3t*, \Leftarrow represents a piece of metal (N34+ in Borghouts 2010, 2:97), used in, for example, *bi3*, “metal [esp. iron], ore,” hence also regularly in *bi3t*, “wonder.” In *hbw-sd*, the homomorphous \Leftarrow is one of several graphic variants of the sign representing a tail (e.g., , ), used in, for example, *sd*, “tail,” hence also, through phonetic extension, regularly in words such as *sd*, “clothe” or *hb-sd*, “*sed*-festival.” While in both cases the use of \Leftarrow thus corresponds to regular spellings, this correspondence makes no less significant the fact that the present inscription begins and ends with two words that have a visually identical classifier.

entendres and paronomasia are realized on the visual level beyond what is present in the underlying verbal sequence. In various historical contexts, such as later sacerdotal milieus, virtuosic modes of writing are tokens of an in-group indexicality. Enigmatic spellings entice the beholder's eye and challenge the mind, causing that person to pause and calling for more thoroughgoing engagement with the monument. They afford resistance yet are also boldly affirmative, at times even reinforcing indexicals, of the speaker's identity. And they project a bond of complicity with the astute reader and thereby arguably function as an index of a social group able to appreciate these graphic plays.

On the level of the text as a whole, inscriptions present elements of layout structuring the continuously unfolding sequence of the verbal text in the bidimensional visual field. The placement of salient words or articulations of the verbal text in the overall field of the inscription, their relation to one another within that field, and their relation to pictorial elements when given, as well as symmetrical arrangements and relationships over a distance, make for what may be called an "internal layout" of the continuously unfolding text. These features are not consciously noticed on a first encounter with the inscribed text, yet the very fact that they are there, that they have been carefully crafted into the inscription and have resonance, implies that they are integral to the inscription as a visual composition that transcends any transcription or rendering that can be made of it. Internal layout provides structure, if at first in a subliminal way. It variously underscores, amplifies, or complements the significations expressed by the verbal text. In a similar manner, graphic networks extending over a text may bring an additional level of structure to that text. This structure is present on a visual level only, yet it reveals itself over time.

Internal layout and graphic networks enhance an inscription as a visual composition. In the case of self-presentations, they distinguish an inscription as an artifact made with skill and craft, thus bringing about complicity with the attentive beholder, who is invited to appreciate the inscription and creative ingenuity that has gone into making it—hence also the individual whose inscriptional self-presentation the beholder is engaging with more deeply in the visual and intellectual spheres. On a perhaps more elementary level, features of internal layout and graphic networks make the text more densely patterned. Like graphic dissimulation, discussed first, they contribute to making the text more effective. They also structure the inscribed text as a dimensional artifact that exists in localized space. As such, they comprise an aspect of how inscriptions are visual compositions oriented toward viewers—a feature of Bakhtinian addressivity on a visual level. Particularly in inscriptions with central symmetries or foci, this orientation of the visual composition is also toward the body of the beholder standing in front of it. The consideration of such aspects of the visual text—a subject that has here been only broached—thus leads to more fundamental questions, such as: "How are inscriptions geared toward beholders?" and "How were inscriptions engaged by ancient actors?"

ABBREVIATIONS

CT	Coffin Texts
Glypt.	Glyptotek
ISAC	Institute for the Study of Ancient Cultures
P.	Papyrus
PT	Pyramid Texts
Pyr.	Pyramids
TPPI	Jacques Jean Clère and Jacques Vandier, <i>Textes de la première période intermédiaire et de la XI^{ème} dynastie</i> . Bibliotheca Aegyptia 10. Brussels: Fondation Reine Elisabeth, 1948
Urk.	Urkunden

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PART II

CLASSIFIERS

4

Animal Categorization in Mesopotamia and the Origins of Natural Philosophy*Gebhard J. Selz, *Vienna University*

1. INTRODUCTION AND PURPOSE OF THIS STUDY

Cognition is categorization, and all categories are abstract.¹ Piaget's theory of cognitive development and associated epistemological considerations have been adopted to various fields of cultural studies, and recent research in cognitive sciences² has demonstrated the salient roles of such processes of abstraction in human evolution. Categorization and classification³ are essentially, but by no means exclusively, the human method for dealing with the world "out there." Visual and verbal representations, which in a certain sense are all abstract, form the core of categorization. Therefore, the earliest writing systems of Egypt and Mesopotamia combined visual (iconic) and phonetic (linguistic) properties, resulting in mixed logographic (ideographic)/phonetic (glottographic) scripts. The evolution of Mesopotamian writing demonstrates this result. Early writing drew on three independent major symbolic systems: (1) counting; (2) imagery with greater or lesser fidelity

* For comments and revision of the English I am again most grateful to Craig Crossen and to copyeditor Connie Gundry Tappy for her extremely careful work. I am also very much indebted to the anonymous reviewer(s) and especially to O. Goldwasser, who commented on an earlier draft of this study, which in a way is a corollary to her chapter in this volume. Though this contribution was originally conceived as a joint paper with her, closer examination of the evidence revealed that, for Mesopotamia, the distinction between classification in script and in the lexicon is less sharp and yields less information than in the Egyptian case. As I will argue, the cuneiform sources are best understood as an outcome of early natural philosophy.

1 Compare Selz 2018 and, further, Selz 2003, 2004.

2 Compare Heyes and Huber 2000; Heyes 2012.

3 The terms "categorization" and "classification" are used more or less equivalently throughout this chapter. This not very satisfying usage is widely attested in the field of classificational studies in linguistics (cf. the essays collected in Pommerening and Bisang 2017). Attempts to differentiate both categories (*sic!*) are not very convincing (cf., e.g., Jacob 2004). Moreover, according to Wierzbicka (1984), research on the semantics of human categorization severely suffers from the lack of distinction between the "concept of taxonomic supercategories" and "purely functional concepts." In this respect one can say that, in contrast to categorization, classification is not necessarily and always taxonomical. Lincke and Kammerzell (2012) have addressed this issue from an Egyptological point of view.

to nature;⁴ and (3) speech or sounds. Spatially organized movable objects (1) and spatially oriented visual representations (2) differ from the temporal nature of sounds and speech (3). Glottographic writing combines both the spatial and the temporal. But the underlying systems of hearing and seeing are linked by their common organizing processes of categorization. From this point of view, all categories or classes might be described as “mental objects” or “concepts.” Categories are most often structured hierarchically but are not necessarily stable. Their boundaries are fuzzy and their use pragmatic. Cladistics, the scholarly arrangement or hierarchization of categories, is normally thought to have been “invented” by Greek philosophers such as Aristotle⁵ and modern natural scientists such as Linnaeus.⁶

Like objects, concepts and mental images can be rearranged, modified, or created anew. This fact is especially important in the case of a culture such as that of ancient Mesopotamia, which did not attribute special importance to the distinction between the physical and mental worlds—the basic ontological grid since classical antiquity.

The earliest writing systems of Egypt and Mesopotamia shed much light on the categorization processes expressed by visual and linguistic devices, and a mixture of both is characteristic of these early scripts. The Egyptian and Sumerian approaches differed, however, with respect to visualization; during their entire history, Egyptian hieroglyphs preserved a much higher degree of iconicity than did Mesopotamian cuneiform. A shared feature of both systems was the use of classifier signs providing information on individual lexemes. The use of such classifiers may be termed “implicit.” They should be contrasted with the more explicit endeavors toward taxonomic categorizations that are the results of true scholarly thought. Some such classifications may be considered universals; but others are clearly culturally determined. In this regard, research on animal taxonomy seems very promising. Given the then-recent processes of animal domestication in antiquity, we might expect a highly interesting mixture of more universal versus culturally motivated categories. The early writing systems intertwine visual and linguistic representations and therefore possess linguistic as well as visual properties reflecting the sense of sight as well as hearing (and touch). These processes are the focus of recent classificational studies on how people organize their knowledge about the world. As argued above, organization of knowledge may be expressed by linguistic features. In the past decade, the fact that scripts are much more than glottographic representations of speech has resulted in a renewed interest in the visual features of writing, which in turn has led to a reconsideration of the script elements commonly known as “determinatives” in Egyptian hieroglyphs and Mesopotamian cuneiform.⁷ These elements are generally understood as unarticulated markers

4 In this regard, the classical distinction between iconic, indexical, and conventionalized (“abstract”) signs is of little relevance.

5 This observation applies especially in Aristotle’s book *Categories* (for which see, e.g., the translations of Edghill [1928] and Rolfes [1995a]).

6 See also Wapnish 1984, 32–38.

7 See also Goldwasser, chapter 5 in this volume. Edward Hincks, working on the decipherment of Egyptian and cuneiform scripts, provided the basis for introducing the term into cuneiform studies; in two articles (1846a and 1846b, the latter marked as “read on 11th January, 1847”!) he refers to them as “non-phonetic initials” (reference courtesy of Bo Zhang). He used the term “determinatives” first in a paper delivered in December 1847 (see Hincks 1848, 387–449); for a good account of Hincks’s and Rawlinson’s role in the decipherment of Sumerian and Akkadian cuneiform, see now Cathcart 2011.

used to specify the classification of a given lexeme. Recent research has established that their function is comparable to that of the classifiers in “classifier languages.”⁸ Whatever the terminology, the function of these elements as classifiers seems beyond doubt.⁹ In the cuneiform system the relation of such classifiers to the (Sumerian) language has recently been proposed,¹⁰ whereas in Egypt they always remained unarticulated. In contrast to the Egyptological evidence (as demonstrated by Goldwasser in ch. 5 of this volume), for Mesopotamia the distinction between the narrow set of such classifiers and the “lexicon” provides little information on Mesopotamian reasoning. Nevertheless, in both cases such classification in script plus lexicon reveals much about how these people organized their world. No matter whether such categorizations are perceived as universal or as culturally conditioned, the insights to be gained from their study cannot be overestimated.

Since antiquity, and especially since Aristotle,¹¹ the categorization of animals has been repeatedly attempted in Western scholarly tradition. Etymologically, the word *animal* itself preserves the idea of something possessing a soul/breath (*anima*),¹² an important characteristic shared by humans and animals.¹³

The significance of animals in early agricultural societies derives from their critical utilitarian functions: motive force for agricultural work, means of transportation, and sources of meat and raw materials. As will be demonstrated below, the ancient sources show that classification and categorial reasoning are well documented for the animal kingdom. Animals play a key role in the body of classifiers attested in the earliest writing systems of Mesopotamia and Egypt. The Sumerian system of classifiers (“determinatives”) strongly resembles other noun-classifier systems (Selz, Grinevald, and Goldwasser 2018). As indicated above, the silent Sumerian animal classifiers were strictly reserved for such “basic” or “life-form” levels of domestic animals as bulls, sheep, donkeys, birds, and fish (see below).¹⁴

8 Compare Goldwasser and Grinevald 2012 and, further, Bauer 2017, especially on nominal apposition and noun classification (Bauer 2017, 34–61), with a special chapter on “Script Determinatives in Sumerian Writing” (Bauer 2017, 67–80). Bauer notes “that script determinatives were not merely graphic devices but instead convey linguistic functions” (Bauer 2017, 376–77).

9 From a psycholinguistic perspective, an important function of classifiers is *semantic priming*, a decisive means to accelerate semantic orientation; see also Goldwasser, chapter 5 in this volume.

10 Compare Selz, Grinevald, and Goldwasser 2018 and, further, Selz 2018, 416–20.

11 See Lennox 2017; cf. Tipton 2014.

12 In Latin, *anima* designates both breath and soul. (The Greek word for animal, ζῷον, derives from the verb ζάω, “to live.”) The “breath of life” as a distinct attribute of living beings is widely attested in Indo-European languages (see also Goldwasser, ch. 5 in this volume), and the notions of breath and soul were often connected; see Eichner 2002 (ref. courtesy of Velizar Sadovski).

13 Compare Aristotle (Organon V 102a–b) in Pickard-Cambridge 1928, 170: “The question, ‘Is one thing in the same genus as another or in a different one?’ is also a ‘generic’ question; for a question of that kind as well falls under the same branch of inquiry as the genus: for having argued that ‘animal’ is the genus of man, and likewise also of ox, we shall have argued that they are in the same genus; whereas if we show that it is the genus of the one but not of the other, we shall have argued that these things are not in the same genus” (cf. Rolfes 1995b).

14 Terminology in the literature shows great variation and is often extremely problematic (cf. the pioneering article of Wierzbicka 1984). I follow here roughly the widely used terminology as established by Eleanor Rosch (cf. Goldwasser 2002, 31): unique beginner—animal/living thing; superordinate level—quadrupeds/aquatic animal/vermin; basic level—bull/goat/sheep/donkey/pig/horse; subordinate level—heifer,

Categorization is always the result of reasoning. From a pragmatic point of view, the underlying deductive reasoning process is mostly covert. Nevertheless, such classes often show, especially at their fringes, variations that make the underlying reasoning/categorization explicit—“philosophical”—thus proving that categorization is not fixed but dynamic. To a lesser extent, this also holds true for classification and is probably the reason why the terms “classification” and “categorization” are often used indistinctly. In contrast to categorization, the processes of classification appear more or less automated from the point of view of linguistics. In this sense we may use the term *implicit classification*, which refers to classifications not further questioned at a given time and place.¹⁵ Therefore, standard sets of classifiers—for example, the so-called “determinatives”—are predominantly considered implicit and rather basic.

2. ANIMAL CLASSIFICATION IN SUMER: AN OVERVIEW

Classification was a fundamental of Mesopotamian scholarship. In ancient Mesopotamia, “the whole of its ‘science’ consists in the enumeration and classification of all natural and cultural entities” (Civil 1995, 2305).¹⁶ The salient role of classification seems virtually universal. Lakoff (1987, 5) stated: “There is nothing more basic than categorization to our thought, perception, actions and speech.” In the past decades, linguistics, especially in the fields of prototype and classifier studies, have demonstrated the correctness of Lakoff’s observations.¹⁷ “Cognition is categorization”¹⁸: therefore, classification is not only linguistic.

Originally the logographic-ideographic signs¹⁹ of cuneiform script were partially grounded in iconicity, that is, in a visual system of representation. But as demonstrated by the process of sign formation (“abstract” and “manipulated” signs being attested even

filly, ewe, kid, buck, and even cow. For a discussion of these primary words, see below. Note that the subordinate level is usually described by specific names such as “saluki,” “greyhound,” et cetera.

15 I address here the same phenomenon that Wierzbicka (1984, 314) describes as “empirically collective forms of understanding—and this includes collective forms of categorizing—the properties of which have been solidified, as it were, and are revealed to him in the representational system of language.”

16 As Craig Crossen reminds me, this statement underrates perhaps the salient role empiricism played in Mesopotamian scholarship (cf. the collection of articles in Selz and Wagensohnner 2011; Selz 2011). For this role, Crossen (personal communication) provided a very interesting example: “The Sumerian Constellation/Star Name List SLT 214+236+237 + OECT IV 161 displays some subgrouping based on true astronomical criteria: the beginning of the list emphasizes bright stars/constellations (Centaurus, Sirius, Venus, Orion); and near the end of the list are a group of over a half-dozen constellations—from uga = Corvus to im-su-rin-na = (?) Ara—listed in rough west-to-east order—that is, the order in which they rise. If such sophistication is evident in this Sumerian list, one must suspect that it is present in other lists.”

17 So far, ancient Near Eastern studies have seldom taken this correctness into account. The first researcher to do so was probably Wapnish (1984) in her PhD dissertation on folk biology and the animal section in Ura = *hubullu*. Next was probably Selz (2008). Recently the issue has also been addressed by Selz, Grinevald, and Goldwasser (2018), and Wagensohnner (2016).

18 Compare the concise overview in Harnard 2017.

19 Contrary to Falkenstein and his followers, who oppose the notion of ideographic elements (*Ideenschrift*) in early cuneiform writing (Falkenstein 1936, 31–32) and sometimes even deny the existence of rebus writings (cf. Selz 2017 and now Selz 2022), we contend that logographic and ideographic elements in the earliest script surface much at the same time.

in the earliest stages), cuneiform script increasingly lost its iconicity²⁰—in contrast to other comparable writing systems, such as Egyptian hieroglyphs. Therefore, classification in script applies principles quite distinct from those used in visual representations.²¹ This difference is corroborated by the generally accepted notion that among the earliest sign forms we find also a considerable number of “abstract” signs, signs for which a pictorial origin is unlikely.²² The notable discrepancies between Egyptian and Mesopotamian systems might relate to the early partial loss of iconicity in the Mesopotamian cuneiform script. Nevertheless, script, being by definition a visual means of communication, shows in its sign formations an overlapping with several iconic elements of the visual arts—which are, however, as of yet little understood and researched.²³

Among the earliest written texts are a great number of documents that are the first-known versions of the single most important variety of cuneiform sources, the Lexical Lists. Their sequential ordering of items shows a protohistoric concern with classification.²⁴ It must be stressed that *the topics of these lists reflect to a large extent the noun classes attested in the Sumerian system of (graphic) classifiers, especially vessels and garments, metal, cattle, fish, wood/trees, cities and toponyms, grain, birds, and plants.*²⁵ This observation²⁶ goes back to Falkenstein (1936, 35): “Die volle Ausbildung des Determinativsystems ist erst ziemlich spät erfolgt. Die Hauptrolle bei dieser Entwicklung haben allem Anschein nach die ‘Wortlisten in sachlicher Anordnung’ gespielt.” His interpretation of the “system of determinatives” as a means of clarifying ambiguous cuneiform sign values is still shared by most scholars. In a wider sense, however, it attests to a classificational system that almost certainly also reflects linguistic phenomena.²⁷

20 This fact is well known; however, the scribes of ancient Mesopotamia may have seen more iconic references than we assume, as stressed by the phenomenon of “secondary iconization.”

21 Compare the well-known example of the divine classifiers: the star icon in writing and the horned crown in the visual arts both indicate divine status but suggest quite different origins. See also Selz 2008, 2010.

22 Already Falkenstein (1936, 26) suggested, besides groups with clear iconic referents (in complete or abbreviated form), a third group of abstract symbolic signs (*abstrakte Symbolzeichen*).

23 Compare, for example, the iconic elements on the Uruk vase, which have a bull’s head and the “bowls’ tray” (*Bechertablett*, related to the cuneiform sign EN for “lord”) in the upper register. See further Hockmann (2008, 327 with n. 7), who might overvalue the pictorial evidence and is in sharp contrast to Braun-Holzinger (2007, 9 n. 8; see also Selz 2005, 35–36).

24 This issue is a central topic of Wagensohn’s (2016) dissertation on the various organizational principles of these lists.

25 Compare, for instance, Veldhuis (2006b, 186), who also states the number of extant manuscripts for each list: *Lu A (Professions)*—185; *Vessels (and Garments)*—91; *Tribute (Sumerian Word List C)*—56; *Metal*—55; *Cattle (or domestic animals)*—24; *Officials*—23; *Fish*—22; *Wood*—30; *Cities*—17; *Geography*—12; *Grain (Sumerian Word List D)*—9; *Birds*—6; and *Plants*—5. Also attested are two (not matching) copies of a “swine” list (see Veldhuis 2006b, 188). The absence of wild animals from the archaic lists suggests they had little or no significance for administrators (Veldhuis 2006b, 188).

26 Communicated in Selz 2008, 15 n. 6, and Selz 2018, 416, and further elaborated in Selz, Grinevald, and Goldwasser 2018, 2.3.1 with nn. 63, 65.

27 The hypothesis that the Sumerian system of “classifiers” or “semantic script determinatives” is grounded in language was suggested in Gadd 1924, 13: “It is by no means certain that their use (‘determinatives’) is merely a device of writing. On the contrary it is a strong probability that they were in most cases actually pronounced.” Similarly Deimel 1926, 24–25. Bauer (2017, 67) summarizes the situation: “There is a remarkable lack of motivation of why script determinatives allegedly were not pronounced

The result of these considerations is that in Sumerian cuneiform any strict distinction between script and lexicon is less clear than in the Egyptian case.²⁸ The major difference between classification in the script and the lexicon is found in the fact that the Sumerian classifiers all refer to basic-level categories and consist of one common word, a lexeme represented by a specific graphic. By contrast, lexical categorization was mainly achieved by word compounding and thus is indicative of reflective and explicit classification intended to create a terminology for intermediate and superordinate taxa—endeavors reminiscent of Aristotle’s reasoning.

2.1. ANIMAL CLASSIFICATION IN THE SCRIPT

2.1.1 *Prototypes in the Earlier Stages of Cuneiform Script*

Depictions of animals may or may not refer to a specific animal, though often their identification remains uncertain anyway.²⁹ The earliest texts from the Uruk IV–III period (3500–2900 BCE) attest to “hoch differenzierte Tierzeichen . . . , die nach dem Pars-pro-toto-Prinzip jeweils den Kopf des Tieres zeigen (so zu beobachten bei PIRIG, ALIM, ŠEG₉, DARA₃ und KA₅).^[30] Die Detailtreue geht soweit, dass sogar Augen und Fell dargestellt werden” (Mittermayer 2005, 86). Mittermayer’s 2005 study is devoted to the origin and paleography of “animal-head signs” and illustrates the complicated situation following the increasing loss of iconicity in cuneiform script. This loss may also be seen concerning the pictographic origin of the classifier ANŠE, “donkey,” for which the iconic referent is unclear. In any case, it was specifically the *heads* of the mammals that were chosen as their iconographically distinguishing feature. The blurring of the iconographic origins of signs may well be due not only to the peculiarities of the “cuneiform” writing technique but also to the underlying abstracting conceptualization.³¹ At a very early stage an identification of the depicted animal (part) could be supported by the addition of phonetic complements, for example, /za/ added to an animal head in order to identify it as a “bear,” /az/, or /lim/ to form the pronunciation /alim/, “aurochs.” Hence the identification of prototypical animals remains mostly obscure. But the BIRD classifier MUŠEN seems to indicate that a kind of

or—conversely—why that assumption is doubtful.” But a rather different scheme for the issue was developed by Civil (2004, 3–4 with n. 3; cf. below, n. 35).

28 In Egyptian, lexical information on animals is comparatively rare; an overview of the available evidence, especially in the so-called onomastica, is provided in Gerke 2017.

29 Despite numerous—countless—observations scattered throughout archaeological and philological secondary literature, the most comprehensive work is still Douglas Van Buren 1936 (cf. also Douglas Van Buren 1939).

30 That is, “lion,” “aurochs(?)” (various) *Capridae* (Mittermayer 2005, 54–61), “wild capride,” “fox.”

31 Mittermayer (2005, 1) showed that all fifteen signs of her study possess the same “radical.”

“water bird” was perceived as the prototypical bird.³² In contrast, the type of “small fish” considered as prototypical for the earliest fish classifier is unknown.³³

2.1.2. Classification by Classifiers in the Script

The classification efforts of the ancient Mesopotamians are best represented by the phenomenon traditionally referred to as “determinatives,” unarticulated signs added to words or logograms to clarify their meaning. They were recently reinterpreted as *classifiers* by Selz, Grinevald, and Goldwasser (2018). The overwhelming majority, if not all, of the signs functioning as such “classifiers” in Sumerian cuneiform represent primary (common) nouns,³⁴ thus having lexeme status. That the system evolved from articulated classifiers to mere graphic semantic indicators³⁵ has little effect on this interpretation.³⁶ With regard to animals, the extant Sumerian classifier system provides us with the following five items (numbered according to the list in Selz, Grinevald, and Goldwasser 2018), used in sources from the mid-third to the first millennium:

- (N. 6) –mušen, “bird”; also applied to “insects” and “winged animals” in general; later graphemic determinative for birds and insects; post-position;

32 For early BIRD (and FISH) signs, see also Gong 1993, 127. The early sign forms indicate that, as in Egypt (see Goldwasser, ch. 5 in this volume), the “duck” was probably perceived as the prototypical bird. The extension to a classifier for “winged animals” in general, eventually even to “locusts” (buru₅^{musen}), may be compared to Aristotle’s reasoning: “I mean the sort of thing that results by dividing animals into the wingless and the winged, and winged into tame and wild, or pale and dark. Neither tame nor pale is a difference of winged; rather each is the origin of another difference, while here it is incidental” (Aristotle, *Parts of Animals* Book I iii 643b19–22; Lennox 2002, 11).

33 There are several quite different archaic signs for “fish.” The extension of the category FISH (KU₆) to designate any aquatic animal is less clear: muš^{ku}₆ and muš-u₂^{ku}₆ containing the word muš, “snake; serpent,” seems to refer to kinds of fish. (Note that muš is also quite commonly an element of birds’ names.) A candidate for such extension may be the rather problematic kušu₂^{ku}, perhaps a “crab or a snapping turtle,” Akkadian *kušû*.

34 The ongoing discussion of the language behind the early Uruk script does not really affect our argument—the evidence that Sumerian was a major contributor is growing.

35 Civil (2004, 3–4), speaking of “classificators” or “determinatives,” identifies the first as “part of a lexical compound and . . . pronounced” and the second as purely graphemic classifiers. He acknowledges a certain ambiguity of interpretation. Civil’s criteria for distinction are the variation in position of the classifier (where “the classificatory is followed by a part of the noun”) and the omission of a classifier during a given period or in textual variants. Of course, such observations provide important clues relevant for the issue, but in my view they do not provide conclusive results.

The complexity of the situation is demonstrated by some tree designations and their Akkadian equivalents (the passage is discussed in full in Wagensohnner 2016, 566–67). Ura tablet III (*MSL* 5:92), lines 4–8 have: (l. 4) ĜIŠ ha-lu-ub₂ : *haluppu*; (l. 5) ĜIŠ šag₂-kal : *šakkullu*; (l. 6) ĜIŠ kin₂ : *kiškanû*; (l. 6a) ĜIŠ kin₂-bab-bar : MIN *pešû*; (l. 6b) ĜIŠ kin₂-gi₆ : MIN *šalmu*; (l. 6c) ĜIŠ kin₂-su₄ : MIN *sāmu*; (l. 6d) ĜIŠ kin₂-gun₃ : MIN *burrumu*; (l. 6e) ĜIŠ kin₂-sig₇-sig₇ : MIN *arqu*; (l. 6f) ĜIŠ bar-kin₂ : MIN *sihpu*; (l. 7) ĜIŠ gi₆ : *išši šalmi*; and (l. 8) ĜIŠ geštin : *karānu*. The Old Babylonian lexicographer perceived ĜIŠ in lines 5, 6, and 8 as a silent classifier, whereas in lines 6 and 6f it was a pronounced element, MIN being the ditto sign indicating the repetition of *kiškanû*. In line 7, ĜIŠ is actually translated by its Akkadian equivalent *iššu*, “wood.”

36 See §7 in Selz, Grinevald, and Goldwasser 2018; cf. further Goldwasser and Grinevald 2012; Goldwasser 2006, 2009.

- (N. 15) anše-, “donkey; onager [wild donkey]”; classifies equids (extended later to the newly introduced horse, and still later to camels, not attested in Mesopotamia before c. 1500 BCE); pre-position;
- (N. 20) gu₄-/gud-, “bull; oxen”; classifies all sorts of bovine animals; pre-position;
- (N. 43) udu-, “sheep”; classifies sheep and other ovine animals; pre-position;
- (N. 50) -ku₆, “fish”; also “amphibians, crustaceans”; classifies all kinds of fish³⁷ and, by extension, other aquatic animals; post-position.

All these classifiers (originally independent lexemes) were at first basic-level taxa ignoring specific descriptions. In other words, they were nonspecific names, though implying a rather advanced level of abstraction. In the second stage, as classifiers, they were sometimes extended to other species as well to refer to higher, intermediate categories: mušen > “winged animals,” anše > “equids,” gud > “bovine,” udu > “ovine,” ku₆ > “aquatic animals.” These items are derived from standard sets of so-called “cuneiform determinatives,” and these five are particularly attested in the bilingual cosmological text KAR 4 (rev. l. 13): gud maš₂ anše ku₆ mušen = *alpu immeru būla nūnē iššurāti*. But this list might be incomplete, as suggested by the absence of the “goat”³⁸ and the “dog” (see below). Also, the relationship of these classifiers to other Sumerian primary lexemes (that is, not further analyzable names) like English “heifer,” “ewe,” “kid,” and “buck” needs further elaboration.

2.1.3. Graphic Classification

The representation of some of the above-mentioned animals in the script is also interesting from an iconic point of view. The use of graphic elements for “udder” and probably “testicles” (SHEEP and GOAT) demonstrates an analytical approach in early sign formation.³⁹ Likewise, SHEEP and the icon for “tail” were used to depict the economically important “fat-tailed sheep,” with the Sumerian reading /kungal/. The SHEEP sign can also be analyzed as an encircled MAŠ (= GOAT) sign, the circle’s suggesting the relative “roundness” of the wool-bearing sheep. These signs are taken here as examples of purely scribal classification. Besides sign alterations as a means of implicit though intentional classification, there was sign compounding, in which we may trace the earliest so-called DIRI signs, “compound graphemes representing specific Sumerian lexemes, the phonetic shape of which is neither identical with nor similar to the combined syllabic values of the compound grapheme’s

37 This classification is, together with (N. 6) -mušen BIRD, one of the most frequently used determinatives, indicating the importance of birds and fish in the early Mesopotamian diet. Note that in a few cases where ku₆ FISH is attested preceding the noun (see ^{ku} suhur vs. suhur^{ku} in Falkenstein 1949, 35 n. 2), it may be indicative of a reading ku₆-suhur, as suggested by the phonetic (Emesal) writing ku₆-da-s(š)uhur^(ku6) (cf. Falkenstein 1952, 62). For the relevance of the position of such semantic classifiers on their pronunciation, see also Civil 2004, 3–4.

38 I cannot answer the question of whether maš₂ in maš₂-durah, , designates the kid of a “wild goat,” durah (Akk. *turāhu*), or should be interpreted as a classifier; a parallel case is maš₂-lulim, , “deer/stag.” The former suggests a semantic extension of maš, “kid,” parallel to amar, “calf.” The latter would mean that maš₂ should be added to the list of classifiers.

39 This analytical approach persisted in the scribal environment, where, for teaching purposes, signs received descriptive names (see Gong 2000, 24–42)—for example, Gong 2000, 101: The sign alim = GIR₃xA.IGI, , “bison,” is described as ša₂ gi-ra-ku a igi i-gub, “in the GIR₃ sign a (and) igi are placed.”

elements”;⁴⁰ compare here *eme*₃ (SAL.ANŠE) [FEMALE]+[DONKEY], “female donkey, jenny,” and *dur*₃⁴¹ (ANŠE.NITA) [DONKEY]+[MALE], “[young] male donkey, jack.” Such writings are surely the result of analytical reasoning.

2.2. CLASSIFICATION OF THE ANIMAL WORLD IN THE LEXICON

The Sumerian-Akkadian lexicon shows several classification efforts. First, we find in the *lexicon* animal-related categories that refer not to morphological but to such biological qualities as “young” and “female.” Second, there is semantic extension in the classification of certain animals: examples are probably AMAR [CALF], which evolved into a general name for all sorts of young animals, sometimes in metaphorical(?) use simply meaning “offspring,”⁴² and UR [DOG], which metaphorically was used to designate a “dependent, servant” and also for a few subordinate compound lexemes. The third, most impressive classification approach was the constant conscious effort to analyze the animal world by the creation of new superordinate concepts represented in complex nominal compounds.

It is important to keep in mind that in cuneiform script the boundaries between graphic and lexical classifications are often fuzzy. In the initial stage of writing, both principles were regularly intertwined; compare below the charts of young versus adult and male versus female animals. It is also an open question whether and when a term should be considered a lexical unit like /kungal/, literally, “[sheep] with big/fat tail” > “fat-tailed sheep,” or is simply an attributive compound like GUD.GI₆, “black cattle.” The case of GUD.eš₁₆ zag, “cattle with a third shoulder,” as a (likely) designation for the zebu demonstrates this.⁴³

2.2.1. “Young,” “Female,” and “Male” in Script and Lexicon

Following is a short overview of the cladistics for *Bovidae*, *Carinae*, *Equidae*, and *Suidae* in ancient Mesopotamia. These examples not only attest to the fact that the lexicon possessed a highly varied *terminology* distinguishing these domestic animals by sex and age but also show some purely *graphic principles* used in the writing of these terms.⁴⁴ The systematics of the earliest scripts from Uruk IV–III were established by Englund (1998, 148–49) and Glassner (1999; 2000, 255); however, the reading, or sign identification, is based on later tradition.

40 I have argued elsewhere (Selz 2017) that such compound graphemes “may be understood as proto-commentaries attesting a reflective (oral) treatment of Sumerian words”; see further Selz 2018, 421; also Hilgert 2009; Johnson 2013.

41 This word is also written with phonetic complement as *dur*₃^{ur}₃.

42 Compare the Early Dynastic description of the Moon god ⁴su’in as amar-ban₃-da ⁴en-lil₂(-la₂) in Ean 1:20, 1–3.

43 Such principles of classification for the *Bovidae* in the earliest scripts from Uruk are well described by Pientka-Hinz (2011). This should be contrasted with the excellent “diachronic overview of designations of cows in EDA-A” provided by Wagensohn (2017, table 1).

44 The use of capital letters in the following charts simply indicates that the pronunciation is not verifiable for all periods.

2.2.1a. *Bovidae*—Bovine: Cattle

	Females	Males
Adults	AB ₂  “cow”	GU ₄ /GUD  “bull; steer, oxen”; also gud-ab ₂ (-ba), “breeding bull” (Akk. <i>mīru</i>)
Juveniles (AMAR)	SAL.AMAR  “heifer”; also ab ₂ -amar, “young cow”	KURa.AMAR  “young bull”; later gud-amar

The female and male adults are clearly distinguished graphically, whereas the juveniles are differentiated in the following way: in the cladistics for juvenile bovines, SAL(vulva). AMAR represents, as usual, the classification of calves as female; KURa may depict the male genitals⁴⁵ (but see below) and if so originated from a similar semantic as NITA, iconically the representation of a penis and elsewhere the standard designation of male animals. It is unclear whether these writings for juvenile bovines should be considered as attributive appositional compounding forms or represent a single lexeme (as with the adults); compare the case of the ovines.

2.2.1b. *Caprinae*—Ovine: Sheep

	Females	Males
Adults (UDU)	U ₈ “ewe” 	UDUNITA (UDU+ŠIR? ⁴⁶)  “ram”
Juveniles (SILA ₄)	KIR ₁₁ (SAL.SILA ₄)  “female lamb”	SILANITA ⁴⁷  “male lamb”

The lexicon has different words for the juvenile and adult females; but whether the graphemes of the male forms originally also represented different words is uncertain.

⁴⁵ For this suggestion, see Englund 1998, 155.

⁴⁶ The sign form rendered in secondary literature varied. The combined sign is UTUA = ZATU 609, on which Glassner bases his identification as UDU+ŠIR, where he understood ŠIR as equivalent to later ŠIR = Akkadian *išku*, “testicle; bulb.” Englund’s rendering is different; he follows the suggestion of ZATU that UTUA = UDU+HI.gunû (cf. ZATU 609 and 258).

⁴⁷ Note the different position of the signs SAL, “female,” and NITA, “male,” to distinguish the animals’ sex.

	Females	Males
Fat-tailed sheep (GUKKAL) 	*SAL.GUKKAL(?)	GUKKAL+HI-gunu (= ŠIR?) ⁴⁸

The fat-tailed sheep gukkal < *kun+gal is, at least in slightly younger post-Uruk period texts, an exocentric compound designating a “[sheep with] fat tail.” Note that the linguistically missing head “sheep” is indeed part of the compound sign—[SHEEP]+[TAIL]—but whether the graphemes of the male forms originally also represented different words is again uncertain.

2.2.1c. *Caprinae*—*Capra aegagrus hircus*:⁴⁹ (Domesticated) Goats

	Females	Males
Adults  (MAŠ and MAŠ ₂ [?]) ⁵⁰	u(z)d ₅ , ⁵¹  “doe, she-goat”	MAŠ ₂ (= MAŠNITA) / LAK 20 ⁵² / maš-gal, ⁵³  “buck, billy goat”
Juveniles	ZATU 149 = EŠGAR / (SAL)AŠ ₂ . GAR,  “female kid”	? ⁵⁴ / SAL.AŠ ₂ .GAR-NITA,  “male kid”

In this case, perhaps MAŠ originated as a designation for the species. Graphically, however, the script and the lexicon differentiate according to age and sex. That the designation for male juveniles was somewhat problematic to the ancient scribes is indicated by the strange hybrid writing SAL.AŠ₂.GAR-NITA = [FEMALE]+[KID]+[MALE].

48 See above n. 46.

49 The distinction of these animals from various sorts of “wild goats” is somewhat problematic.

50 MAŠ₂ is actually a composite sign consisting of MAŠ+ŠIR/HL.gunû. Originally it probably referred to “bucks” and was used almost interchangeably with MAŠ. The rear part of the MAŠ₂ sign also indicates male sheep and male fat-tailed sheep!

51 Note that the sign is very similar to U₅; specifically, the first part of the sign is UDU, “sheep,” not the simple MAŠ.

52 Selz 1995, 197; Steinkeller and Postgate 1991, 85–86.

53 This term may have been motivated by the fact that maš and maš₂ (= MAŠ.NITA) were always used to designate a goat in general, with no indication of the animal’s sex.

54 Englund (1998, 149) suggests that MAŠ is the original term for male kids; the second term, SAL.AŠ₂.GAR-NITA, is attested only in Ur III sources and must be considered a late hybrid.

2.2.1d. *Equidae*—Especially *Equus hemionus* (*hemippus*): Onager

	Females	Males
Adults (ANŠE)	Eme ₃ (SAL.ANŠE), ⁵⁵ eme ₅₋₇ , “female donkey, jenny”	anše(-nita) dur ₃ (ANŠE.NITA) / dur ₉ , “[young] male donkey, jack”
Juveniles	eme ₃ amar-[ga], “suckling filly”	dur ₃ amar-ga, “suckling jack”

The adults, showing clear lexical differentiation, are represented by simple sign compounding: [FEMALE]+[DONKEY] and [DONKEY]+[MALE].⁵⁶ The juveniles of jennies and jacks are marked by simple addition of [CALF]+[MILK].⁵⁷

2.2.1e. *Suidae*—Especially *Sus domesticus*: Pig⁵⁸

	Females	Males
Adults (šah ₂) ⁵⁹	MUNUS.ŠAH ₂ / megida, ⁶⁰ “sow”	šah ₂ , “boar”
Juveniles	?	? / šah ₂ -ze ₂ -eh-TUR, ⁶¹  ⁶² “piglet, gilt”

The case of pigs is somewhat complicated because it might include both domestic and wild species.⁶³ The identification by Veldhuis (2006b) of the šah₂-ġiš-gi (lit. “pig [living in the] canebrake”) as “wild pig” cannot (always) be correct, as noted by Weszeli (2006–11, 319, 322). Age-related differentiation in the lexicon seems probable. An additional indication for the special status of “swine” is that the Archaic Swine List from Uruk apparently did

55 Note that the Uruk-period forms of eme₃ may have PIRIG (ZATU 428) instead of the ANŠE sign (ZATU 32). Is this graphic identification correct? In terms of Mittermayer 2005, ANŠE belongs to the (graphic) KIŠ group, in which the sign forms for ANŠE, ALIM (aurochs), and LULIM (a deer) are included.

56 Note the variant sequence of the graphs.

57 For the (proposed) semantic extension of amar “calf” > “juvenile animal,” see below at 2.2.2.

58 See the important article by Veldhuis (2006a) discussing the lexical evidence.

59 Englund (1998, 149) differentiates the sign-forms ŠAH₂ and ŠUBUR.

60 Written as megida (= KUN), megida₂, and also SAL-megida₂ in Akkadian *šāhitu*.

61 It is unlikely that šah₂-ze₂-eh-TUR is a separate term; the reading here is probably šah₂ ze₂-eh-TUR, with ze₂-eh being a *mater lectionis* and the expression meaning just “little pig” and translated in Akkadian as *kurku/izannu*. Accordingly, /šah/ and /zeh/ are simply phonetic variants of one word.

62 Probably purely graphic differentiation; the graph designates a pig of one year of age.

63 Perhaps the Uruk-period differentiation between ŠUBUR and ŠAH₂ reflects the distinction.

not enter later lexical tradition,⁶⁴ and in Ura Tablet XIII the pig is not included among the domestic animals.⁶⁵

2.2.1.f. *Canidae*—Especially *Canis lupus familiaris*: Dog

	Females	Males
Adults (UR)	nig (SAL.UR), “bitch” 	ur, “dog”
Juveniles	nig-amar(-ra), “[female] puppy; whelp”; <i>also</i> ur-tur?	ur-tur, “[male(?)] puppy; whelp”

Even where the language possesses independent and unrelated terms for male versus female and juvenile versus adult animals, the witten forms clearly demonstrate the classificational efforts of the ancient scribes.

2.2.2. *The Case of CALVES and Their Presumed Semantic Extension*

Supposedly, /amar/ originated (before 3000 BCE) as a subordinate taxon specifically referring to “juvenile bovines,” “calves,” but by semantic extension was soon applied to any *junior relationship* of living beings, even humans (see 2.2.1.a, d, f). Especially in the onomasticon, amar is used to claim a special junior affiliation of the name-bearer to deities and places.⁶⁶ This semantic extension was most likely based on the covert hypertaxonomical notion of “living beings,” the Aristotelian ζῷον. By the Old Babylonian period, amar is even used for the chick of the mythical lion-headed eagle anzu₍₂₎: amar-anzu₍₂₎^{mušen}.⁶⁷

64 See Wagensonner 2010, 287 with n. 5; Veldhuis 2006b, 188.

65 šah and numerous varieties are, of course, included in Ura XIV (*MSL* 8/2:19–21, ll. 158–83). For the Old Babylonian Nippur tradition, which groups several terms for “pigs” together (ll. 377–85), see Veldhuis 2006a, 27. The Early Dynastic tradition is in this respect less decisive (with the puzzling position of megida, “sow,” in this list, probably being motivated by the form of the sign); see EDPV-B2 9:1’–10:17 (Civil 2010a, 206), but compare Wagensonner 2017, table 8.

66 There are numerous examples of this use, such as amar-^dašnan and amar-ku’ara; compare also Ningirsu’s title amar-ban₃-da-^den-lil₂-la₂, “junior of [the god] Enlil,” which anticipates the god’s later designation as Enlil’s child.

67 Consequently, ePSD gives for amar this semantic description: “calf; young, youngster, chick; son, descendant” Akk. *būru*; *māru*.” This form must be distinguished from anzud^{mušen}-amar(-ra), “the [Anzu-] Eagle [of] the young animal,” that is, the “Anzu mother.”

2.2.3. The Case of DOG—Semantic Extension or Narrowing?⁶⁸

It is uncertain whether /ur/ originated as the basic term for “dog” (*Canis lupus familiaris*) or originally referred to various sorts of *Canidae/Canoidea* and perhaps even *Felidae*.⁶⁹ But given that Sumerian has several other lexemes for different sorts of “(wild) cats,” the use for *canoidea* may be judged as semantic extension. It seems most likely that /ur/ originated as a basic-level term for *Canidae*, including domesticated and wild canines. Therefore, the restricted use as a term for DOG, like that for pig, might reflect the ongoing process of domestication.

As with other animals, we find here also more specific, subordinate categorizations of the basic-level lexeme /ur/ achieved not only by adding attributes to these basic-level items but also by more specific names (and sometimes icons) referring to these animals. A number of Archaic and Early Dynastic lists mention different sorts of animals, but almost exclusively *domestic* animals.⁷⁰ For the extended use of /ur/, compare ur-bar-ra, “wolf”—literally, “dog from the outer region” (Akk. *barbaru*)—versus ur-gi₇/gir₁₅, “[domestic] dog” (Akk. *kalbu*). Terms for “lion” are ur-gu-la (“bigger dog”), ur-mah (“great dog”), and ur-nim (“high dog”): the size of the animal was apparently considered sufficient for its identification.⁷¹ The term ur-šub₅, /uršub/—literally, “dog [of] the rushes”—designates the “tiger.” Another wild animal, perhaps the “cheetah,” is designated ur-šub₅-kud-da, /uršubkuda/,⁷² with the Akkadian rendering *dumāmu*.

As seen above, dogs, like other domesticated animals, were distinguished by sex: /ur/ referred (originally?) to male dogs, and female dogs (bitches; also lionesses) were called nig. The reading /nig/, however, is linked to the compound MUNUS+UR, , FEMALE+DOG: thus the cuneiform spelling of the word unveils an implicit classification of the bitch. The Old Babylonian period also uses the artificial(?) writing UR.MUNUS+UR, , normally transliterated as urnig—perhaps better “nig and suggesting the evolution of DOG as a (silent) classifier more than a specific term for “lioness” (Akk. *nēštu*). The term for “whelp,” however, was expressed by appositions: ur-tur, “small dog.” The comparable /urdib/, , literally perhaps “roaming dog,” seems to have been reserved for “cubs” (Akk. *gerru*).

Apparently, neither amar nor ur entered the (silent) classifier system.⁷³ The examples above show that classifying was originally restricted chiefly to *domestic animals*, to which the need for terminological generalization and the creation of superordinate taxa are tied. It may be disputed whether basic-level terms such as DONKEY and SHEEP historically *always* preceded the designation of the subordinate level; instead it seems likely that, in a first step, specific names, differentiated by age and sex of a species, underwent

68 The DOG as a conceptual frame is studied in Selz 2019, 38–39.

69 Also reflected by the Akkadian equivalents /ur/ = *kalbu*, “dog,” and *labbu*, “lion.”

70 Compare Veldhuis 2006a, 2006b. An overview on animals in these periods is provided in Wagensonner 2017.

71 To what species the lexically attested term ur-ki (“dog [of the] earth”) refers is unknown.

72 The meaning of kud here remains uncertain; ePSD refers to the variant spelling ur-šur₄-gud in YBŠ 11118, replacing kud with the word for “bull”: /gud/.

73 But compare the aforementioned case of urnig—perhaps better “nig?

generalization⁷⁴—a suggestion possibly confirmed by some of the names’ (analytical) written forms. In any case, classification processes between basic-level and subordinate terms were highly dynamic in the domain of domesticated animals in the third millennium BCE.⁷⁵ In fact, we can connect the earliest overt classification attempts in Mesopotamia to their overt utilitarian function.⁷⁶ These efforts, I shall argue below, eventually led to the creation of both more general superordinate categories and additional subordinate taxa, surely as a result of early natural philosophy.

2.3. THE EVOLUTION OF SUPERORDINATE ANIMAL NOMENCLATURE IN THE LEXICON

As we have seen, maš₍₂₎ normally meant “he-goat” but was also commonly used for goats in general. Likewise, both gud, “bull; ox,” and udu, “sheep,” were often used in a broader generic way to designate different forms of cattle and small livestock (*Groß- und Kleinvieh*), which therefore represent intermediate taxa⁷⁷ and are attested as such in the summaries of animal listings. The ongoing need for more superordinate taxa in the animal kingdom was first met by simple addition of the two most important generic animal terms, maš₍₂₎-anše, [GOAT]+[DONKEY], and maš₍₂₎-udu, [GOAT]+[SHEEP].⁷⁸ In fact, such copulative noun compounding seems to be an almost universal way of creating superordinate terms. Here the choice of these terms was presumably motivated by their key utilitarian role in early Mesopotamia. A certain freedom in such characterization is attested by the fact that the lexicographers of Ura (XIV 390–91) attest both [GOAT]+[DONKEY] and [GOAT]+[SHEEP] as terms for a similar hypertaxon; both are provided with the Akkadian translation *būlu*, “herds [of cattle and wild animals].” Slightly different is the lexically attested hypertaxon ab₂-udu, [COW]+[SHEEP],⁷⁹ which is paralleled by the term gud-anše, [BULL]+[DONKEY], in many third-millennium animal-fodder texts. This phenomenon certainly reflects a living tradition of classification. The formation of such terms is historically connected to the

74 Note that some “life-form” categories (this term of Brent Berlin and his school roughly corresponding to our “basic-level” category) are relatively late acquisitions of a language through extension of the referential range of a given term (see Brown 1984, 48, 59–81; Wapnish 1984, 197–98). I contend that even such early “innovations” should be judged as outcomes of categorial *reasoning*.

75 Only recently did I find an article by David Clines (2020), who surveys the terms for animal groups in the Hebrew Bible. The situation he describes is distinctively different despite some etymologically related items.

76 In fact, the five classifiers mentioned above cover almost the entire field of domestic animals, with just one important exception: pigs. Pigs were kept in herds under the supervision of swineherds (sipa-šah₂) and differentiated according to their habitats: either the meadows (šah₂-u₂) or canebrakes (šah₂-ġiš-gi). Note that in the third millennium pork consumption is fairly well attested.

77 Specifically, gud, “bull,” and udu, “sheep,” are often used in a broader sense, referring to cattle or “bovines” or to small livestock in general. When mentioned together in the economic documentation, they are nearly always mentioned in this order. Also quite common is the description udu gud-e ús-sa, “sheep following the bulls,” which suggests a shared habitat (see ref. in ePSD s.v. udu ~ gud).

78 SHEEP and GOAT, in this order, comprise the exclusive theme of Tablet XIII of the lexical series Ura from which other animals are excluded. Likewise, Ura Tablet XVIII is reserved for FISH and BIRD. (Tablet XIV is much more complex, including several terms for hypertaxa; see below).

79 ED Lu A 99–101; see DCCLT (<http://oracc.museum.upenn.edu/dcclt/>) (accessed May 15, 2022).

summaries of animals in administrative lists in which we find expressions such as *udu maš₂ hi-a*,⁸⁰ “sheep and goats of various kinds.”

Similar attempts at classification are attested in Early Dynastic administrative texts. Other documents show comparable tendencies: *maš* normally designates the he-goat but is also commonly used to designate goats in general, including she-goats and kids. Occasionally, however, even *u(z)d₅*, “she-goat,” is used as a broader term (*AWEL* 422 = *Nik I* 193). As we have seen, such intermediate taxa were preserved in much later lexical tradition.

That the compound *maš₂-anše* (also *maš-anše* and *maš₂-udu*) was sooner or later perceived as *one* lexeme (by univervation) is indicated not only by our lexical sources, especially by their Akkadian translation as *būlu*, “animals, livestock,” but also by other textual evidence from the late third and early second millennia. The *Gudea Temple Hymn* (B 4:18–19) of about 2100 BCE has this literary description of “ritual peace”: *maš-anše niĝ₂-zi-ĝal₂ edin-na / teš₂-bi-še₃ gam-ma-am₃*, “The animals/herds [GOAT + DONKEY], living creatures of the steppe, all had crouched together.” This description follows the mention of lions and dragons of the steppe lying asleep. Similar notions are attested elsewhere. An Old Babylonian hymn to the god *Šulpa’e* (*Šulpa’e A* 35–36) reads: *niĝ₂-ur₂-limmu₂ an-edin daĝal-la / maš₂-anše niĝ₂-zi-ĝal₂ edin-na*, “[You are the lord of] the quadrupeds of the wide high desert, of the animals / herds [GOAT + DONKEY], the living creatures of the plains.”

2.4. EXPLICIT SUMERIAN CONCEPTS OF ANIMALIA

As the term [goat]+[donkey] (*maš₍₂₎-anše*,  or ) as hypertaxon for different forms of livestock demonstrates, classification was also the result of more or less explicit abstraction. This case is clear from the Mesopotamian lexical lists, especially Ura Tablet XIV with the pioneering study of Landsberger (1934) and Ura Tablets XIII, XIV, and XVIII (Landsberger 1960, 1962).⁸¹ Besides the lexical evidence, the Old Babylonian period⁸² offers a great number of purely literary uses of superordinate terms for animals.⁸³ This limited use of such terms may indicate that they are an outcome of conscious “philosophical” reasoning. By this time (the Old Babylonian period, c. 1750 BCE), such lists had a tradition

80 This observation is true at least from the Old Akkadian period onward (ref. in ePSD s.v. *udu* ~ *maš*).

81 Wapnish’s (1984) dissertation examines this list from the points of view of prototype theory and folk biology. I, in various articles, and Wagensonner (2016) in his PhD dissertation have treated the issue of classification in Sumerian within the framework of linguistic classifier studies. A highly interesting study of Sumerian classifiers—including the ANIMAL classifiers—has been published by Bauer (2017, 67–74), who also provides an overview of such classifiers (Bauer 2017, 71–74). Note that her (independent) definition of the respective classes strongly resembles what we attempted in Selz, Grinevald, and Goldwasser 2018.

82 The Old Babylonian period is also the date of the forerunner OB Nippur Ura 03, which partially parallels Ura Tablets XIII and XIV and after various sheep and goats inserts lambs and kids, bovines and equids, and a number of diverse mammals in lines 324–28: *u₂-ma-am / niĝ₂-ki / a-za-lu-lu / a-za-lu-lu / niĝ₂-zi-ĝal₂ edin-na*. Veldhuis (2006a, 26) lists and translates these superordinate terms as follows: (1) *u₂-ma-am* animals (loan from Akk. *umāmu*); (2) *niĝ₂-ki*, “herd of wild animals”; (3) *a-za-lu-lu*, “living creature”; (4) *a-za-lu-lu*, “vermin”; and (5) *niĝ₂-zi-ĝal₂ edin-na*, “wild animals.” Note further *niĝ₂-zi-ĝal₂ edin-na*, “creatures of the steppe” (OB Nippur Ura 03, 328) and compare *niĝ₂-ur₂-limmu₂ edin-an* (Ura XIV 395–396).

83 Additional references are discussed in Selz 2019, 38–47. It is well known that in many languages terms for “Unique Beginners,” that is, the taxonomic kingdom rank, are missing (cf. Brown 1984, 4–5). Mesopotamian sources demonstrate a variety of approaches to their conceptualization.

that spanned more than one millennium.⁸⁴ Below I briefly discuss several of the most informative of these terms.

(1) $ni\hat{g}_2$ -zi- $\hat{g}al_2$, 𒀭𒀪𒀭𒀪 in an abbreviated form (without head) zi- $\hat{g}al_2$, “[things] having breath,” rendered in Akkadian as *šiknat napišti*, literally, “those endowed with breath” > “living beings” (CAD Š/2, 436),⁸⁵ is often used in parallel with $ni\hat{g}_2$ -ur₂-4, “things [having] four legs” > “quadrupeds.” Another important translation, *namaššû* (also *namaštû*), is derived from the verb *namāšû*, “to move around, to roam.” Thus the Akkadian terms, as in classical philosophy, imply a conception of animals based on breathing and locomotion.⁸⁶

The semantic range of the Sumerian term is rather broad; compare the *Šulgi Hymn B*, line 58: til-lu-ug til-lu-ug-da $ni\hat{g}_2$ -zi- $\hat{g}al_2$ edin-na, “[capturing] elephant after elephant, creatures of the plain.” Also, the *Ninurta Hymn B*, lines 19–21, read: “The numerous animals, the creatures of the plain, the . . . , the stag, the deer, the great” ([$ma\check{s}_2$ -anše] ‘lu’-lu $ni\hat{g}_2$ -zi- $\hat{g}al_2$ edin-na / [. . .] lu-lim tarah-maš X gal). Humans can also be included among the $ni\hat{g}_2$ -zi- $\hat{g}al_2$, as in *The Lament for Urim*, lines 412–13: “May that storm, which struck down all the black-headed living beings of heaven and earth [$ni\hat{g}_2$ -zi- $\hat{g}al_2$ an-ki sa \hat{g} - $gi\check{g}_2$], be entirely destroyed!”

The same term is used for “living things” in the *Lament for Nibru*, line 218: “Adab should be rebuilt, the city whose lady fashions living things [$ni\hat{g}_2$ -zi- $\hat{g}al_2$ dim₂-e], who promotes birthing”; it is also used in line 253: “He himself has brought out the day for seeds to sprout and living things to be born [numun i-i $ni\hat{g}_2$ -zi- $\hat{g}al_2$ u₃-tud]!” And the taxon is explicitly extended to humans in lines 292–93: “A time to remove bitterness from the Land, to establish light therein, a time when darkness is to be lifted in the Land, so that living things should rejoice [$ni\hat{g}_2$ -zi- $\hat{g}al_2$ $\check{h}ul_2$ -le].” The creation of all living beings is mentioned in *Šulgi Hymn O*, lines 38–39: “On the day when the destiny of the Land was determined, when the seed of all living beings was originally brought forth [numun $ni\hat{g}_2$ -zi- $\hat{g}al_2$ -la ba-i-a].”

A variety of animals, including by semantic extension possibly also humans, are involved in the *Iddin-Dagan Hymn A*, lines 93–100: gud-de₃ ⁸⁵šudul-bi-a sa \hat{g} mu-ni-ib-bal-e / udu-bi amaš-bi-a sa $\check{h}ar$ mu-na-an-dub-dub-bu-uš / $ma\check{s}_2$ -anše lu-a ^dšakkan₂-na $ni\hat{g}_2$ -zi- $\hat{g}al_2$ edin-na / $ni\hat{g}_2$ -ur₂-limmu an $ni\hat{g}_2$ -da $\hat{g}al$ -ba^[87] / pu₂-⁸⁵kiri₆ mu₂-sar $\hat{g}i\check{s}$ -gi sig₇-ga / ku₆ engur-ra-ke₄ mušen an-na-[ke₄] / nin- $\hat{g}u$ ₁₀ ki-nu₂-bi-še₃ $\hat{g}iri$ ₃ [mu-ni]-ib-ul₄-e / zi- $\hat{g}al_2$ u \hat{g} ₃ lu-a dub₃ mu-un-ši-gam-e, “The oxen toss[?] their heads in their yoke. The sheep stir up dust in their pens. Because of my lady, the numerous beasts of Šakkan, the creatures of the plain, the four-legged animals under the broad heavens, the orchards and gardens, the plots, the green reedbeds, the fish of the deep, the birds of heaven, all hasten to their sleeping places. All the living creatures and the numerous people bend the knee before her.” According to

84 See above, and compare the important studies by Civil 2010b; Veldhuis 2006a; Civil 2008; Pientka-Hinz 2011; Wagensonner 2016, 2017.

85 Note that the forerunner OB Nippur Ura 03, which partially parallels Ura Tablets XIII and XIV, after various sheep and goats inserts lambs and kids, bovines and equids, and a number of diverse mammals in lines 324–28: u₂-ma-am / $ni\hat{g}_2$ -ki / a-za-lu-lu / a-za-lu-lu / $ni\hat{g}_2$ -zi- $\hat{g}al_2$ -edin-na (see n. 82 above). Compare also the related Hebrew term חַיִּוִּם , “living creatures.”

86 Compare here intermediate taxa in the Egyptian script (Goldwasser 2002, 69–78; ch. 5 in this volume). An extensive discussion of the taxonomy of the animal kingdom appears in Selz 2019.

87 A variant writes: an-/edin’ [da $\hat{g}al$ -la], “of the broad High Steppe.”

the *Ur-Ninurta Hymn A*, lines 68–70, destiny for humans (“the black-headed”) is fixed by the gods: “The Anuna, the great gods, said ‘Let it be so!’ to the destiny determined by great An and by Nunamnir, the lord of all living beings [(^d)nu-nam-nir en niĝ₂-zi-ĝal₂-la-še₃]. In order to strengthen the black-headed [saĝ giĝ₂] in their dwelling-places, to keep the foreign lands on the track, to put . . .”

Humans are frequently described as a “flock” over which the deities (or rulers) watch as “shepherds.” In the *Enlil Hymn A*, lines 93–94, we read: “Enlil, faithful shepherd of the teeming multitudes, herdsman, leader of all living creatures [na-gada mas-su niĝ₂-zi-ĝal₂-la-ka].” In lines 151–53 of the hymn the god is further described thus: [inim]-zu a-eštub zi kur-kur-ra-kam / niĝ₂-zi-ĝal₂ niĝ₂-ki' u₅-a / zi dug₃-ga u₂-šim im-da-pa-an-pa-an, “Your word means the early flooding, the life of the lands. It makes the living creatures, the animals[?] which copulate and breathe joyfully in the greenery.”

The abbreviated zi-gal₂, 𒀭𒀪𒀬, has the same meaning as niĝ₂-zi-ĝal₂. Compare *Iddin-Dagan A*, line 100, which reads: “All the living creatures and the numerous people [zi-ĝal₂ uĝ₃ lu-a] bend the knee before her.”

(2) The term zi-šaĝ₄-ĝal₂, /zišaĝĝal/, 𒀭𒀪𒀬𒀭, “having breath inside” > “vigour, vitality,” also “alive, living,” entered Akkadian as the loanword *zišaĝallu* (*CAD Z 138; AHw 1533*), for which the dictionaries suggest the translation “[divine] encouragement.” Though ePSD accepts this interpretation,⁸⁸ the translations in ETCSL are less homogenous and render the term “lifesaving” or the like. Though an Akkadian translation of /zišaĝĝal/ as *šiknat* (*šikin*) *napišti* is attested, *CAD Z 138* (cf. also *CAD N/1 297*) considers it “due to a confusion with niĝ-zī-ĝál.” But this suggestion blurs the underlying concept of *Lebensodem* (*élan vital*, vigor) and confines the notion to much later understandings, probably due to semantic narrowing. The basic meaning of /zišaĝĝal/ refers to the force “providing life/breath within,” paralleled by some Old Sumerian personal and place names such as E₂-zi-šaĝ₄-ĝal₂ and Bara₂-zi-šaĝ₄-ĝal₂, which may be translated, “The house/chapel provides breath/life.” From the Ur III period are the names ^den-lil₂/^dnanna/^dba-ba₆-zi-šaĝ₄-ĝal₂, “The god Enlil/Nanna/Baba provides life,” paralleled by lugal/nin-zi-šaĝ₄-ĝal₂ “The Lord/Lady provides life.” Even a courtier’s name is attested: ^dšul-gi-nu-zi-šaĝ₄-ĝal₂, “Does [king] Šulgi not provide life?”⁸⁹

In summary, the term niĝ₂-zi-ĝal₂ belongs to a highly productive semantic field dating back at least to the end of the third millennium and is in widespread literary use at the beginning of the second millennium. The major motivation was apparently the semantic field of zi, which, like its various Semitic counterparts, designates “throat” and, by metonymic use, “breath” and “life.” Thus zi-ĝal₂ as niĝ₂-zi-ĝal₂ and (niĝ₂-)zi-ša₃-ĝal₂ may refer to all sorts of living beings, including humans and, of course, “wild animals.”⁹⁰ The latter, however, are often specified as niĝ₂-zi-ĝal₂ edin-na, “living beings of the steppe.” The application

88 ePSD: zišaĝĝal [ENCOURAGEMENT] (Lagash II, Ur III, Old Babylonian) wr. zi-šaĝ₄-ĝal₂, “encouragement”; but note also sub zi šaĝ ĝal [PROVIDE WITH LIFE] wr. zi ša₃ gal₂, “to provide with life” (Akk. ?).

89 All Ur III examples are from Limet 1968, 319.

90 We note here that by semantic alteration niĝ₂-zi-ĝal₂-edin-na could also designate a set of “word lists” as in *Two Scribes*, line 4: niĝ₂-zi-ĝal₂-edin-na za₃ lu₂ šu-ka-še₃, “From the *šātu* list(s) up to the lu₂ = *ša* list” (see Johnson and Geller 2015, 94–95, ll. 9–10; cf. also Frahm 2011, 48). On the very complex and difficult term *šātu*, see Frahm 2011, 48–55. The use of the term niĝ₂-zi-ĝal₂-edin-na with reference to the scribal art underlines the importance of animal categorization in the Mesopotamian world.

of the term “creatures/living things” to both animals and humans alike may have been motivated by the literal meaning of the expression, as well as by the fact that humans, like animals, are under the guidance of gods and rulers.

(3) In contrast, **niĝ₂-ur₂-limmu₂**, /niĝurlimmu/, —literally, “four-legged things (creatures)” > “quadrupeds”—like mašanše (and kušu) with the Akkadian translation *būlu*, “herd,” is clearly an intermediate taxon for livestock based on the specific morphological feature of this set of animals.⁹¹ The term is restricted to lexical and literary sources, and it is often found in conjunction with other similar terms discussed here; compare maš₂-anše niĝ₂-ki-a niĝ₂-ur₂-lim₂-ma = *būl namaššū ša erba šēpāšu*, “The herds and the wild animals with four legs” (CAD N/1 233). Sometimes it is used to explain the term maš₂-anše; but also attested is its independent use, when it simply replaces that presumably older designation. It specifically includes not only the domesticated “herd” but also (semi-)wild animals. As far as I am aware, its earliest attestations belong to the early Old Babylonian period. The term niĝurlimmu was modeled after the similar /niĝziĝal₂/, eventually establishing a kind of pattern.

Some Mesopotamian scholars apparently judged this term as unsatisfactory or even misleading; thus the term niĝ₂-šu-ur₂, to be understood as “things with hands and legs,” was invented, and the explicit argument becomes even more apparent. This term is attested only in lexical lists. Like niĝurlimmu, it has the Akkadian rendering *nammaštu* (Ura XIV 401), “roaming animals.” Besides the aforementioned passages providing parallels with maš₂-anše or niĝ₂-zi-ĝal₂(-edin-na),⁹² the following attestations are found: *Ninurta’s Exploits*, lines 404–5, have kur-[re] maš₂-anše ħa-ra-ab-lu-e / ħur-saĝ-e niĝ₂-ur₂-4-e numun ħa-ra-ni-ib-i-I, “Let the mountains make wild animals teem for you. Let the mountain increase the fecundity of quadrupeds for you”; *Šulgi Hymn B*, line 107, has niĝ₂-ur₂-4 nim-gin₇ ĝir₂-re-da a₂-sag₃ bi₂-ib-šub^{nb}-be₂-en, “I can bring down quadrupeds lightning-quick with the sling”; *Home of the Fish, segment C*, lines 11–12, have [niĝ₂]-ur₂-4 ambar gir₅-gir₅ dab₅ / [ku₆]-ĝu₁₀ kud-da-ĝu₁₀ šu-še₃ ba-e-la₂-e, “The one who seizes the quadrupeds that wander into the marshes, my *kuda* crocodile: you would be dangling from its claws, my fish!”; *Sumerian Proverb Collection 2+6* (= Veldhuis 2000, 6.24), line 4: “Four-legged creatures [niĝ₂-ur₂-limmu₂] are as good as marsh rats [peš₂-ĝiš-gi]”; and contrast with a proverb from *Proverb Collection 3*, lines 47–48: “He who has silver is happy; he who has grain feels comfortable; he who has livestock [niĝ₂-ur₂-limmu₂] can sleep.”

We conclude, therefore, that the term niĝurlimmu covered the semantic field from “quadrupeds” to “domestic herds,” eventually including undomesticated species.⁹³

(4) **niĝ₂-ki**, , literally, “things (of) the earth.” The Akkadian *nammaštû*, “roaming animal > herd of animals,” fits the etymology perfectly. Originally—or by semantic narrowing(?)—it might have had pejorative connotations, as suggested by the Akkadian translations

91 Compare here the intermediate taxa in the Egyptian script (Goldwasser 2002, 69–78).

92 Specifically, I refer to the quotations from the *Hymn to Šulpa’e* (Šulpa’e A 35–36; see above at 2.3) and the *Hymn to Iddin-Dagan A*, lines 93–100; see above at 2.4 under (1).

93 This distinction is, of course, not always sure or possible (cf. Battini 2009). For the early mythoritual incorporation of wild animals, see also Selz 2010.

zemandu, “vermin,” in Ura XIV 402⁹⁴ and *mūnu*, “caterpillar,” in an Old Babylonian lexical list from Nippur. A Sumerian proverb (3N-T 232+244 [Alster 1997, 304]) indicates that originally the term might refer to “vermin” or “creeping things”: lines 1–2 of this proverb read: $pa_3^{g_3}kiri_6-ke_4$ a na-an-tum₃ / $ni_2^{g_2}-ki$ i₃-ĝal₂, “The ditches of the garden should not flow with water, or there will be vermin.”

Less clear is the attestation in *Enlil Hymn A*, line 152, quoted above under (1). Despite some lexical evidence, it seems unlikely that $ni_2^{g_2}-ki$ originated as just another term for “herds of wild animals.”

(5) $ni_2^{g_2}-gilim$, , is a similar term, literally meaning “twisted things” and presumably specifically referring to “worms” (ePSD: $ni_2^{g_2}gilim$ [RODENT] WR; $ni_2^{g_2}-gilim_2$, “vermin; a rodent”; Akk. *iškarissu*). The same compound noun also designates “ropes” ([^{gi} $ni_2^{g_2}$]- $gilim$ -ma OB Nippur Ura 2 191)!

Again a Sumerian proverb may be quoted (*Proverb Collection* 3.154–55; Alster 1997, 94): $umun_3-še_3$ piriĝ-gin₇ du / $ki_2^{g_2}$ ak-de₃ $ni_2^{g_2}-gilim$ -ma-gin₇ du, “He moves like a lion against a louse, but when there is a job to be done he moves like a worm [Alster, ‘mongoose’; ETCSL, ‘rat’].⁹⁵

(6) The term **a-za-lu-lu**, , is a collective alluding to an unspecified multitude of creatures (Akk. *tenēšētu*). Ura Tablet XIV (*MSL* 8/2:41–42, ll. 382–86a) provides five more Akkadian equivalents, most notably *nammaštu*, “roaming animal,” and *zemandu*, “small animals, vermin.”⁹⁶ The Nippur versions of Old Babylonian Ura apparently list two types of a-za-lu-lu.⁹⁷ The etymology of the word is unclear; it certainly contains the term lu-lu, “to mix.”⁹⁸ There is just one attestation in a literary text (*Enlil Hymn A*, l. 128): a-za-lu-lu ni_2 -ba lu-a / {TUG₂-bi KUL-ba nu-mu-ni-ib-nu₂-nu₂} [one manuscript has instead: tuš-bi šag₄-ba nu-mu-un-ib-tuš-tuš] / $maš_2$ -anše $ni_2^{g_2}-ur_2$ -4-e numun nu-mu-ni-ib-e₃ e-ne su₃-ud-bi nu-mu-un-u₅, “the creatures which multiply by themselves would not [lie down in their . . . ; (or instead ‘sit within . . .’); the four-legged animals would not propagate, they would not mate.” It is uncertain whether a distinction between spontaneous self-generation and mating reproduction is intended by this passage.

94 Ura XIV 402–3 have $ni_2^{g_2}ni$ -qi ki, *zemandu*, and $ni_2^{g_2}-ki$ -ki-a = *zemandu qaqqari*!

95 Despite the lexical evidence, in most cases $ni_2^{g_2}-gilim$ as animal term seems (originally) to refer to “worms”; compare $ni_2^{g_2}-gilim$ ki-ta ki-ta mu-lu-lu, “worms from below multiplied below” (Sumerian Flood story (cf. ETCSL 1.7.4) Seg. A 13; cf. E 3); note its metaphoric use mu $ni_2^{g_2}-gilim$ -ma numun nam-lu₂-ulu₃ uru₃ ak, “in order to preserve animals and the seed of humankind,” in the same composition (Seg. E 10). Perhaps a hide of a “mouse” or a “rat” is referred to in Ugumu Old Babylonian Nippur: r ii 21’kuš peš₂¹ [$ni_2^{g_2}-gilim$ -ma]. Ilona Zsolnay reminds me that “mongoose do move a bit like inch worms; rats certainly have tails that look like worms.”

96 The other equivalents are: *nīd libbi*, “stillborn child” (*CAD*N/2 209–10), and *būl (i-)t/dašuš*, “sixty-armed animal [swarm],” the latter presumably being a descriptive term for “vermin.”

97 See Veldhuis 2006b, 24. For a discussion of Old Babylonian Ura, see Veldhuis 2004, 86–89.

98 I suggest that a-za is an abbreviated syllabic form of the Sumerian word /azad/, written a-za-ad; thus the term might be analyzed as “mixed heads ~ bristling with heads” > “a multitude of living things.” Compare the parallel construed /zilulu/, “vagabond, peddler.” Note further that Akkadian *tenēštu* (pl. *tenēšētu*), is reserved for humans.

(7) According to the literary sources, **u₂-ma-mu** or **u₂-ma-am**,  or , designates “undomesticated animals” > “beasts.” The word may have been borrowed by the Sumerians from the Akkadian *umāmu*.⁹⁹ In the *Cursing of Agade*, lines 21–24, we read: ^{u₂}u₂gu₄-bi am-si maḥ ab₂-za-za u₂-ma-am ki ba₉-ra₂ / šag₄ sila daḡal-la-ke₄ teš₂-bi tag-tag-ge-de₃ / ur-gir₁₅ ur-nim taraḥ {var. kušu / anše} kur-ra^[100] udu₂-a-lum^[101] zulumḫi si kug^dinana-ke₄ u₃ nu-um-ši-ku-ku, “Holy Inana did not sleep in order that monkeys, mighty elephants, water buffalo, exotic animals, as well as thoroughbred dogs, lions, mountain ibexes, and alum sheep with long wool would jostle each other in the public squares.” The u₂-ma-mu beasts are also used with reference to the animal-like sexuality of the Šimaškian people: *Letter from Šin-iddinam to the God Utu*, lines 26–27: “He who lives in tents, who does not know of the places of the gods: like a wild beast which mounts [u₂-ma-am-gin₇-‘nam’ u₅-‘a’], he knows nothing of flour and prayers.” I therefore propose that u₂-ma-mu is not a superordinate term for “animal” but more precisely a term for “wild animals, beasts.”

(8) The last term to be discussed here is **kušu**, , again equated with Akkadian *būlu*, “herd, livestock.” It is attested as a variant in the *Cursing of Agade*, line 23: ur-gir₁₅ ur-nim kušu-kur-ra^[102] udu₂-a-lum zulumḫi si, “thoroughbred dogs, lions, . . . of the mountains, and alum sheep with long wool.” The precise meaning and the etymology of this word are obscure. Any relation to the seemingly homophonic kušu₂, /kušu/, “a type of sea creature,” as indicated by the writing kušu₂^{ku}, seems unlikely.¹⁰³ Note here, however, the extended use of the classifier for FISH > AQUATIC ANIMAL. (The word entered Akkadian as the loanword *kušū*.) This animal is mentioned in *Lugalbanda and the Anzu Bird*, line 47, where the bird is described as having umbin kušu₂^{ku}-e ḥu-ri₂-in^{mušen}-na-kam, “a shark’s teeth and an eagle’s claws.” In the *Ḥendursaġa Hymn A*, line 84, one of the demons is described as 7-kam-ma kušu₂^{ku}-am₃-a-ġi₆ im-bu-bu-bu, “The seventh . . . , a shark in the waves.” Most likely we are here confronted with two homonymous words.

99 The etymology of the Akkadian *umāmu* is unknown. Ura XIV 387–88 cites two further Sumerian correspondences to *umāmu*: u₂, literally “grass,” and u₂-gu₇, “[the ones] feeding [on] grass”—probably an attempted etymology for the word u₂-ma-mu. They follow the section with Akkadian equivalents for a-za-lu-lu, “a multitude of living things.”

100 Note that some manuscripts show the variants kušu kur-ra, others anše-kur-ra, that is, “mountain beasts(?)” and “horses,” respectively. When discussing “the case of the horse” (Selz 2019, 38–39), I doubted that the Sumerograms ANŠE.KUR.RA were invariably pronounced as /sisi/ or *sisi’um*, perhaps not even always referring to “horses.” Lines 272–75 of *Lugalbanda I* (*Lugalbanda in the Mountain Cave*, cf. ETCSL 1.8.2.1) corroborate this view: ki-bi-ta anše-kur-kur-ra-gen₇ am₃-gul[’]-e / dur₃^{ur} dili-du-e ḡakkan₂-na-ke₄ hur-saġ i₃-si-il-[le] / dur₃^{ur} uru₁₆ gal-gen₇ kušum i₃-tag-tag-ge / dur₃^{ur} sal-la kaš₄-e kiġ₂-ġa₂-am₃ kaš₄ im-mi-GUNU₃ GUNU₃, “From there like a jack of the mountains he trampled off, the soloing jack of Šakkan [i.e., Lugalbanda] cut [through] the mountain range; like a strong big jack he ran fast; the slender jack, bound to run, hurries along(?)”

101 Or udu-a-lum, as often the identification of the alleged unpronounced classifier is inconsistent in various transcriptions.

102 Variants have either taraḥ kur-ra or anše-kur-ra, “mountain ibexes” or “horses.”

103 Attinger and Krebernik 2005, 66.

3. COMPARING ANIMAL CLASSIFICATION IN THE SUMERIAN SCRIPT AND LEXICON

We have seen that all five written, “basic-level” animal classifiers were originally Sumerian words and basic-level lexemes and were later extended to cover a wider range of animals. As expected, overlappings between the script and lexicon were observed. I have argued that these classifiers are the outcome of an ongoing abstraction process in which such specific terms started to represent “classes,” such as bovine, ovine, and equid. In other words, more specific subordinate-level items such as heifer, filly, and cow became subsumed into these basic-level classes. On the subordinate level, however, terminology was not restricted to specific lexemes, which were often written with signs derived from a basic sign either by modification, such as u_8 , “ewe,” or by adding an appositional sign, such as SAL.SILA₄ [FEMALE]+[LAMB] = kir₁₁, “female lamb,” SAL.ANŠE = [FEMALE]+[DONKEY] eme₃ = “female donkey.” Such sign-compounding used linguistically to express specific items certainly mirrors noun-compounding—that is, adding attributes to what was or had become a basic-level term, such as gud/ab₂-amar [BULL/COW]+[CALF] > “bull calf/heifer,” anše-edin(-na) [DONKEY+STEPPE] > “wild donkey; onager,” or ur-bar-ra [DOG]+[OUTSIDE] > “wolf.” It was not always possible to demonstrate whether such compounding was restricted to graphemic representations (graphemes) or also reflected linguistic realization; the conscious reasoning is, however, clear. In some ways the phenomenon has its parallel in the usage of the aforementioned classifiers, the possible articulation of which often remains doubtful.

Additionally, the logosyllabic writing shows iconically based and language-independent classification via the formation of signs (see above).¹⁰⁴ Thus the alleged “udder” or “testicle” as elements distinguishing the sex of the animals could be understood as “classifying elements.” The semantic animal classifiers probably evolved during the third millennium to become part of the standard system of (mostly) silent classifiers and were restricted to animals of some significant utility.¹⁰⁵ This observation is particularly true of the classifiers for BIRD and FISH, which are, however, distinguished from the others by almost exclusively following the classified noun. The classifiers BULL, SHEEP, GOAT, and DONKEY classify domesticated animals. Large carnivores such as lions, panthers, and even dogs, plus snakes and worms, normally remained unclassified. Apparently already in the third millennium—with its vast documentation of animal husbandry as one of the staples of Mesopotamian subsistence—the use of generalizing taxa (classifiers) became necessary. They, however, should not be compared to subtle and detailed modern cladistic systems. The six just-mentioned classifiers referring to the animal kingdom are attested throughout the history of cuneiform script and spread from the original Sumerian into the script of other languages in regions adjacent to Mesopotamia.

104 The so-called “compound signs” are not under discussion here; some of them, however, might also be read as containing classifying elements.

105 This restriction is not really surprising. As Veldhuis (2006a, 187) has clearly stated, Mesopotamian writing evolved in the administrative sphere and showed little regard for the religious and other non-environmental aspects of life: “many essential elements of any cosmology are missing, such as gods, stars, rivers, mountains, and wild animals.” It was administration (and the related teaching of cuneiform) that was the focus of this “Managerial Class,” as Steinkeller (2017, 3:56–57) so aptly called them.

Representing the combination of two of these classifiers/lexemes, [GOAT]+[DONKEY] was probably one of the earliest compound lexemes for a more general denomination for animals. The period of origin of the other two important lexical superordinate taxa for “animals” is unknown: the general $ni\hat{g}_2$ -zi-gâl₂ and related zi -šag₄-gâl₂, “[things] having breath,” appear quite early (end of the third millennium) and are common in literary texts after 2100 BCE.¹⁰⁶ The semantically corresponding Akkadian *šiknat napišti* (“endowed with breath”) gives the impression of being a calque of the Sumerian terms; they did not enter administrative documentation. Around the same time an intermediate taxon, the term $ni\hat{g}_2$ -ur₂-limmu, “things with four legs,”—also absent from the administrative terminology—appears as a designation for all sorts of “quadrupeds”; clearly, it is an intermediate taxon based on *morphological* observation and is mirrored by the even rarer and more sophisticated term $ni\hat{g}_2$ -šu-ur₂, “things with hands and legs.” The appearance of both terms only in lexical and literary sources suggests that both were the result of scholarly(?) speculations and therefore the result of explicit classification processes. A comparable status is likely for the rather rare $ni\hat{g}_2$ -ki(-a), “things [of] the earth” > “things [moving] on earth,” and $ni\hat{g}_2$ -gilim, “twisted things.” The etymology of the former indicates that here animals are described by their habitat—the earth as opposed to the water¹⁰⁷ and the sky. The latter term alludes to their behavior understood as a morphological feature. The term a-za-lu-lu refers to “a group of animals,” perhaps meaning “swarm.”¹⁰⁸ A rather broad semantic of this term is already indicated by an Old Babylonian list.

The non-Sumerian term /umam(u)/ probably designates “undomesticated animals” > “beasts.” There is no specifically Sumerian term for this part of the animal kingdom.

In Akkadian *namaššû/namaštu*, “the roaming ones,” and *šiknat napišti*, “those endowed with breath,” are the most common translations for the Sumerian hypertaxa or explicit terminology. Also common but apparently less descriptive is the translation *bûlu*, “herds [of cattle and wild animals].” Whether or not this translation reflects the seminomadic background of the immigrating Semitic tribes is, of course, speculative.¹⁰⁹

Thus the classifiers in the script and the explicit nomenclature of the Sumerian lexicon show considerable discrepancies. Only terms such as *maš-anše*, “herd of livestock,” connect the two separate fields (cf. above at 2.3). But the lexicon does demonstrate that classification in Sumerian was an evolving, living process,¹¹⁰ and it provides us with considerable insight into the theoretical reasoning of the earliest Mesopotamians. Indeed, this endeavor looks like a philosophical one, and the focus on “breathing things” suggests a philosophical concept of *Animalia* quite similar to Aristotle’s “A man and an ox are both ‘animal,’ and these are univocally so named, inasmuch as not only the name, but also the

106 I indicated above that in this respect the differentiation between humans and animals received little stress, a fact that might be connected to the well-attested (metaphoric) semantic frame PEOPLE ARE ANIMALS.

107 The type of fish to which $ni\hat{g}_2$ -ki^{ku} refers in *Early Dynastic Fish* 106 (DCCLT) remains unknown. The literal meaning might suggest a designation for a kind of “gudgeon” (German *Gründling*).

108 Compare Goldwasser in chapter 5 of this volume.

109 But compare *Enki and the World Order*, line 249 (cf. ETCSL 1.1.3): ^den-ki-ke₄ mar-tu maš₂-anše saĝ-e-eš mu-ni-rig, “[To those having neither cities nor houses], to the Amurru[-nomads], [the god] Enki assigned the herds” (translation mine). Note the use of the term maš₂-anše.

110 This classification is also demonstrated in Goldwasser 2017; Selz 2019.

definition, is the same in both cases” (*Categories* 1a, in Edghill 1928).¹¹¹ Likewise, the term for quadrupeds may be taken as a forerunner of Aristotelian morphological categories¹¹² inasmuch as “the roaming ones” anticipates locomotion as an animal property. In sum, I hope to have shown that the Mesopotamian zoological classifications indeed comprise a precursor of natural philosophy.

ABBREVIATIONS

<i>AHw</i>	W. von Soden, <i>Akkadisches Handwörterbuch</i> . Wiesbaden: Harrassowitz, 1965–81
<i>AWEL</i>	G. J. Selz, <i>Die altsumerischen Wirtschaftsurkunden der Eremitage zu Leningrad</i> . Freiburger Altorientalische Studien 15/1. Stuttgart: Steiner, 1989
<i>CAD</i>	Ignace J. Gelb and Martha Tobi Roth, eds., <i>Chicago Assyrian Dictionary</i> . Chicago: Oriental Institute, 1964–2010
DCCLT	Digital Corpus of Cuneiform Lexical Texts (http://oracc.museum.upenn.edu/dcclt/)
ETCSL	Electronic Text Corpus of Sumerian Literature (http://etcsl.orinst.ox.ac.uk/)
EDPV-B2	Miguel Civil, ed., “Early Dynastic Practical Vocabulary B2,” in <i>The Lexical Texts in the Schøyen Collection</i> , 203–14. Cornell University Studies in Assyriology and Sumerology 12. Bethesda, MD: CDL Press, 2010
ePSD	Electronic Pennsylvanian Sumerian Dictionary (http://psd.museum.upenn.edu/epsd/)
<i>LAK</i>	Anton Deimel, <i>Die Inschriften von Fara I: Liste der archaischen Keilschriftzeichen</i> . Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 40. Leipzig: Hinrichs, 1922
<i>MSL</i>	<i>Materialien zum sumerischen Lexikon/Materials for the Sumerian Lexicon</i> . Rome: Pontificium Institutum Biblicum, 1977–present
Ura	HAR-ra = hubullu: the largest Mesopotamian Lexical Series, quoted after the publication in <i>Materialien zum sumerischen Lexikon/Materials for the Sumerian Lexicon</i> . Rome: Pontificium Institutum Biblicum, 1977–present; Tablet III = <i>MSL</i> 5, Landsberger 1957 + <i>MSL</i> 9, Landsberger 1967; Tablet XIII = <i>MSL</i> 8/1, Landsberger 1960; Tablet XIV and XVIII = <i>MSL</i> 8/2, Landsberger 1962; cf. also Landsberger 1934
<i>ZATU</i>	Margret Green and Hansjörg Nissen, <i>Zeichenliste der archaischen Texte aus Uruk</i> . Archaische Texte aus Uruk 2. Berlin: Gebr. Mann, 1987

For further Assyriological abbreviations, consult
http://cdli.ox.ac.uk/wiki/abbreviations_for_assyriology.

111 Compare also Aristotle, *Topics*, Organon V 102a–b, in Pickard-Cambridge 1928, 170: “For having argued that ‘animal’ is the genus of man, and likewise also of ox, we shall have argued that they are in the same genus; whereas if we show that it is the genus of the one but not of the other, we shall have argued that these things are not in the same genus”; *Topics*, Organon V 136a–b, in Pickard-Cambridge 1928, 229: “Thus (e.g.) inasmuch as ‘animate’ is a property of ‘living creature’, ‘animate’ could not be a property of ‘not-living creature’”; *Topics*, Organon V 106b, in Pickard-Cambridge 1928, 178: “animals naturally possess each kind of ‘sense’, both as applied to the soul and as applied to the body.” Compare Rolfes 1995b.

112 See Aristotle’s *On the Part of Animals* (in Lennox 2017), especially chapter 4, and compare Tipton 2014.

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5

Was There an “Animal” in Ancient Egypt? Studies in Lexica and Classifier Systems, with a Glimpse toward Sumer and Ancient China

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1. INTRODUCTION

This study offers guidelines for the reconstruction of the conceptual organization of Animalia in the ancient Egyptian mental lexicon¹ during the third and second millennia BCE. In this chapter, my main interest lies in the origin and development of animal supercategories in the Egyptian lexicon and the classifier system of the script.

Egyptian texts are the source for two parallel data corpora that provide information on the emic conceptual knowledge organization in ancient Egypt. One source is the *lexicon*, with its various lexemes presenting individual nouns and collective nouns. The second source is the *classifier system* that shows various classifiers for Animalia lexemes.²

This study opens with a prologue on classifiers in complex scripts. Priming processes are suggested to be the cognitive catalyzer for sustaining classifiers in speech and writing systems. The next section presents animal classification in the Egyptian lexicon, followed by a presentation of animal classification by the classifiers of the Egyptian script, then a discussion of the differences between the conceptual organization represented in the Egyptian lexicon versus the one presented by the classifier system in the script. A short comparative glimpse of Sumerian supercategories of Animalia in the lexicon and the cuneiform classifier system is given. The last section provides a brief comparison with Chinese.

2. PROLOGUE: WHY “CLASSIFIERS” AND NOT “DETERMINATIVES”?

I am of the firm opinion that the term *determinative*,³ which continues to be used in both Egyptology and Assyriology, is a long-outdated misnomer. This term was assigned to a semiotic phenomenon in the Egyptian script during the nineteenth century by the founding

1 For mapping of the mental lexicon, see, for example, Frost, Forster, and Deutsch 1997, 830.

2 The topic was dealt with partially in Selz, Grinevald, and Goldwasser 2018; Goldwasser 1999, 2002.

3 In Assyriology the term *semantic determinative* is also common. (For an overview, see Selz, Grinevald, and Goldwasser 2018.) It seems that Egyptology avoided the term *semantic* because of the widespread phenomenon of “repeater classifiers” in Egyptian (see Goldwasser 2006a, 21–22). Repeater classifiers are rare in the Sumerian system.

father of Egyptology—Jean Francois Champollion (Champollion 1836).⁴ Roughly ten years later, the early Assyriologist Edward Hincks adopted and introduced it into cuneiform studies (Hincks 1847, as accounted for in Jastrow 1915, 81).⁵ When used in Egyptological studies, *determinative* refers to a *function* that many hieroglyphs may perform in certain contexts. These same hieroglyphs perform other functions in the script as well, such as those of a logogram or phonogram (see table 5.1). Champollion embraced the term *determinative* from early studies of Chinese, as there was no other term available to him at the beginning of the nineteenth century. Here I suggest that the modern linguistic term *classifier* should replace the old term *determinative*, the latter of which is neither informative nor productive. When signs function as classifiers in complex writing systems, they are not representatives of only a graphic phenomenon created to clear cases of script ambiguity or to mark the end of a word. The very common occurrence of multiclassification in Egyptian (i.e., one lexeme that takes a few [two to five] classifiers) already signals the much more complex semiotic role of these so-called “determinatives.” The term *classifier*, used in modern linguistics since 1977 (Allan 1977; Aikhenvald 2000, 2021; Senft 2000; Grinevald 2015) offers a new framework of analysis for the hieroglyphs or cuneiform signs that play this semiotic role. It offers a linguistic model of possible relations between the classifiers and their host words, as well as possible predictions and constraints of the classifier’s usage.⁶ As will be demonstrated, to refer to these script phenomena as “classifiers” is not simply to relabel them but further to bring transparency to their syntactical and lexical functions. Moreover, I have explored scriptural classifiers extensively in previous publications, there showing how they encode Egyptian society’s emic⁷ categorization of the world. Classification, as with all sorts of categorization efforts, are essential to our survival in the world.⁸ Humans would not have prevailed, nor would we continue to survive, without creating conceptual and linguistic categories, whether explicit or implicit.⁹ If all lions—male, female, big, small, yellow, or brown—were not to have been analyzed and assigned to the categories of *lion* and *dangerous*, the people who have lived in their vicinity

4 For Champollion’s elaborate discussion of the determinatives, see Goldwasser 2006a, 17–20; Polis and Rosmorduc 2015, 150–53. Signs analyzed as determinatives are mentioned already in 1828 in the writings of Champollion.

5 I am indebted to Gebhard Selz for this information.

6 For explicit discussions on these issues, see Goldwasser 2006a, 17–20, and Kammerzell 2015. In recent years, more and more Egyptologists have moved to the term *classifier* instead of *determinative*. For a partial list, see Di Biase-Dyson, Kammerzell, and Werning 2009; Quack 2010, 239; Nyord 2012; Grossman and Polis 2012; Polis and Rosmorduc 2015; Grossman and Richter 2015, 81–82; Vernus 2015; Winand 2016; Fischer-Elfert and Krebernik 2016; Pommerening 2017; Loprieno, Müller, and Ulijas, 2017, 652–53; Schneider 2018; Polis et al. 2021.

7 *Emic* is a term widely used in anthropology; see its use in the phrase “accurate ethnographic description from an internal or emic perspective, from the native point of view” (<https://en.oxforddictionaries.com/definition/emic>). There might be a question concerning the identity of the producers of the information in the Egyptian script, whether those from scribal circles or others. During the Amarna period, for example, the use of classifiers in hieroglyphic inscriptions seems strictly to reflect the worldview of the royal circles (see Goldwasser 2002, 111–31; 2006c; 2010). This conclusion might be related to the genre and location of the texts from Amarna—mainly tomb inscriptions of the king’s followers.

8 For this statement, see Wierzbicka 1984, 313.

9 Every concept or word is in a way a category; for example, “cat” includes a whole array of exemplars sometimes very different from one another (see, recently, Pommerening and Bisang 2017, 2–17).

Table 5.1. Possible semiotic roles of the hieroglyph .

Sign function	Example	Sign value
as logogram	 <i>pr</i> , “house”	+sound +pictorial meaning
as phonogram	 <i>pr</i> , “go out”	+sound only, pictorial meaning to be discarded
as classifier	 <i>šs</i> , “nest”	+pictorial value only, no sound value; “silent picture”

would have suffered great losses. In all human activities, we see constant efforts of categorization and classification that also surface in various linguistic manifestations: lexicon, grammar, and *script*.¹⁰ Classifiers can be found in oral language systems (as pronounced morphemes), in signed languages (in gestures), and in complex scripts (as unpronounced graphemes) (Grinevald 2015, 814).¹¹ *Whatever the linguistic media in which they are present, they are manifestations of the same cognitive effort.* Therefore, when they appear in writing systems, they are not simply representatives of phenomena that are particular to complex scripts. Classifiers must be investigated as typological features open to comparison with other languages and scripts. Indeed, once Egyptian and Mesopotamian classifiers are put in the framework of modern classifier studies,¹² we can better understand, explain, and even predict their behavior in those ancient writing systems.

In the light of the progress of classifier studies in linguistics, we are able to reconstruct the emergence of classifier systems in Egyptian and Mesopotamian writing systems, explain their diachronic development, and identify the rules and constraints of their use (Goldwasser, in press; Selz 2021).¹³ We can also compare these graphemic classifier schemes, as rule-governed systems, with other classifier systems.¹⁴

10 Gender is also a classification device that sometimes overlaps with classifiers (see, e.g., Fedden and Corbett 2017; Bauer 2017, 34–59; Bisang 2017). On the complex relations of gender and classifiers in first-person pronouns in hieroglyphic script, see Goldwasser 2002, 85; 2006a, 10; Goldwasser and Grinevald 2012, 25–30; and Lincke and Kammerzell 2012, 62. On the various strategies used by different languages for classification, see Grinevald 2004 and Bisang 2018.

11 On the comparison between signed language and classifiers in the hieroglyphic scripts, see Lincke and Kutscher 2012.

12 For determinatives as classifiers in the framework of linguistic analysis, see already Rude 1986 and more recently Grinevald 2015.

13 For the definition of basic constraints—for example, classifiers’ compatibility with one another, levels of abstraction, possible schematic cum taxonomic relations—see Goldwasser 2002, 35–36.

14 For recent overviews of classifiers in linguistics, see Bisang 2017; Bauer 2017; and Grinevald 2015.

My research into ancient Egyptian classifiers is based on two working hypotheses (described already in Goldwasser 1999, 2002; data in Müller 2002). The first hypothesis takes a *single classifier* as its starting point. If we collect all the words that take a given classifier, this collection will yield all the “classified meanings” (henceforth “CMs”) of a certain knowledge structure in the ancient Egyptian mind, as represented by the script.¹⁵ The collection of all knowledge structures and the study of their mutual relations provide a “map of knowledge organization” in the ancient Egyptian culture, with its constantly evolving and changing networks.¹⁶

Figure 5.1 presents some members of the category¹⁷ [HABITAT] in the Egyptian scripts. The center of the category is the hieroglyph , which carries the meaning “house” or “institution” when used as a logogram. But when used as a classifier, it classifies a much wider array of nouns (and even adverbs), including many types of abodes, animal habitations, and building parts, as well as metaphorical extensions—for example, “The horizon is the final abode” (see DZA 20223470-4120). The extended meaning of the classifier should therefore be something like [HABITAT]. What we obtain through this type of analysis is a rare, *emic* picture of a category or a concept network in the ancient Egyptian culture.¹⁸ This kind of research has recently been conducted on several other classifiers in the Egyptian scripts, with promising and enlightening results.¹⁹ An adjunct claim in cognitive linguistics that is supported by the Egyptian data is that categories have central and fringe members

15 “One could easily envision a ‘classifier dictionary,’ in which the lexical items are arranged according to the categories mapped out by classifiers” (Grossman and Polis 2012, 13).

16 Since 2019, in the *ArchaeoMind* Lab at The Hebrew University of Jerusalem, we have been developing a new digital tool, *iClassifier*, through which we apply network analysis methods, similarity measures, and community detection algorithms to the study of classifier systems in Egyptian and other complex scripts. The pilot projects on Egyptian (Harel 2023 and in press; Soler 2021), Sumerian (Selz 2021), and ancient Chinese scripts (Yanru Xu) show excellent results. See also the *ArchaeoMind* Lab homepage: The Archaeology of the Mind Lab (<https://archaeomind.huji.ac.il/>, accessed May 2, 2022) and *iClassifier* = The iClassifier reports system (<https://www.iclassifier.pw/reports/#!classifyingtheother/>, accessed May 2, 2022).

17 From this point forward, a category represented by a classifier in the *Egyptian script* will be marked by [CATEGORY-NAME] (SMALL CAPS), while possible conceptual categories *in the mind* will be marked by [category-name].

18 For concept networks, see Eysenck and Keane 2015, 264; for the complexity of the term *category* in linguistics, see Haspelmath 2010 with bibliography; recently in Egyptology, Pommerening 2017.

19 For example, the classifier , “sun rays with human hands,” is a new hieroglyph introduced in classifier semiotic role (only!) into the script during the Amarna period. The hieroglyph is a miniature of the well-known image of the Amarna god Aten. It disappears from the script by the end of the Amarna period. The category represented by the classifier was studied in Goldwasser 2010 through the analysis of CMs that host the new classifier. The knowledge structure represented by the classifier clearly showed that the *emic* definition of = Aten was not “sun-disc” or even “light” but “Energy of Light.” This result is also confirmed by the contents of the Amarna hymns. The idea to collect words under the same classifier to define a conceptual category was first successfully employed by te Velde (1967, 20–26) in his pioneering study of the god Seth. The analysis of the Seth classifier was further developed in Allon 2007. In the past two decades, the category definition hypothesis has been implemented with good results in Goldwasser 1999, 2002, 2005, 2006b; Shalomi-Hen 2000, 2006, 2008; David 2000; Lincke 2011; Werning 2011, 98–110, 323–26; Kammerzell 2015; Chantrain 2014; Winand 2019; Pommerening 2017; and others. For a similar approach, see Nyord 2012, 148–49.

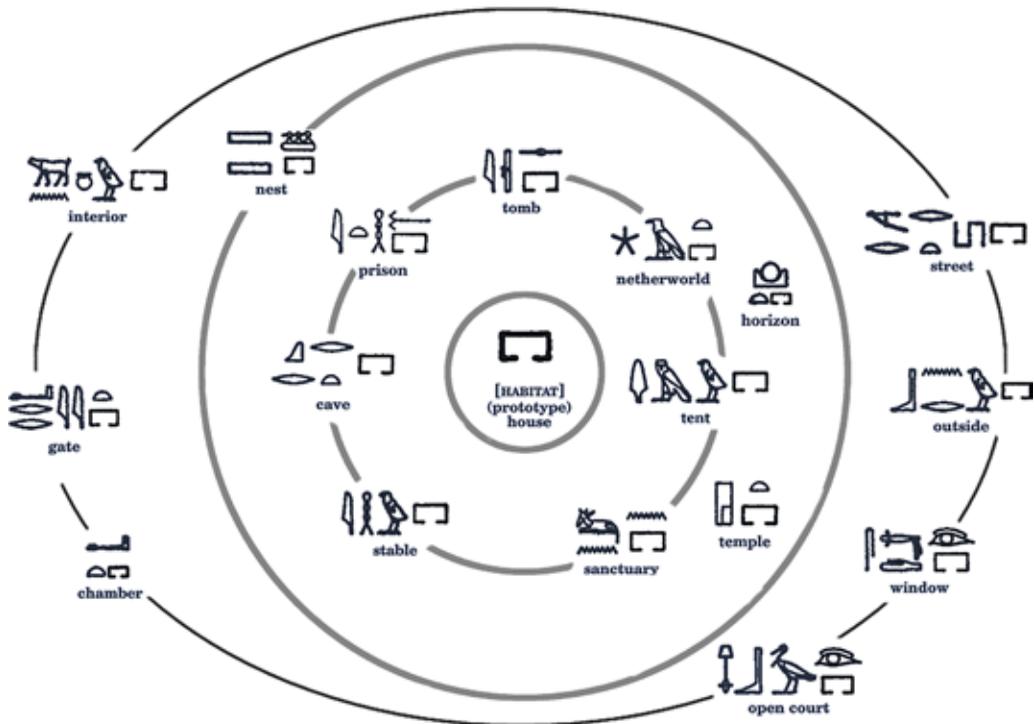


Figure 5.1. The “single classifier” approach. A tentative representation of the emic Egyptian category $\square\square$ [HABITAT], according to some of its classified meanings. The central lexemes show a steady classification by $\square\square$. The fringe lexemes are classified only occasionally by the $\square\square$ classifier.²⁰

(Rosch 1978; Lakoff 1987; Aitchison 1994, 51–62).²¹ In the Egyptian material, central members in a knowledge structure almost always host the classifier under discussion, while fringe-member lexemes take it only occasionally.²²

In every given moment in the history of the script, a category could be defined by its CMs. Categories constantly grow and change. Categories represented by classifiers grow through processes of extension and acceptance of new CMs.²³ Metaphorical extensions are limited in number but well attested (Goldwasser 1995, 94–107; 2002, 17–18; 2005). The CMs of a certain classifier typically present a knowledge structure that shows taxonomic as well as metonymic relations between the classifier and the host words. For example, the multimembered Egyptian category $\square\square$ [HABITAT], discussed above, includes many central members that share the taxonomic relation “a kind of” [house]. Such are “temple,” “palace,” “harem,” “tent,” “den,” and “byre” (see below), as well as names of different institutions,

²⁰ The results presented in figure 5.1 are not calibrated statistically.

²¹ See Goldwasser 1999 and 2002 for the Egyptian script. For another recent study on Egyptian classifiers in this framework, see Lincke 2015.

²² On “fringe members,” see Goldwasser 2002, 27–33, and Nyord 2012, 149.

²³ See Goldwasser 2017 on the introduction of the horse into the lexicon and the classifier system in Egyptian. In cuneiform the CMs classified by anše [DONKEY] embrace newcomers such as “horse” and later “camel.” See Selz, Grinevald, and Goldwasser 2018, no. 15 in Selz’s consolidated list.

such as *pr-hd*, “treasury” (see DZA 20.727.490).²⁴ But also “burrow”²⁵ and “nest” (see table 5.1 above) are CMs of the classifier \square [HABITAT]. Yet šs, “nest,” $\text{𓆎}\square$, appears less frequently with the classifier \square , being clearly a fringe member of the category \square (see DZA 28.776.480–28.776.510). We also find words such as “window” and “chair” among the CMs of the classifier \square . These CMs stand in schematic relation to the classifier—“part of \square ,” “in the \square .” Of special interest is the lexeme *bnr*, “outside” (see DZA 22.901.080), which may occasionally take the \square classifier. This extension is easy to explain, as the precondition for “outside” is the existence of an “inside” of a structure. To sum up, the emic Egyptian information on the classifier-concept \square , according to its CMs, clearly reflects a comprehensive knowledge structure of taxonomic and metonymic relations, with clearly motivated extensions, as predicted by cognitive and ethnobiological studies.²⁶

My second hypothesis takes the single *lexeme* and its plurality of occurrences and classifiers as its starting point. The suggestion here is that the set of classifiers that join a *lexeme* represents the most important properties and features related to it.²⁷ For example, the word *h3rt*, $\text{𓆎}\text{𓆏}\text{𓆑}$, “widow,” first attested in the Middle Kingdom, almost always carries the taxonomic classifier 𓆑 [HUMAN-FEMALE]. The first discernable constraint is that when this word appears with a single classifier, it will be 𓆑 . Nevertheless, the meronymic classifier 𓆑 [HAIR] often joins the classification of the word $\text{𓆎}\text{𓆏}\text{𓆑}\text{𓆑}$. This classifier was probably chosen because of the important role women’s hair played in mourning rituals in Egypt (fig. 5.2). In a less frequent use, one may find instead of the 𓆑 [HAIR] the classifier 𓆑 [NEGATIVE]²⁸—for example, $\text{𓆎}\text{𓆏}\text{𓆑}\text{𓆑}$ (DZA 28.191.530). In these cases an additional *taxonomic* classifier— 𓆑 [NEGATIVE]—is added to 𓆑 , now putting the widow not only in the category [HUMAN-FEMALE] but also in the category 𓆑 [NEGATIVE]. We indeed know from Egyptian texts that widows were vulnerable and of low social status in ancient Egyptian society.²⁹ In this case, the classification in the script system accords perfectly with the information we have from other emic sources.

Summing up, the emic information about the word *h3rt* first classifies her by a “natural kind”³⁰ classifier, 𓆑 , that is, “the widow is ‘a kind of’ [woman].” Optionally, one of

24 I decided to use references to the Digital Zettel Archiv of the Wörterbuch, as this electronic source is available to everyone in any location around the world.

25 See, for example, *b3b3w*, “holes of mice,” DZA 31.877.780. The word takes the more iconic classifier 𓆑 in the Old and Middle Kingdom periods, while the \square classifier starts to appear occasionally with *b3b3* during the New Kingdom (see DZA 22.770.480).

26 For ethnobiology, see Ellen 2017; for cognitive linguistics, compare Eysenck and Keane 2015, 264–71. In Egyptology, see Goldwasser 1999, 2002, and in press; Lincke and Kammerzell 2012; and Pommerening 2017.

27 On a parallel track, a pioneering data-based study by “semantic network analysis” (on the *lexeme* *hrw*, “day”) was conducted in Mainz by Elwert and Gerhards (2017).

28 For the definition of the category 𓆑 as [NEGATIVE], see Kammerzell 2015. The category embraced by the “bad bird” during the Old Kingdom was studied by David (2000).

29 A repetitive formula in Middle Kingdom biographies says, “I revived the widow who has no husband, I saved the orphan who has no father” (after the biography of Kay, see de Buck 1977, 73, lines 14–15). The widow and the orphan are represented as the prototypes of the unprotected members of Egyptian society. But rich widows probably had a better fate: see, for example, the Ramesside text known as “The Will of Naunakhte” (Černý 1945).

30 For a definition of this term, see SEP, “natural kind.”

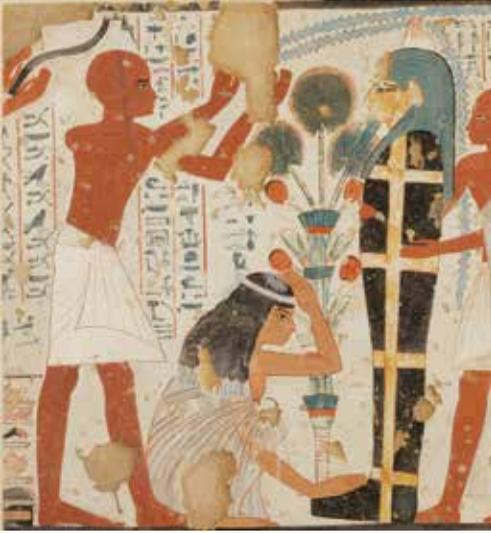


Figure 5.2. Mourning Egyptian woman throwing sand on her hair. Tomb of Nebamun and Ipuki, Thebes (Eighteenth Dynasty). Drawing by Charles K. Wilkinson c. 1930, Rogers Fund, 1930, no. 30.4.108. Courtesy of the Metropolitan Museum of Art. <https://www.metmuseum.org/art/collection/search/545140>.

the two “cultural classifiers” could be added. The first one refers to a specific widowhood ritual in Egypt, the second to the specific social status of widows in Egyptian society. Thus the knowledge network of the word-concept *h3rt*, as represented in the script, includes (in this order): [woman], [hair], and [negative]. Returning to the first hypothesis discussed above, *h3rt* would be a central member in the conceptual category , a less central member in the category , and a fringe member of the category .

A clear constraint on classifier use within the Egyptian script system, even though not yet systematically studied, is manifested in the example    . This overriding constraint prescribes that meronymic (schematic) classifiers should appear, as a rule, *before* taxonomic classifiers in the information stream represented by the classifier order—for example, [HAIR] [WOMAN] in the case of the widow.³¹

In Egyptian and Sumerian, signs that play the role of classifiers are in many cases prototypical cultural referents. The classifier choice for [BIRD] in Egyptian may suggest that ducks were perceived as the bird par excellence in ancient Egypt. This inference is supported by many texts and artistic representations, as well as material-culture information.³² But when  comes to classify a falcon or an ostrich—as well as other flying creatures and even insects—the meaning of the hieroglyph  must have been extended, at least in these cases, into a signifier of a much wider signified-concept, such as [WINGED ONES].³³ A very similar conceptual development is found in the Sumerian classifier system. The cuneiform sign , mušen—originally probably also a duck or other water bird—is extended when used as a classifier to classify all birds, insects, and winged animals.³⁴

The unpronounced graphemic classifier phenomenon is present in several complex scripts, such as cuneiform (Sumerian, Akkadian, and Hittite), Luwian hieroglyphs,

31 For terminology, see Goldwasser 2002, 25–38; for the possible reason for this constraint, see Goldwasser and Grinevald 2012, 35–37.

32 The duck was a prototypical bird in Egypt with many positive connotations (see Goldwasser 1999, 56–58; 2002, 19–20).

33 This alternation of meaning of the classifier is much clearer in Egyptian, as the original hieroglyph in most cases still carries high iconicity when taking the classifier function and its original pictorial signified can be identified. On the change of meaning of the original signified of a hieroglyph when playing the role of classifier, see Goldwasser 2002, 13–14, 19–24; Lincke and Kammerzell 2012, 70–75. In cuneiform, the representation of the prototypes that serve as classifiers was always less iconic. They quickly became highly schematized and in most cases lost their clear iconic identity.

34 Selz consolidated list no. 6 with references in Selz, Grinevald, and Goldwasser 2018.

Mycenaean, and Chinese.³⁵ In the past decade, Egyptian and Sumerian classifier systems have been compared successfully with contemporary classifier languages that exhibit pronounced classifiers (Goldwasser 2006a; Goldwasser and Grinevald 2012, with an appendix by Grinevald on classifier languages; Selz, Grinevald, and Goldwasser 2018; Selz 2021).

Despite all the above, it must be stressed that there are major differences between the Sumerian and Egyptian classifier systems.³⁶ First, it seems that Sumerian is a strictly noun-classifier system, as only substantives are classified. Egyptian, on the other hand, shows a flexible system of classification that includes nouns, verbs, nominalized verbal forms, pronouns, and (rarely) adverbs.³⁷ Another difference is that in Sumerian, classifiers appear mostly in pre-position, and only a few classifiers appear in post-position.³⁸ Without exception, Egyptian classifiers appear in post-position. It seems that the origin of this phenomenon in Sumerian is also different, being strongly connected to linguistic compounding processes in protohistorical Sumerian (see Selz, ch. 4 in this volume).

The extent to which classifiers represent a *conscious* classification effort is a matter of some recent interest (see Lincke and Kammerzell 2012).³⁹ Examples of explicit classification efforts are found in onomastica and lexical lists in Egypt and Mesopotamia.⁴⁰ Nevertheless, when it comes to classifiers, pronounced or unpronounced, linguists agree that even if classifiers do not represent a purposeful categorization enterprise, they nevertheless reflect—in every stage of their development and use—the world classification and knowledge organization of the societies that use them (see, e.g., Lakoff 1987; Senft 2000, 21–27; Bisang 2017).⁴¹

3. PRIMING⁴² ROLE OF CLASSIFIERS IN THE HIEROGLYPHIC SCRIPT

The classifier systems in the hieroglyphic and cuneiform complex writing systems must have served an important cognitive role in reducing the mental search for correct

35 Classifiers (“determinatives”) are known in Luwian hieroglyphs (Payne 2017) and Luwian cuneiform and Linear A and B (Bauer 2017, 74–86), as well as in Chinese script (Chen 2016). The term *Egyptian hieroglyphs* in this chapter refers to all variations of the Egyptian hieroglyphic system, such as cursive hieroglyphs and hieratic. Classifiers survive into Demotic even if under many diachronic changes.

36 For a detailed description of the differences, see Selz, Grinevald, and Goldwasser 2018.

37 Classifiers in Luwian hieroglyphs and classifiers in Chinese scripts classify verbs and nouns alike (see Payne 2017; Chen 2016; Handel, ch. 6 in this volume). For classifiers of verbs in pronounced classifier systems, see Goldwasser and Grinevald 2012, 47; Bisang and Wu 2017, 258–59.

38 A similar situation seems to emerge in Luwian hieroglyphs and Hittite cuneiform (see Payne 2017).

39 Many classifier variations and extensions mirror conceptual or religious changes in Egyptian society that are supported by other sources beyond the script system (see, e.g., Allon 2007; Goldwasser 2010; DZA 20223470-4120).

40 Lexical lists are a very important genre and cultural tool in Mesopotamia. In Egyptian they seem to be more marginal. On onomastica in Egyptian, see Gardiner 1937; Goldwasser 2002, 86–89; and the recent discussion with bibliography in Gerke 2017, 69–72. The onomastica are not treated in this publication for reasons of space constraints.

41 On the overlapping terms *categorization* and *classification* and their application in the study of the ancient world, see Pommerening and Bisang 2017, 6–7. Onomastica and lists may be taken as early examples of “special purpose” classification and the possible influence of literacy on classification (see Ellen 2017 with bibliography).

42 “Priming” suggests that a processing of a primed word (e.g., *animal*) facilitates the subsequent processing of a semantically related target word (e.g., *dog*); see, with previous bibliography, Unsworth, Sears, and Pexman 2005, 664.

meanings.⁴³ The optimal state for the cognitive systems behind reading processes is one in which the network of activations balances out, with the “correct meaning” having “won” the race. All incorrect readings of signs and words leading to wrong signifieds should be deactivated, while all correct representations should be fully activated. An effective reading system is one in which this process is both rapid and accurate—able to overcome errors in both visual input and its processing—to reach the goal of word recognition (see Goldwasser, *in press*).⁴⁴ Classifiers are invaluable aids in such reading processes in complex scripts.⁴⁵

In all likelihood, classifiers in complex scripts activate processes of “priming.”⁴⁶ This priming activation is clear in spoken classifier systems in which the classifiers are almost always situated in pre-position—in front of the host word.⁴⁷ This position is the typical one in spoken classifier systems of classifier languages. Pre-position is also the preferred position in some complex scripts, such as cuneiform scripts and Luwian hieroglyphs.⁴⁸ But, as mentioned above, all Egyptian classifiers, as a rule, appear in post-position. This placement may seem at first to be an impediment, but it is now well-established that reading processes are activated in saccades, that is, “leaps.” This phenomenon means that in the course of reading, the brain does not process graphemes sign by sign but instead processes a saccade at once (see Frost, Forster, and Deutsch 1997; Bentin and Frost 1995). So it appears that Egyptian post-classifiers could also be activated as priming elements despite appearing *after* the host.

3.1. ANIMAL SUPERCATEGORIES IN THE EGYPTIAN LEXICON

The names of most of the animals that existed in ancient Egypt can be identified in hieroglyphic texts⁴⁹ and analyzed as basic-level members, according to categorization hierarchy analysis.⁵⁰ But in some cases one finds names of what might be understood to be subordinate members, such as “northern panther” or “southern panther,” as well as various cattle specifications (“black bull,” “white bull,” etc.), or “white hippo.” That many kinds of birds are also recorded is unsurprising, given that water birds were of high significance for food consumption in ancient Egypt.⁵¹ My interest here, however, is not in tracking basic-level and subordinate animal categories but instead in recovering the more inclusive

43 On this issue, see Bisang 2017, 218–19.

44 For the “race” for the correct meaning in the mind, see Dehaene 2009, 38–51.

45 This issue was dealt with from a semiotic perspective in Goldwasser 1995, 26–53, and 2009.

46 The idea that classifiers create a priming process in the mind was first suggested by Goldwasser and Brice in a lecture titled “Languages Get the Writing Systems They Deserve: From Modern Hebrew to Ancient Hieroglyphs” at the conference “Peirce, Hieroglyphs, and Multimodality” at Humboldt-Universität zu Berlin, May 7–8, 2014.

47 See Kemmerer 2019; Goldwasser, *in press*.

48 See the new consolidated list of Sumerian classifiers in Selz, Grinevald, and Goldwasser 2018, with a proposal by Selz for the possible linguistic reasons for this phenomenon. It seems that the position in Luwian hieroglyphs is influenced by the cuneiform tradition (see Payne 2017).

49 An exceptional, all-embracing study of Animalia in Egypt with excellent pictures was published in Vernus and Yoyotte 2005.

50 On basic-level members and the hierarchy of classification, see Lakoff 1987, 46–48 et passim; in Egyptology, see Goldwasser 2002, 29–33; Pommerening 2017, 176.

51 For recent bibliography, see Vernus and Yoyotte 2005, 15 with n. 32.

Table 5.2a. Analysis of *lexical* categories.

Egyptian Lexicon	Nonfunctional	Functional	Location	Domestication	Morphology and qualities
<i>ḥpd</i> ^{pro} , “bird” origin “duck” OK–	+				Not specified
<i>iry-pt</i> , “belonging to the sky” ^{pl} NK–	+		+ ^{marked}		Not specified
<i>pḥi</i> , “the flying one” NK–	+		+		Specified
* <i>ḥnnw</i> , “the flying ones” NK–	+		+		Specified
<i>mḥy.t</i> , “ones of the flood” OK–	+		+ ^{marked}		Not specified
<i>rm</i> , “fish,” OK– (“crocodile,” Late) ⁵²	+				Not specified
<i>imy-mw</i> , “those who are in the water” NK–	+		+ ^{marked}		Not specified
<i>ḥfḥ</i> , ⁵³ “Sworm and lizards” ⁵⁴ OK–	+				Not specified
<i>sḥ-tḥ</i> , “snake” OK– (later also “worm”)	+		+ ^{marked}		Specified?
<i>fn.t</i> , “worm” OK–	+				Specified
<i>imy-tḥ</i> , “snake” NK–	+		+ ^{marked}		Not specified
<i>ddft</i> , “Sworm” NK–	+				Specified
* <i>ḥrrt</i> , ⁵⁵ “worms and insects” MK–	+				Not specified
<i>ḥwt/iḥwt</i> , “ones of the hook” OK–		+		+ ^{marked}	Not specified
<i>ḥwt/iḥwt n ḥḥst</i> “ones of the hook+ of the desert” OK–		+	+	+ [?]	Not specified
<i>tp n iḥwt</i> , “head of iḥwt” NK–		+		+	Not specified
<i>wndw</i> , “herd” OK–	+				Not specified
<i>mmnt</i> , “the striding ones” MK–		+			Specified
* <i>ḥbw</i> , “ones with horns” MK–	+				Specified
* <i>wḥm</i> , “ones with hoofs” MK–	+				Specified
* <i>ḥwt</i> , “ones with feathers” MK–	+				Specified
* <i>nḥmt</i> “ones with feather” MK–	+				Specified

* = rare or limited use; ^{ext} = extension; ^{marked} = semantic information specified by lexeme; ^{pro} = prototype—clearly based on a prototype; ^{pl} = plural only; OK, MK, and NK (Old Kingdom, Middle Kingdom, New Kingdom) refer to the starting point of use documented in the texts.

52 Meeks 1981, 221, 78.2392.

53 Since the Old Kingdom, DZA 26.716.140; for the root *ḥfḥ*, see TLA lemma no. 104340; FCD, 168.

54 This “reptile” section was only partially reorganized after Andreozzi 2020. His excellent discussion and analysis of the use of lexemes according to different genres of texts would greatly benefit future research on the topic. A lexeme that referred to viper-like snakes, *fj*, surfaces in the texts in Demotic (Andreozzi 2020, 137 with earlier bibliography) but should have its roots in very early times (see Gardiner 1957, 476, I9).

55 Rarely, it may refer to snakes (see DZA 27.265.550; Vernus and Yoyotte 2005, 16–17).

Table 5.2b. Animal supercategories in the Egyptian *classifier system of the script*.

Classifier	Nonfunctional	Functional	Location	Domestication	Morphology and qualities
 [BIRD] ^{pro} + [FLYING CREATURES] ^{ext} OK-	+		+		+
 [FISH] ^{pro} + [SMALL WATER CREATURES] ^{ext} OK-	+		+		+
 [SWORM] OK-	+		+		+
 [HIDE AND TAIL] ^{LIVING THINGS} end of OK-	+				+ only morphology

* = rare or limited use; ^{ext} = extension; ^{marked} = semantic information specified by lexeme; ^{pro} = prototype—clearly based on a prototype; ^{pl} = plural only; OK, MK, and NK (Old Kingdom, Middle Kingdom, New Kingdom) refer to the starting point of use documented in the texts.

supercategories of Animalia in the ancient Egyptian lexicon.⁵⁶ I have decided to use the term *supercategory* in my analysis, as terminology referring to the hierarchy of higher categories in ethnobiology and cognitive linguistics is still highly debated by scholars. Is [BIRD] a superordinate category or an intermediate category? The answer differs according to the cultures researched and the individual scholar’s terminology.⁵⁷ To avoid this unnecessary obstacle, I use *supercategory*, which was introduced by Wierzbicka in her groundbreaking article “Apples’ Are Not a ‘Kind of Fruit’: The Semantics of Human Categorization” (Wierzbicka 1984).

Lexemes that I judge to refer to supercategories in the Egyptian lexicon are listed in table 5.2a. Supercategories that refer to variations of the same species, such as different sorts of bulls, are not included. Classes marked with an asterisk are rare or limited in use. In table 5.2b are comparisons with the classifier system. The tables are not meant to be exhaustive. Such a resource would extend far beyond the scope of the present study, and I hope it will progressively develop with future studies that analyze the period, genre, and register constraints of all lexemes.

3.1.1. Analysis of Lexical Categories (table 5.2a)

As already suggested by Cecil Brown in 1981, “the first encoding effort” in many societies refers to the distinctions [bird], [fish], and [snake] (Brown 1981, 398). These three categories also appear in the Egyptian lexicon very early. At least in the case of [BIRD], we have a clear case of a category created around a prototype. The word “duck,” a prototype bird

56 In previous publications I used the terminology *intermediate taxa* to define these more inclusive categories (Goldwasser 1999, 2002).

57 For categories’ hierarchy, see Goldwasser 2002, 29–33; for a recent overview, see Dimmendaal 2016, 17–21. Are supercategories “concept hubs” in the brain? To answer this question, much research has yet to be conducted (see Eysenck and Keane 2015, 270; Goldwasser, in press).

(Goldwasser 2002, 19–20), was extended very early into the more general *lexical* meaning “bird.” Only later, “behavioral” or “location” categories emerge in the Egyptian lexicon reflecting concepts such as “flying ones” for [bird] or “in the water” for [fish]. In the case of the bird category, the processes of extension developed in the classifier system and in the lexicon in matching ways.

On the other hand, in the case of snakes and worms (“Sworm”) (Goldwasser 2002, 57 n. 3) the Egyptian supercategory is based entirely on morphology of form and movement, surprisingly disregarding the feature [danger] that separates many snakes from worms.

3.1.1.a. Birds in the Lexicon

The two most important supercategory *lexemes* for [bird] in Egyptian are *ʒpd* and *iry-pt*. The earlier one, *ʒpd*, is clearly built on an extended prototype, that of a duck or another waterfowl. It acquired very early the more general meanings “water fowl” and “bird.” Already in the Pyramid Texts it is used to describe the king’s ascent to the sky “like a bird [*ʒpd*]” (DZA 20.046.750).⁵⁸ It appears already in the Old Kingdom as a conclusive term after a list of different birds as *ʒpd nb wʒb*, probably in the sense of “every pure bird.” The combination *ʒpd* and the quantifier *nb* enhances the reference to the supercategory [bird] (DZA 21.669.560).⁵⁹ It is known in thousands of examples and continued into Coptic (Černý 1976, 227).

The compound *iry-pt*, “belonging to the sky,” is another common term that stresses birds’ location and flying attributes. It may have originated to address the need to describe the flight of birds that are faster and lighter than waterfowl. It seems that in imitation of this genitive compound, other similar compounds were created, such as the rare *g-r n pt*, a superordinate term probably referring to dove-like birds. This compound appears in the enumeration of various kinds of birds in Papyrus Harris I, which dates to the Ramesside period. Nevertheless, all birds of that specific list are summarized under *ʒpd šbn*, “mixed birds” (DZA 30.666.630). Another rare but similar compound is *ʒpdw n pt*, also known from the Ramesside period, again stressing the features “of the sky”—“flying,” in contrast to “water dwelling,” or the like.

The two other supercategories that refer to birds are built on verbs of flying. The first is the lexeme *pʒit*, attested since the New Kingdom and built on the root *pʒy*, “fly.” This verb takes a flying duck  as a classifier (FCD, 87).⁶⁰ Another similar noun from the New Kingdom is *hnt*, built on the verb *hnn*, which describes the movement of wings. In the Pyramid Texts, the verb *hnn* also refers to the wing movement of the beetle.⁶¹ These two supercategory nouns tend to appear in pairs, suggesting there might be a semantic distinction

58 See the discussion in Goldwasser 1999, 56–57.

59 The Wörterbuch Zettel translates “*alles reine Geflügel*.”

60 See here ʕp, “bird,” in Ugaritic, a participle from the verb ʕ-p, “to fly” (DULAT, 173). Compare here also the Biblical Hebrew עוף and עוף שמים (BDB, 5775).

61 DZA 20.046.750, the king ascends the sky on the flying beetle. Compare the compound עוף כנף, “bird of wing,” in Biblical Hebrew (BDB, 5774). Highly interesting is the extension of the root ʕ-p into ʕpʕp עפעף, “eyelid,” in Ugaritic and in Hebrew (see DULAT, 173; BDB, 734). This part of the eye is constantly moving, so as to keep the eye open, and in its role and constant moving reminds one of the movements of a bird’s wings.

between the two lexemes. The fact that the term *hmnt* is more concerned with the movement of wings itself may be hinted at by the use of the classifier Δ in an example from the tomb of Merire in Amarna: . The classifier Δ denotes [MOVEMENT] in general and here probably classifies the root *hnn* and the actual flapping movement that produces the upward movement of birds (see DZA 23.111.450; Goldwasser 2006b; Kammerzell 2015, 1404).⁶²

3.1.1.b. Fish in the Lexicon

The oldest lexeme identifiable as a supercategory for “all sort of fish” is *mhy.t*. The fact that it is a collective noun is made clear by a repeated practice of *dissimilation graphique* in the Old Kingdom (DZA 24.313.930; see the examples DZA 24.314.220 and 24.314.250).⁶³ In this process, a set of different classifiers “breaks down” the collective noun that might have otherwise remained opaque. A competing lexeme from the Old Kingdom forward is *rm*, which may also take three types of fish as classifiers. This lexeme survives in Coptic. A rather rare compound is *imy-mw*, which like the previous example of *iry-pt* is built on the shared location of the category members.

3.1.1.c. Snakes, Worms, and Lizards in the Lexicon

An old and widely used word for snake is *hf3*. It is known from the Pyramid Texts (and forward since their time) to refer to the snake into which the king is transformed (Sethe 1908, 283, 646; DZA 26.716.220).⁶⁴ It appears in private texts from the Old Kingdom in reference to the real animal (Sethe 1933, 23b).⁶⁵ During the Middle Kingdom and New Kingdom, the lexeme’s use was popular in magical and religious texts, medical texts, stories, and miscellanea.⁶⁶

Another lexeme referring to snakes from the Pyramid Texts is *s3-t3*, “son of the earth”, which explicitly refers to the habitat of the snake: the earth. In these early references, the word clearly carries the meaning “snake,” but it is extended in New Kingdom medical texts to include worms (for which see *ss3-t3*, *Wb* 4:410; DZA 28.523.950).

From the period of the New Kingdom, we first encounter a new term: *ddft*. Gardiner suggested an onomatopoeic source for the word; Vernus, on the other hand, suggests a lexical origin referring to “undulates” (Gardiner in DZA 31.877.280; Gardiner 1937, 2:69*; Vernus and Yoyotte 2005, 16–17, 700–702). As such, this new lexeme refers directly to the

62 This classifier is not bound to horizontal movement. A central CM of the category Δ is the verb *ʿhʿ*, “stand up,” which denotes vertical movement. This classifier becomes popular with *ʿhʿ* from the Middle Kingdom on (see DZA 21.933.490–530). Compare also *pri*, “go out” (DZA 23.337.690). But Δ is known since the First Dynasty as a classifier (see, e.g., *phrr*, “run,” in Goldwasser 2006b, 479).

63 The term *dissimilation graphique* was first coined by Georges Posener and then adopted by other Egyptologists (see Posener 1934). For a modern analysis of this alluring phenomenon, see Thuault 2017, 2020.

64 Compare also DZA 26.716.140. For the root *hf3*, see *TLA* lemma no. 104340 and *FCD*, 168.

65 See DZA 26.716.530; for snakes’ names, see Leitz 1997.

66 Vernus remarks that it refers to snakes and worms (see Vernus and Yoyotte 2005, 81).

shared features of snakes and worms also known in other languages,⁶⁷ thus reflecting a mixed, higher concept, such as [Sworm] (Goldwasser 2002, 57 n. 3, 68; see also the discussion in Vernus and Yoyotte 2005, 16).⁶⁸

Another, rather rare term that presents a different continuity analysis is *hrrt*, which embraces worms and insects and also, on occasion, snakes (Vernus and Yoyotte 2005, 17).⁶⁹

3.1.1.d. Residual Category in the Lexicon: *wt*, “the Ones of the Shepherd Hook” (DZA 21.667.690)

Brown suggests that lexical manifestations of supercategories such as [mammal] are “residual” categories that would appear *after* the basic supercategories [bird], [fish], and [snake] (Brown 1981, 398). Nevertheless, in the Egyptian texts such a “residue” category seems already to exist in the lexicon from an early stage. Of course, we cannot know how much earlier the lexemes for “bird,” “fish,” and “snake” appeared in the spoken language, long before Egyptian was put into writing.

The early “residue” category *wt* puts under one lexical roof various large quadrupeds, all of which are *herbivores* (see Müller 2002, 13*–16*). This supercategory manifested in the language is different from the three basic categories [bird], [fish], and [snake]. It is a synthetic, *functional* category of animals that share some clear morphological affinities. Yet their grouping under one lexeme is entirely *human related* and strongly dependent on their *function* in daily life.⁷⁰ If we translate *wt* into English, the closest term may be “livestock.” But the literal meaning of the word in Egyptian was probably “the ones of the shepherd’s hook” (Meeks 2012, 526),⁷¹ highlighting the important role of such quadrupeds in Egyptian society and economy. We can identify the members of the collective noun *wt* due to the unique phenomenon, mentioned above, of *dissimilation graphique*. The animals gathered under this rubric are domesticated and half-domesticated fauna. The central members are goat and sheep (and to a lesser extent, donkey) as well as different cervine animals typical of the desert, which are specified sometimes by an intermediate taxon *wt h3st* = *wt* of the desert (Müller 2002, *13–*19).⁷² The term *wt h3st* or *wt n h3st* both extends and limits the scope of the signified to *wild* desert herbivores (not domesticated livestock, such as goat) that were hunted and later kept in captivity (fig. 5.3) (Goldwasser 2002, 70–72).⁷³

67 The concept may be close to the English “vermin” that originally also carried the meaning “snake.” See also *Gewürm* in German.

68 In Coptic, the word ⲁⲁⲣⲉ is used for the translation of the Hebrew שׁוֹרֵר in Deuteronomy 4. See Crum 1939, 792b, and *TLA* lemma no. C7417.

69 Compare here the concept WUG (worm+bug) in Brown 1981, 398.

70 On such categories, see Wierzbika 1984, 317–20.

71 This scepter was taken over by the pharaoh, meaning that he is the shepherd of his people. (For shepherd hooks, scepters, and staffs, see Hassan 1976; Martin 1977; Kaplony 1986). The shepherd’s hook was also understood to be carried by gods in Egypt and the ancient Near East. By the Hittite kings it was transferred as a cultic insignia to the Etruscans (Ambos and Krauskopf 2010). It survived as the episcopal staff, which looks precisely like the elaborate Etruscan *lituus*, meaning that the priest or the bishop is the shepherd of his people.

72 The written form does not show a *nisbe* construction as might be expected in this case.

73 Recent zooarchaeological evidence shows that the animals most represented at predynastic sites in Egypt are gazelles (see Linseele and Van Neer 2009, 60 et passim).

Until the New Kingdom, bovines were very rarely included among the $\text{'}wt/i3wt$ quadrupeds and are usually mentioned separately.⁸⁰ But in the late New Kingdom, it seems that the lexeme $i3wt$ and the compound $tp n i3wt$, “head of $i3wt$,”⁸¹ were extended to become more flexible and include more quadrupeds, sometimes even bovines.

3.1.1.e. The Term $mmmnt$, “the Striding Ones”: (DZA 24.080.670)

This ubiquitous supercategory is known from the Middle Kingdom onward.⁸² The prototypical animal of this collective noun is a bovine. The trigger for collecting these animals in a single taxon is purely functional, as it refers to herds that are “moving property.” Also in this case the *dissimilation graphique* offers us a glimpse into the hidden constituents of the collective noun. A famous rare example, with five(!) animal classifiers for $mmmnt$, is known from a hieratic religious text of the New Kingdom: .⁸³ The “moving” criterion seems to be the shared feature in the $mmmnt$, and by the New Kingdom the quadruped morphology is discarded and we find even $mmmnt$ used of birds.⁸⁴ The supercategory taxon $mmmnt$ is of special interest for its close parallel namaššû in the Sumerian-Akkadian tradition discussed below.

3.1.1.f. The Ones of “Horn, Hoof, Feather, Scale”:

In the Twelfth Dynasty, and more rarely in the New Kingdom, we encounter a curious administrative title: “The overseer of *horn, hoof, feather, and scale*.”⁸⁵ In almost all examples, all four elements are written logographically, thus clearly presenting in the pictorial the selected metonymic animal parts that stand for “those of the horn,” “those of the hoof,” “those of the feather,” and “those of the scale” (Quirke 1996).

The animals represented by the morphological analysis “those of the horn” would make up part of the taxon $\text{'}wt$. This group may be approximately parallel to the modern intermediate taxon “cervines.” The second group, “those of the hoof,” includes donkeys and, seemingly, bovines. The donkey seems to be a fringe member of $\text{'}wt$, as it appears only rarely in the groups of dissimilated classifiers of $\text{'}wt$. But in this specific classification it functions as the representative of all hoofed animals, surely including bovines.⁸⁶ As mentioned above, bovines usually stood outside the $\text{'}wt$ category (Goldwasser 2002, 72–77). Very often, we see in the Old Kingdom and Middle Kingdom inscriptions the combination

80 See detailed discussions in Goldwasser 2002, 69–86, and Müller 2002, *18.

81 Is $tp n i3wt$ an “individuation” that makes the $i3wt$ countable? For this terminology, see Bisang 2017, 216–17.

82 It is discussed in detail in Goldwasser 2002, 72–78.

83 Papyrus Boulaq XVII, Eighteenth Dynasty, col. vi, 4 (after Möller 1910, 34).

84 The Nauri Decree from the time of Seti I mentions the “ $mmmnt$ of birds” (see Goldwasser 2002, 75). The *Cambridge Online Dictionary* (<https://dictionary.cambridge.org/dictionary/english/livestock>, accessed February 1, 2018) defines the word *livestock* as “animals and birds that are kept on a farm, such as cows, sheep, or chickens.” This term must also apply to the movement quality of the livestock (= “living property”).

85 I am grateful to Bernard Mathieu for calling my attention to this title.

86 There is a single example from Denderah (DZA 20.689.720; Gardiner 1957, 464, F25; FCD, 66).

iw3 (“bovines”) and *wt* or *iw3* and *wt h3st*. This partition can be clearly observed in most cases also in the New Kingdom (Goldwasser 2002, 71, figs. 4–7). The classification “those of the hoof” may transcend the division of cervines and bovines.

As we have seen, since early times the lexicon refers to birds as *3pd*—an extension of the prototypical bird *3pd*, “duck,” to other sorts of birds. The classification discussed here, “those of the feather,” offers an analysis based on the *shared morphological feature* “feather,” thus allowing birds that are poor fliers, such as ostriches, to be included in the category. Ostriches indeed had an important role and high value in the Egyptian world of daily economics.⁸⁷

The last element, the scale, stands here as a representative of water wildlife. The specification of scales as the shared feature enlarges the scope of the [FISH] category into other water creatures, such as turtles. And indeed, in some rare cases in the Coffin Texts turtles are classified by the  [FISH] classifier. This rare classification shows the turtle to be a fringe member in the category created by the classifier  [FISH] in the Egyptian script (e.g., CT 5:30f.; see Goldwasser 2002, 68).

The *horn, hoof, feather, and scale* classification is, however, limited to titles in biographies, mainly from the Middle Kingdom. It clearly denotes only animals that are of relevance to everyday economics and thus to the tomb owner’s administrative role. Nevertheless, the classification is unique, as it is based only on a *shared morphological feature*—horn, hoof, feather, or scale—without any functional reference to the role they play in the human sphere. This classification is also remarkable as it is divorced from any “prototype thinking.” That is to say, the category is built not around a prototype but on a shared metonymic quality, as in the case of the classifier category [HIDE & TAIL] discussed below.

3.1.1.g. The Significant Missing “Others” of the Egyptian Lexical Animal Supercategories

Household animals such as dogs, cats, monkeys, and mice are ignored as a group and never receive a supercategory *lexeme* of their own, nor are they included in the *wt* supercategory. Indeed, despite being quadrupeds, they are never shepherded, and they must have played a different role in the life of the Egyptians.

All the terms discussed above also exclude all large predators, even if they are proper quadrupeds, as well as desert dwellers. What bars the predators from entering the collective *lexeme wt* must be the strong positive functional essence of the supercategory *wt*, which carries the meaning “*shepherded* animals.” The *wt* animals share attributes such as “producing milk” and “producing meat,” which are not shared by predators. Lions, jackals, and panthers (with the exception of feeding scenes of tethered jackals in the late Old Kingdom in what could be seen as an experiment) are not used for meat consumption or dairy production, are not shepherded, and are a constant threat to humans and their *wt*. These animals are valuable mainly for the prestigious hunting ritual, their hides, or purposes of royal amusement if kept alive (e.g., fig. 5.4).

A concept such as [predator] never developed into a supercategory *lexeme* in the Egyptian texts. Nevertheless, scattered examples may hint that the absence of such a word

⁸⁷ This had been the case since the Predynastic period. In a [bird] category, an ostrich is a “not so good bird” (cf. Aitchison 1994, 54).

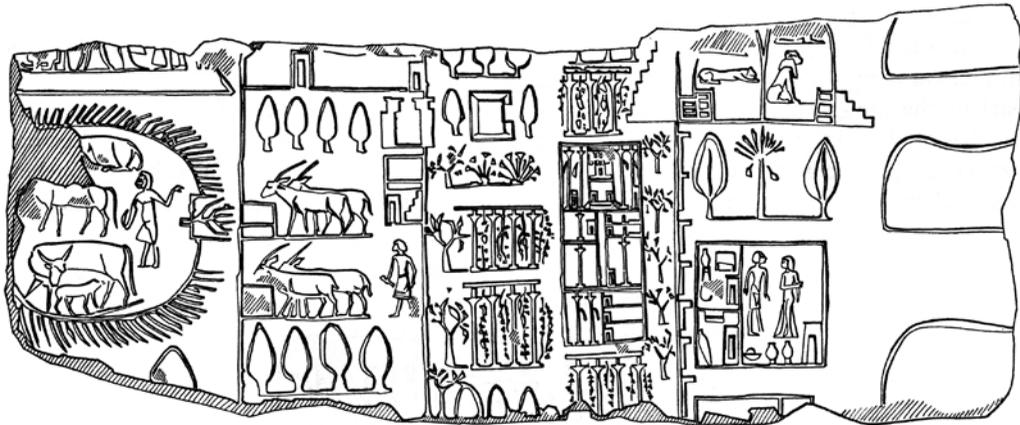


Figure 5.4. A palace of Pharaoh Akhenaton showing (upper right) a compound with live lions. It seems that the lioness is sleeping. After Habachi 1972, fig. 14.

was felt. In two cases—one from the Old Kingdom and another from the New Kingdom—a prototypical carnivore seemed to be occasionally extended to refer to a more general referent, such as [predator] in general.

The first example comes from an Old Kingdom tomb in Deir el-Gebrawi, where the owner, Henqu, refers in his biographical text to “jackals of the mountain” (*wnšw nw ḏw*): “I caused the ‘jackals of the mountain’ to be satiated.”⁸⁸ The sentence continues with another, similar specification: *ḏrtiw nt pt*, “kites of the sky” (see below). It seems that the owner of the tomb specifies the dwelling place of this typical predator, the jackal, to extend the notion to other large carnivores that share the same habitat. In the same way, the *ḏrt*-kite may stand for other birds of prey. This sentence makes up part of an autobiographical text of the tomb owner in which Henqu boasts that he was able to keep away predators and birds of prey from the people’s livestock by offering them carcasses of *ʿwt*.⁸⁹

The second rare example for a somewhat similar process comes from a magical text in Papyrus Turin. This text, dating to the New Kingdom, lists possible deaths caused by different animals (DZA 26.716.650):

- Death by crocodile
- Death by *lion (m3i)*
- ...
- Death by snake
- Death by scorpion
- Death by *every lion (m3i nb)*⁹⁰
- Death by blow of horns⁹¹

88 On *n-ḏw* as “sauvage,” see Vernus and Yoyotte 2005, 88.

89 Edel, in a grammatical discussion of this sentence, writes “Raubtier” (see Edel 1944, 35; also Schenkel 1965, 43).

90 The Wörterbuch Zettel translates “*irgend ein grosses Raubtier*.” See also Vernus and Yoyotte 2005, 19.

91 This is the same feature analysis of cervines as that discussed above.

The redundant “every [*nb*] lion [*m3i*],” appearing as it does after an explicit mention of the lion (*m3i*), is meaningless unless there is a semantic distinction between the two—to wit, a supplementary reference to predators more generally. The lion in this second attestation plays the role of prototypical predator. Indeed, in modern terminology the lion is perceived as an apex predator—a predator residing at the top of a food chain and upon which no other creatures prey.⁹² Nevertheless, the two prototypes mentioned above, the lion and the jackal, never matured into stable supercategory lexemes in the Egyptian lexicon as the *3pd* (duck = bird), for example, did.

3.2. ANIMAL SUPERCATEGORIES IN THE EGYPTIAN CLASSIFIER SYSTEM OF THE SCRIPT

, and  are known to have been functioning not only as logograms but also as classifiers starting in the Old Kingdom (table 5.2b).⁹³ Nevertheless, to date no systematic study has been conducted on these pervasive classifiers.

Due to the high iconicity of the hieroglyphic script, the classifiers [BIRD] and [FISH] are easily identified. The category [BIRD] is marked in the Egyptian script by the duck, , the prototypical member of the category [BIRD] or [WINGED ONES] in ancient Egypt. The same hieroglyph  may serve as a logogram for the *lexeme* *3pd* (= [bird]) discussed above.

Two fish compete for the role of [FISH] classifier, both being prototypical members of the category in ancient Egypt (Gardiner 1957, 477 [K3]).⁹⁴ The [SNAKE] classifier is a generic image of a snake, and no specific species can be identified with certainty.

- (1) The , [BIRD], classifies all birds and occasionally insects in the Egyptian script. Insects are fringe members of the category, yet more than a few specimens take the  as classifier.⁹⁵ This classifier also has two variants in which the duck appears in a flying position:  or  (see Goldwasser 1999). The [BIRD] classifier occurs together with the [FISH] classifier in the noun *rsf*,     , “catch,” thus signaling the prototypical prey that serves as an ingredient for food. A similar noun that shows the same classification is *hb*,     , also translated as “catch” (FCD, 153, for *rsf*; FCD, 167, for *hb*).⁹⁶

A few verbs are occasionally marked by the [BIRD] classifier. One prominent example is the verb *wš3*, “force-feed, fatten,” where the bird represents the prototypical patient of the action. It may take the prototypical classifier  even when the patient of the act is a hyena.⁹⁷ A nominal compound *šn^c wš3*, “storehouse of the

92 This description of an “apex predator” follows the *Merriam-Webster Dictionary* ([https://www.merriam-webster.com/dictionary/apex predator](https://www.merriam-webster.com/dictionary/apex%20predator)), accessed February 19, 2018.

93 [BIRD] and [FISH] are probably already known from the Archaic period (see Kahl 1994, 529).

94 For alternating prototypes, see Vernus and Yoyotte 2005, 65.

95 These specimens include insects such as the butterfly (Keimer 1938), flea (Müller 2002, *43–*44), sandfly (*Wb* 3:267, 5–9), locust (*Wb* 3:295, 6–8), and others.

96 Here the classifier plays the semantic role of patient or “undergoer” (see Kammerzell 2015, 1400).

97 See the hyena in the tomb of Kagemni, Sixth Dynasty (DZA 22.617.000).

fattened ones,” is spelled in the Ramesside period with the  classifier, thus signaling the centrality of this animal among the force-fed animals in Egypt.⁹⁸

Another verb— *wh*ʿ, “fowl”—may take the classifiers [BIRD] and [FISH], both clearly the patients of the act. Most common is the deverbal noun built on the same root: *wh*ʿ(*w*), “fowler,”  (see Goldwasser 1995, 91; Goldwasser and Grinevald 2012, 34–36; Lincke and Kammerzell 2012, 97–98).⁹⁹ In many examples the fowler exhibits an additional classifier,  or , that puts the fowling act into the supercategory ,  [HUMAN POWER], which is a multimembered, large-scale category of the Egyptian script especially in the New Kingdom. Thus from the “single lexeme” perspective discussed in the Prologue above, the lexeme “fowler” is frequently classified in the script into three categories: [FISH], [BIRD], and [POWER].¹⁰⁰

- (2) The  [FISH] classifies all fish and occasionally other water animals, such as turtles.¹⁰¹ The fish classifier also appears in collective nouns, such as “catch,” discussed above. The classifier  occasionally also classifies piscine attributes, such as , *hnš*, “stink [like a fish]” (Gardiner 1957, 477).¹⁰² The word “stink” in Egyptian is thus classified into two knowledge structures: [FISH] and [NEGATIVE]. In some cases the  could appear as the object or patient of a verb, as we have seen in the above example of “fowl.”
- (3) The  [SWORM] = [SNAKE + WORM] classifies all sorts of snakes and worms and occasionally lizards. Some other nouns that share certain attributes with snakes, such as *k3bw*, “whorls,” may host the classifier.¹⁰³

3.2.1. The [HIDE & TAIL] Classifier¹⁰⁴

During the Old Kingdom period, the “residue” animals—those that are not [BIRD], [FISH], or [SWORM]—are classified in the script by their own icon, that is, a “repeater classifier” (e.g., , “dog” = *t/s/m* phonograms + [DOG] classifier) (for “dog,” see Müller 2002, appendix 2, *25). In these cases, the classifying hieroglyph repeats, through an iconic depiction, similar information to that given by the previous phonograms. This kind of graphemic

98 See additional examples in hieroglyphs and in hieratic (Ramesses III) (DZA 22.617.140; 22.617.150).

99 The example is after Kitchen 1980, 3:503, lines 13–14.

100 The actor of fowling action is, in a way, also present through the classifier  as the human actor who performs the [POWER] action visible and prominent in the hieroglyph .

101 The turtle is a fringe member; only once is it classified by a fish (see Müller 2002, *41–*42).

102 The second classifier in this case is a sparrow . Here we have another clear example showing that the classifier  carries in the New Kingdom the extended meaning [NEGATIVE] already divorced from a direct connection to [SMALLNESS]. Another metaphoric fish classifier is the *Tetrodon fahakaas* (pufferfish) classifier , which may classify the word *špt*, “angry” (Gardiner 1957, 477 [K7]). Hieratic versions of *špt* show preference for the generic  [FISH] as classifier (FCD, 265). For both lexemes, see the discussion in Goldwasser 2005, 106 et passim, on metaphorical classifiers.

103 In the Pyramid Texts the word stands as a reference to “*Schlange mit vielen Windungen*” (DZA 26.716.220). On this category, see Goldwasser 2002, 57 n. 3, 68–69.

104 The  classifier has been studied extensively in my other publications and due to considerations of space will be described here only briefly. See Goldwasser 2002, 57–89.

classifier corresponds to what is known in the literature on classifier systems in linguistics as a “repeater.”¹⁰⁵

By the end of the Old Kingdom, we suddenly find the hieroglyph  in the role of classifier for certain quadrupeds that do not belong to the *i3wt* group. Originally, throughout the Old Kingdom this classifier carried the iconic meaning [HIDE (& TAIL)] and was used as a classifier for different types of hide and artifacts “made of hide.”¹⁰⁶ It seems that at a certain point in time by the end of the Old Kingdom the classifier was extended to *living creatures* that possess [HIDE & TAIL].

The first animal known to receive the  classifier was the lion, the aforementioned alpha predator (Goldwasser 2002, 64–65). In approximately the same period, a compound toponym that included an animal name, *mw-m3*,    (“the water of the antelope”), also exhibited the  classifier.¹⁰⁷

In the first stages, the new CMs of the category  represent a typical residual category of animals collecting “leftover” members that do not belong to the [BIRD], [FISH], [SWORM], or *wt* categories. The appearance of the  graphemic classifier, which represents a new knowledge structure, perfectly suits the aforementioned theoretical framework offered by Brown (1981, 398). By the time of the New Kingdom, the new category is extended to include many members that, paradoxically, have no real “hide and tail.” Clear examples are the scorpion and turtle. The turtle remains a fringe member in the category , and its classification oscillates between the categories [FISH] and [HIDE & TAIL] (see fig. 5.5).¹⁰⁸

The [HIDE & TAIL] group is a nonutilitarian, nonfunctional classification based on observable features of the animals while disregarding their relation to humans. Members of the category  are simply those possessing a hide and tail. The modern observer would realize that the core CMs of the category  belong to the Linnaean class of Mammalia (“having *mammae*”).¹⁰⁹

The Egyptian category  is not sensitive to the differentiation between domesticated and undomesticated CMs or between carnivores and herbivores. Lions, antelopes, mice, donkeys, dogs, cats, hippopotamuses, and giraffes belong to the same category. The class includes at least two fantastical animals—the griffin in the Middle Kingdom and the so-called “big devourer” in the New Kingdom (see fig. 5.5). Latecomers to the category are members of *wt* livestock (domesticated and undomesticated), as well as bovines. Having the lexical root *wt* might have slowed their merging into the  category: they already had

105 On the term *repeater*, see Goldwasser 2002, 15, and 2006a, 21–22. In classifier studies, the term *classifier* was first coined by Allan (1977, 292, 295; see also Senft 2000, 22; Goldwasser and Grinevald 2012, 20). Grinevald differentiates between *repeater* and *unique* classifiers.

106 Compare here the discussion in Lincke and Kammerzell 2012, 79 et passim. An interesting and rare fringe member in the category  is the lexeme *rp*, “rot” (see DZA 25.876.940), from a “letter to the dead” (end of the Old Kingdom). This classification may point already to a fledgling concept *what could rot*, that is, a living thing.

107 This example appears on a recently published clay tablet from the provincial town of Balat, dating to the end of the Old Kingdom (see Pantalacci and Lesur-Gebremariam 2009, 247). Compare here “*animaux sauvages*” (Meeks 2012, 525 n. 74). See the discussion in Selz, Grinevald, and Goldwasser 2018.

108 See such examples in the lexeme *štw*, “turtle,” in three versions of the very same sentence in the Coffin Texts (CT 5:30f.; Goldwasser 2002, 68).

109 “Mammal” comes from the scientific name *Mammalia* coined by Carl Linnaeus in 1758 and derived from the Latin *mamma* (“teat, pap”).

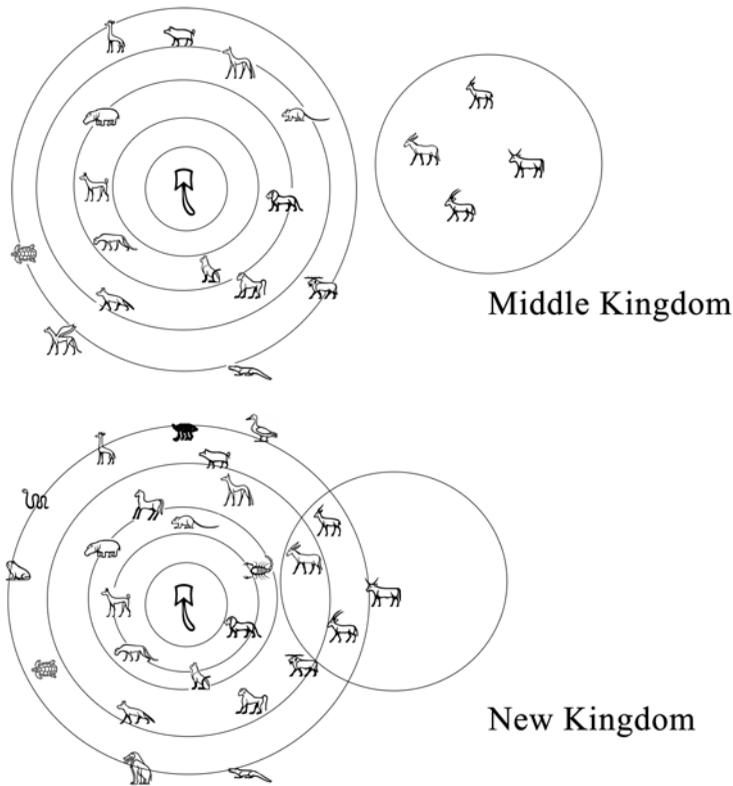


Figure 5.5. A schematic representation of the [HIDE & TAIL] category in the Middle Kingdom and New Kingdom.

a “home” in the Egyptian knowledge organization system (see discussions in Goldwasser 2002).

Birds and fish, which have no 𓆎 [HIDE & TAIL], are kept in their separate categories. Still, by the end of the New Kingdom the once-residual supercategory [HIDE & TAIL] starts to expand further, occasionally also to include birds and so move toward a higher supercategory that represents a knowledge structure closer to our [animal]. In rare cases during the New Kingdom, the category also shows [SWORM] CMs, thus confirming the extension of the 𓆎 [HIDE & TAIL] category into a higher supercategory concept that may now include various reptiles too (Goldwasser 2002, 68–69).¹¹⁰

3.3. CATEGORIZATION IN LEXICON VERSUS CLASSIFIER SYSTEM IN EGYPTIAN: SOME CONFLICTING ISSUES

The emic presentation of the animal world by the Egyptians as reflected in the lexicon, on the one hand, and the classifier system, on the other hand, leaves us somewhat puzzled. The two sources that are the cultural products of the same people reflect disparate conceptual organizations. While the categories [FISH], [BIRD], and [SWORM] are shared by the

¹¹⁰ For example, such a creature is the slug *pnnt* (FCD, 41).

lexicon and the classifier system, the prominent overriding supercategory of the script, 𓏏 [HIDE & TAIL], has no parallel in the lexicon. The reasons that may lie behind this state of affairs must be dealt with in a separate publication. Such a study would take into account various sociolinguistic factors, as well as a wide range of issues concerning social agents' activities in realms of scripts and lexicon as mirrored in ancient written texts. But some important emic Egyptian data pertaining to this puzzling result is presented below.

3.3.1. A Bridge between Classifiers and Lexicon: Carnivores and [HIDE & TAIL]

As we have seen, the classification of animals in the Egyptian lexicon offers no supercategory term higher than 𓏏 . Under this lexical term, various large quadrupeds, all herbivores, find a shared roof, so to speak.¹¹¹ Because of their economic importance, bovines, also herbivores, usually stand outside the category 𓏏 and have collective nouns of their own, such as 𓏏 .¹¹² Yet carnivores, such as lions and panthers,¹¹³ which populated the desert and continuously appear in pictorial hunting scenes, are not included in the supercategory 𓏏 for the reasons discussed above.

A missing link between the mental organization represented by the classifier 𓏏 in the script and the knowledge organization represented by the lexicon can be found in a magical text from the Ramesside period that contains spells against wild animals. This text comes close to a textual formulation of the pictorial meaning of the classifier 𓏏 [HIDE & TAIL].

In a spell against bites, three wild animals are mentioned together—lions, hyenas, and jackals—with the following description:¹¹⁴ “Blocking the mouth of lions, hyenas, and jackals— tp n i3wt nb —every head of i3wt , high of tail, that feed on meat [and] drink blood.” After the enumeration of the three predators comes the explanatory part, defining them as “every tp n i3wt .” The compound tp n i3wt is first found in the Ramesside text titled “The Doomed Prince,” where it refers to desert animals hunted by the prince for his daily nutrition (Gardiner 1931, 3, lines 2–3). In all its occurrences until the end of the New Kingdom period, it is clear that the term tp n i3wt encompasses more or less the scope of i3wt and i3wt h3st . That is to say, predators are *not* included.¹¹⁵

To extend the taxon tp n i3wt to refer to large quadruped *carnivores*, the compound first gets the adjectival (quantifier) nb , “every.” We have already encountered the same use of nb in the examples of 3pd nb and m3i nb discussed above.¹¹⁶ In our case here, it is not a

111 Compare here the description “eating grass” in the Amarna sun hymn in DZA 20.145.870. “Milk of 𓏏 ” is also mentioned in the medical texts (DZA 21.670.190).

112 For a detailed discussion on this issue, see Goldwasser 2002, 82–83, and above.

113 Hunting scenes of such carnivores are known not only from temples, palaces, and elite tombs but also as pottery decoration; see, for example, a recently published “hunting bowl” from Tell el-Dab’a (Bietak and Bader 2015).

114 The Harris Magical Papyrus = BM 10042; DZA 23.679.400. See also Leitz 1999, pl. 21, lines 3–4, mentioned briefly in Vernus and Yoyotte 2005, 19.

115 In the translations of the Bible into Coptic, 𓏏 (tp n i3wt) was usually used to translate Biblical Hebrew בהמה (TLA lemma no. C4109).

116 For dft nb as “reptiles,” see Andreozzi 2020, 142.

basic-level noun that is extended, but the already-existing supercategory *tp n i3wt* opens its door for the first time to predators. Nevertheless, the writer seems to feel the need to explain this inclusion, and he details three features specific to predators:

- (1) *k3 sd*: “high [long?] of tail.” The prototypical members of the *wt/i3wt* group (Müller 2002, 18*), the cervine animals, all share the opposite quality of being “short of tail.” The *i3wt* that show longer tails are bovines and donkeys, but they are certainly not central members in the category of *i3wt*. The only cervine that shows a rather long tail is the hartebeest, a rather rare member.

To differentiate the discussed predators from the other possible “long of tail” members of the *tp n i3wt* intermediate taxon, two more crucial criteria are introduced:

- (2) *nty (hr) wnm m iw f*, “who feed on meat.” This very important characteristic immediately excludes the bovines and the hartebeest, thus pushing the reader to new signifieds that are desert quadrupeds yet not included in the original *i3wt* and *tp n i3wt* group. They are *carnivores*, not herbivores.
- (3) *(hr) swr m sn f*, “who drink blood.” The third quality further enhances the stark difference between the carnivores and the other *tp n i3wt*, which are all herbivores. Even though they share the same geographical setting, the lion, hyena, and jackal eat meat and “drink” blood, that is, they are frightening predators.

This text nicely presents us with the mechanics of extension. The concept reflects the existence of a possible (covert)¹¹⁷ *subordinate* group of *tp n i3wt* not included normally in the referent of this lexeme. These are “big quadrupeds, *long of tail*, *living on meat*, and *drinking blood*,” that is, *predators*. The definition “long of tail” is of special interest. It creates a bridge between the classification in the classifier system and the classification in the lexicon. We meet here a lexical criterion of “long of tail” that is rather similar to the shared feature 𓆎 [HIDE & TAIL] of the classifier system detailed above. This criterion shows the prominent role the tail came to play in the morphological analysis of animals in ancient Egypt. The feature 𓆎 [(HIDE) & TAIL] was chosen as the shared feature for animals in the classifier system, and it appears again in the rare textual description of the predators in the lexicon presented above.

This emic Egyptian superordinate categorization of the animal world emphasized a visual morphological quality—in the lexicon as well as in the classifier system. Yet, conspicuously, it overlooked one very important shared feature of fauna: all fauna “breathe.”¹¹⁸ Below we shall see the prominence of the “breath” feature in the Mesopotamian culture.

117 For “wordless concepts,” that is, “covert categories,” see, for example, Wierzbicka 1984, 315, and the detailed discussion with bibliography in Goldwasser 2002, 36–38. For the use of this term in ethnobiology, see Berlin 1992 and, more recently, Bernard 2006.

118 The Egyptians were well aware of what they called *ḥwn n ḥnh*, “breath of life” (*Wb* 5:352). But no superordinate *lexeme* was built on this shared feature, nor does it surface in the classifier system. “Breath” as a shared feature appears as a graphemic *classifier* in the Luwian hieroglyphic system, probably being a translation into the pictorial of the Mesopotamian lexical supercategories discussed below (see Goldwasser and Payne, forthcoming).

3.4. ANIMALS IN EGYPTIAN AND SUMERIAN—A BRIEF COMPARATIVE OVERVIEW

The Egyptian and the Sumerian mental maps of the animal world present mirror images of each other. As we have seen, the Egyptian lexicon lags behind, so to speak, in never developing a supercategory for the animal world. No single word encompassed the dog, goat, hippopotamus, lion, mouse, and frog. On the other hand, the classifier system in Egyptian presents, from the Middle Kingdom onward, a clear “covert” supercategory that has no manifestation in the lexicon: $\overline{\text{𓆎}}$, “(possessing) [HIDE & TAIL].” This supercategory includes all the animals mentioned above, as well as many others.

Sumerian demonstrates the inverse of Egyptian. The Sumerian *lexicon* shows supercategories relating to Animalia, whereas its classifier system lags far behind.

3.4.1. *Animalia in the Sumerian Lexicon*

In a recent study, Gebhard Selz has enumerated a few lexical terms that refer to supercategories of animals in Sumerian.¹¹⁹ Here I shall briefly present the terms that are of special interest for our present focus.¹²⁰

Two prominent lexical supercategories describing animals in Sumerian are $\text{ni}\check{\text{g}}_2\text{-zi-g}\check{\text{a}}\text{l}_2$, “things | breath | having,” and $\text{zi-}\check{\text{s}}\text{a}\text{g}_4\text{-g}\check{\text{a}}\text{l}_2$, “breath | inside | having.” These affiliated terms, both dating to the second half of the third millennium BCE, are built from the word zi = “breath/throat” and $\text{g}\check{\text{a}}\text{l}_2$, “having.” These combinations are untainted morphological analyses that do not take into account any functional or utilitarian consideration. The Sumerians focused on the ability of fauna to breathe. According to Selz, $\text{ni}\check{\text{g}}_2\text{-zi-g}\check{\text{a}}\text{l}_2$ was extended sometimes also to human beings, thus reaching a sort of “life-form” supercategory concept that includes animals and humankind at once.

The analysis of “breath” as the most significant shared feature of a category similar to what we call “animals” is not a given. The Egyptians, as we have seen, preferred the shared feature $\overline{\text{𓆎}}$ [HIDE & TAIL]. This chosen feature is close to the feature [fur & tail] mentioned by Taylor as correlated defining attributes in the animal kingdom in many cultures (Taylor 2003, 51–52).¹²¹

Going back to cuneiform, a later supercategory term appears in the cuneiform texts around 1800 BCE: $\text{nama}\check{\text{s}}\check{\text{s}}\check{\text{u}}$, $\text{namma}\check{\text{s}}\check{\text{t}}\check{\text{u}}$ (from the verb $\text{nam}\check{\text{a}}\check{\text{s}}\check{\text{u}}$), “the roaming ones; walking around.” This term reflects a morphological-locomotional analysis of animals like the Egyptian term *mmnt*, “roaming ones,” discussed above (see table 5.2a). Both terms are first known from the beginning of the second millennium BCE.

119 See Selz, Grinevald, and Goldwasser 2018.

120 For $\text{/ni}\check{\text{g}}\text{ki/}$ —literally, “things (creatures, moving) on earth”—and $\text{/ni}\check{\text{g}}\text{urlimmu/}$ —literally, “four-legged things (creatures)” > “quadrupeds,” in Akkadian *būlu*, “herd”—see Selz in Selz, Grinevald, and Goldwasser 2018 and chapter 4 in this volume.

121 The Egyptians did recognize the $\text{ḫw n } \check{\text{n}}\check{\text{h}}$, “breath of life” (Wb 5:352), but it never materialized into a supercategory lexeme or classifier.

3.4.2. *Animals in the Sumerian Classifier System*

As in the case of Egyptian, the Sumerian classifier system, too, reflects a mental organization that differs from the image presented by the Sumerian lexicon. This system shows the following classifiers for Animalia:¹²²

- (1) [BIRD] = Selz consolidated list no. (6). mušen—“bird”; also “insects” and generally “winged animals”; originally part of compound lexemes; mid-third millennium BCE; frequent (post-position).
- (2) [EQUID] = Selz consolidated list no. (15). anše—“donkey; onager (wild donkey)”; classifies all equids and extended later to the newly introduced horse, and still later also to the camel; from late third millennium BCE; relatively frequent (pre-position).
- (3) [BULL, OXEN] = Selz consolidated list no. (20). gu₄—/gud- a. “bull; oxen”; classifies all sorts of bovine animals; late third millennium BCE; relatively frequent (pre-position).
- (4) [OVIDS] = Selz consolidated list no. (43). udu—“sheep”; classifies sheep and other ovine animals; from late third millennium BCE; relatively frequent (pre-position).
- (5) [FISH] = Selz consolidated list no. (50). ku₆—“fish”; also “amphibians, crustaceans”; classifies all kinds of fish and, by extension, other aquatic animals; from mid-third millennium BCE; frequent (post-position).

A classifier carrying the meaning “skin, hide; leather”—kuš, Selz consolidated list no. (2)—is also known in Sumerian. It classifies all sorts of leather products, yet it is never extended to living animals, as occurred with the Egyptian [HIDE & TAIL] classifier.

Looking at the Sumerian classifier system, we find, as in the Egyptian classifier system, the prominent basic categories [BIRD] and [FISH].¹²³ In both cultures, the [BIRD] category is extended to insects, and [FISH] is extended to other water creatures. The absence of a [SNAKE] category in Sumerian signals the utilitarian origin of the Sumerian classifier system. The classifiers representing categories of [CERVINES] and [BOVINES] are expected due to the high value of these large quadrupeds in daily life and state administration. An [EQUID] class is unknown in the Egyptian system. The donkey was indeed the common pack animal in Egypt, but in most cases it takes a repeater classifier () , and from the New Kingdom onward the donkey joins the [HIDE & TAIL] class. It seems the Sumerians were more exposed to wild pack-quadrupeds of the steppe than were the Egyptians, even though the wild donkey was also known in Egypt (Vernus and Yoyotte 2005, 106). The horse is classified in cuneiform script into the anše supercategory, while when introduced to Egypt in the beginning of the Second Intermediate Period, the horse is classified immediately as a  [HIDE & TAIL] member.¹²⁴ The anše classifier in the Sumerian script puts the donkey, horse, and camel under one roof, with all of them sharing the utilitarian feature of being “pack” quadrupeds. No similar category is attested in Egypt.

¹²² The information is based on the new classifier list presented by Selz (see Selz, Grinevald, and Goldwasser 2018).

¹²³ Both classifiers are in post-position. For the possible reasons for this phenomenon and the issue of a possible connection to the Sumerian lexical lists, see Selz, chapter 4 in this volume.

¹²⁴ For a detailed discussion, see Goldwasser 2017.

3.5. FINAL REMARKS ON THE SUPERCATEGORIES NIĜ₂-ZI-GÂL₂ AND 𐀓 [HIDE & TAIL], AND SOME WORDS ABOUT CHINESE ANIMAL SUPERCATEGORIES

It is the Sumerian supercategory concept niĜ₂-zi-gâl₂, “things | breath | having,” that survived into modern Western language tradition. The Latin ANIMALIS, “having breath,” which originated from anima, “breath,” is the origin of the English “animal.”¹²⁵ The lexeme “animal” still carries the original Sumerian meaning “having breath or spirit.”¹²⁶ The same concept hides also behind the German *Tier*, “animal.” The Old English *deor*, “animal, beast,” emerged from Proto-Germanic *deuzam, the general Germanic word for “animal.” The source is reconstructed as Proto-Indo-European *dheusom, “creature that breathes,” from the root *dheu- (1), “cloud, breath.”¹²⁷ In view of this information, the Latin supercategory ANIMA/L that spread into many European languages may be based on a calque from earlier cuneiform cultures.¹²⁸

Most probably because of its choice of the shared feature [HIDE & TAIL], the covert Egyptian supercategory could never be extended to human beings as the Sumerian niĜ₂-zi-gâl₂ was. Without leaving a trace, the [HIDE & TAIL] disappeared from the Egyptian script (and mind?) with the cessation of the hieroglyphic tradition and the introduction of the alphabetic Coptic script.¹²⁹

Turning to ancient China, we find in the ancient Chinese *script* semantic classifiers such as 牛 [BOVINE] and 鳥 [BIRD] for specific animal species. Yet one could not find a scriptural classifier referring to a superordinate concept such as [animal] or [hide & tail].¹³⁰

Interestingly, the ancient Chinese *lexicon* shows no [animal] lexeme connected to the quality “breathing.”

𠩺 (shēng, Old Chinese sɾeŋ, “sacrificial cattle/animal”) is known from the bronze inscriptions (集成 6016).¹³¹ It was composed by joining the semantic element 牛 (niú, Old Chinese *ŋwə, “bovine, cattle, cow, ox”) and the phonetic element 生 (shēng, Old Chinese *srēŋ, “bear, be born; live”). Here we see an assemblage of herbivores somewhat similar to the Egyptian ʿwt.

𠩺 (shòu, Old Chinese *-uh, “hunting”) is known from oracle bone inscriptions (合 28773). It was composed by combining two semantic elements: 殳 (dān, Old Chinese *tān, a weapon/tool for hunting or war) and 犬 (quǎn, Old Chinese *khwān?, “hunting dog”). Then it extended the meaning from “hunting” to “wild animal (nonaquatic mammal).”

125 This definition follows the *OED* (<https://en.oxforddictionaries.com/definition/animal>).

126 This meaning is firmly confirmed by the Akkadian translation *šiknat napišti*, “place | endow | breath” (see Selz in Selz, Grinevald, and Goldwasser 2018).

127 This derivation follows <http://www.dictionary.com/browse/deer>. Compare here the study by François on the lexemes “breath” and “breathe” in sixteen languages. His semantic maps show that the equivalent of the concept “animal” appears only in Latin and Greek (François 2008, 200–212).

128 Some possible transmission paths are discussed in Goldwasser and Payne, forthcoming.

129 For 𐀓 in the lexicon, see above, n. 115; also ζῶον/ζῶων, a Greek loanword ζῶον (Vycichl 1984, 191).

130 I am grateful to Yanru Xu, PhD candidate at The Hebrew University of Jerusalem, The Archaeology of the Mind Lab, for the information on Chinese.

131 The sources for the Chinese material are: Multi-function Chinese Character Database <http://humanum.arts.cuhk.edu.hk/Lexis/lexi-mf/>; 小學堂 <https://xiaoxue.iis.sinica.edu.tw/>; The Intelligent Retrieval Network Database of Chinese Characters <https://wjwx.ecnu.edu.cn/wenzidb/Home/Login.aspx>; and Schuessler 2009.

A sign with a meaning similar to “hide & tail” in ancient Chinese scripts is 𪚩 (gé, Old Chinese *krák, “hide, skin”), which was engraved on an oracle bone (花 474). It presents an animal’s skin from head to tail. Similarly to Sumerian, however, it does not become a superordinate term referring to a higher taxonomic category.

In modern Chinese, the word 動物 *dòngwù* came to mean “animal.” It is composed of two characters, 動 (*dòng*, “to move”) and 物 (*wù*, “objects, things”). Its literal meaning is “moving object.” Here Chinese shares the feature analysis of “moving” with Egyptian *mmnt* and cuneiform namaššū, both of which carry connotations of “roaming.”

4. POSTSCRIPT

After the submission of this study for publication in 2018, two important articles on reptiles in ancient Egypt were published (Aufrère 2019 and Andreozzi 2020). They are only occasionally mentioned in this chapter. Lizards joined the [SNAKE] category as fringe members in the lexicon and the classifier system.¹³² During the Late Period, it seems that the lizard was given access to the [HIDE & TAIL] category.¹³³ Not all new bibliographical items that have appeared since 2018 are incorporated into the text of this chapter.

ABBREVIATIONS

BDB	F. H. W. Gesenius, E. Robinson, F. Brown, E. Rödiger, S. R. Driver, and C. A. Briggs, <i>A Hebrew and English Lexicon of the Old Testament</i> . Oxford: Clarendon, 2010
BM	British Museum
CMs	classified meanings
CT	A. de Buck, <i>The Egyptian Coffin Texts</i> . Vol. 5. Chicago: University of Chicago Press, 1954
DULAT	G. del Olmo Lete, J. Sanmartín, and W. G. E. Watson, <i>A Dictionary of the Ugaritic Language in the Alphabetic Tradition</i> . Leiden: Brill, 2015
DZA	Digitized Slip Archive (http://aaew.bbaw.de/tla/servlet/DzaBrowser)
FCD	R. O. Faulkner, <i>A Concise Dictionary of Middle Egyptian</i> . Oxford: Griffith Institute, 1976
OED	<i>Oxford English Dictionary</i>
SEP	Stanford University and Center for the Study of Language and Information, <i>Stanford Encyclopedia of Philosophy</i> . Stanford: Metaphysics Research Lab, Stanford University (https://plato.stanford.edu/entries/natural-kinds/#NatCla)
TLA	<i>Thesaurus Linguae Aegyptiae</i> , provided by Arbeitsstelle Altägyptisches Wörterbuch, Berlin-Brandenburgische Akademie der Wissenschaften, accessed October 2019 (http://aaew.bbaw.de/tla)
Wb	A. Erman and H. Grapow, eds., <i>Wörterbuch der ägyptischen Sprache</i> , 7 vols., plus 5 vols. <i>Belegstellen</i> . Berlin: Akademie-Verlag, 1982

132 See Andreozzi 2020, 133 et passim.

133 See Aufrère 2019, 48, 56.

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6

The Cognitive Role of Semantic Classifiers in Modern Chinese Writing as Reflected in Neogram Creation*

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1. INTRODUCTION: OBJECT OF THIS STUDY AND METHOD OF ANALYSIS

In an innovative study, Goldwasser (2002, 1) proposes that the system of graphic classifiers used in ancient Egyptian hieroglyphs is a reflection of the system of classificatory categories in the mental world-conceptualization of the Egyptians who made and used the script.¹ Stating that “no comprehensive study exists of the hieroglyphic classifiers as a system,” Goldwasser determines to “reveal the principles and constraints governing the codification of the Egyptian universe in this system.” She combines philological and archaeological analysis with modern theories of cognitive linguistics and ethnobiological classification in her attempt to identify Egyptian categorical prototypes from both synchronic and diachronic perspectives, thereby concluding that “Egyptian categories as they emerge from the script are not always strictly taxonomic, but show complex knowledge-organization categories, or domains, in which the [semantic] classifier [of a written word] may stand in taxonomic *and* schematic relations to the Classified Meanings (CMs) of the word” (Goldwasser 2002, 33).

She further argues that in some cases these cognitive categories are “covert”; that is, they are manifested in the writing system *even though they are not explicitly present in the spoken language* (i.e., no word exists for the category). She provides several “case studies” in support of this thesis.

It is an interesting question to ask whether the semantic components of Chinese writing function in a similar way. A study of the earliest Chinese texts (the oracle bone and bronze inscriptions of the first and second millennia BCE) would present the closest parallel

* Earlier versions of this chapter were presented at the conference “The Idea of Writing: Beyond Speech?” in Leiden, Netherlands, October 24–25, 2014, and at the postdoctoral fellow symposium “Seen Not Heard: Composition, Iconicity, and the Classifier Systems of Logosyllabic Scripts” at the University of Chicago, March 2–3, 2017. I am grateful to participants of both conferences for many helpful suggestions, particularly to Alex de Voogt and Wolfgang Behr. I am also indebted to James Myers for alerting me to important references and providing valuable feedback on a written draft.

1 The idea itself is not new, but earlier studies (e.g., Rude 1986) do not examine it as rigorously or comprehensively.

to Egyptian; but the parallel would be imperfect. The monumental Egyptian hieroglyphs that are the object of Goldwasser's study retain a high degree of iconicity. Iconicity was lost early in the history of Chinese writing, and even in the earliest Chinese texts we find a low degree of overt iconicity.² For now, I will set aside the question of the analysis of the ancient Chinese script but return to it briefly in the conclusion of this study.³

My intention here is to focus instead on the *modern* Chinese script. It presents us with certain opportunities that are unavailable in the study of ancient Egyptian and ancient Chinese writing. Psycholinguistic studies have been carried out on Chinese script users to determine how they process semantic components when learning and recognizing Chinese characters. And by examining neograms—newly created characters—that have come into existence over the past few centuries, we can analyze the role of semantic components in characters whose history and meaning are well understood.⁴ Through these two avenues we can gain an understanding of one facet of the complex three-thousand-year history of the role of semantic components in Chinese writing.⁵

When considering the role of semantic components in the modern Chinese writing system, one key difference from ancient Egyptian is immediately apparent. From the perspective of modern Chinese script users, Chinese writing was standardized long ago, as reflected in dictionaries and other authoritative texts. The subsystem of semantic components is thus an inheritance with a history of more than two millennia, and therefore a palimpsest of cognitive categories accumulated across many cultural and technological periods. We therefore cannot expect to find a single and comprehensive system of modern taxonomic categories reflected in the script; rather, our hypothesis is that only a subset of the inherited set of semantic components remains “active” in terms of both mental processing and neography.⁶ That subset presumably reflects an intersection of the inherited

2 Xiao and Treiman (2012) performed an experiment in which they asked volunteers with no prior understanding of written Chinese to guess the meanings of characters based on their visual appearance. Their results “suggested that only a small degree of iconicity remains in these characters” (Xiao and Treiman 2012, 958). This experiment gives objective confirmation to the observation that iconicity is no longer present in Chinese characters that originated as pictograms. For example, the form of 犬 no longer resembles a dog, and the form of 月 no longer resembles the moon.

3 For a recent comparative study of the classifier systems of ancient Egyptian and Chinese writing, see Chen 2016.

4 I am grateful to Jack W. Chen (personal communication) for suggesting the term *neographism* to refer to the creation of new Chinese characters. Based on this suggestion I have selected the terms *neogram* (referring to a newly created Chinese character) and *neography* (referring to the practice of neogram creation). I am not aware of any prior use of these terms with these senses.

5 Modern Standard Written Chinese is one of two commonly used modern writing systems that are morphographic and contain a subsystem of semantic components. The other system is Modern Standard Written Japanese. (There is arguably a third: Written Cantonese.) The history of written Japanese is intimately tied with the history of the Chinese writing system from which it derived; for this reason, a comparative study of the role of semantic components in neograms in both Chinese and Japanese might be extremely revealing. A significant number of neograms (called *kokujū* 国字, “national characters,” in Japanese) have been created in Japanese writing following the adoption of the Chinese script about fifteen hundred years ago. While a number of studies of the history and structure of such characters have been produced, to my knowledge they have not been analyzed from the perspective of cognitive semantics.

6 We expect the same to be true of the set of phonetic components, though they will not be examined in this study.

system with modern categories of knowledge. In this chapter I present the results of an initial foray into exploring this subsystem by (1) compiling a set of neograms containing semantic components that dates back to approximately the year 1700 CE; (2) correlating the semantic components found in those neograms with the set of semantic components that are shown by psycholinguistic studies to have salience for contemporary script learners and users; (3) proposing a set of criteria to explain and predict which semantic components are likely to be “active” for modern script users; and (4) sketching out the functional semantics of those components.

2. CHINESE CHARACTER STRUCTURE AND FUNCTION; THE ROLE OF SEMANTIC CLASSIFIERS

In the modern Chinese writing system, the majority of Chinese characters represent monosyllabic morphemes. We can refer to them as “morphosyllabograms.”⁷ Structurally, most Chinese characters are of the type traditionally termed *xíngshēng* 形聲, sometimes referred to as “semantic-phonetic compounds” (SP compounds) in English.⁸ These characters consist of a semantic (typically taxonomic or metonymic) component and a phonetic component, each of which bears a nonarbitrary relationship to the meaning and pronunciation, respectively, of the spoken morpheme the character represents—or, more precisely, did so at the time the character was created. These functional components are (more or less) closed sets and comprise functional structural subsystems within the writing system, with striking parallels to subsystems in other early logosyllabic writing systems, such as Egyptian and Mayan hieroglyphs.

Consider the examples of SP compounds in the modern writing system shown in table 6.1:⁹

7 The term was, I believe, coined by DeFrancis (1984, 88). The Chinese script can also be characterized, though not as precisely, by the less cumbersome terms *morphographic* and *logographic*. For more on the controversial aspects of the typological classification of Chinese writing, and the use of the term *logographic* in particular, see Unger 2014, 2016; Handel 2015.

8 Estimates for the prevalence of this character type range from about 80 percent to more than 95 percent, depending on how the overall set of Chinese characters is designated and on the method of counting. This type of character is so common that Shu and Anderson (1999, 3) refer to it as “standard compound character.” I will refer to such characters as “SP compounds.” Note that although Chinese characters have internal structure, ordinary practice of native users and psycholinguistic studies affirm that it is characters, not their components, that are the basic graphs of the writing system. As Feldman and Siok (1999b, 19) put it, citing Hoosain 1991, “The interweaving of component strokes within a character, together with spatial separation between characters, makes each Chinese character a salient and an integrated visual unit.”

9 All examples are based on Chinese character usages in Modern Standard Written Chinese, a written variety closely related to spoken Standard Mandarin. Character transcriptions are given in standard Hanyu Pinyin romanization. Modern Chinese is written in two closely related scripts, commonly referred to as *simplified Chinese characters* and *traditional Chinese characters* (Handel 2013). The former is standard in most of the People’s Republic of China (PRC) and in Singapore. The latter is standard in the Republic of China (Taiwan) and in Hong Kong. Examples will be given first in the traditional script, which is mostly identical to the standard Chinese script used over the two millennia preceding the twentieth century. When the simplified character form differs from the traditional, it will be given after a slash (at the first occurrence only). All the modern forms, regardless of script, are visually quite different from the ancient

Table 6.1. Examples of SP compounds.

	Morpheme	Character	Semantic component	Phonetic component
(1)	<i>táng</i> , “sugar”	糖	米 [RICE]	唐 <i>táng</i>
(2)	<i>táng</i> , “dike”	塘	土 [EARTH]	唐 <i>táng</i>
(3)	<i>táng</i> , “hollow cavity”	膛	月 [FLESH]	堂 <i>táng</i>

Examples (1) through (3) demonstrate that the writing system is morphographic rather than purely syllabic. The morphemes for “sugar,” “dike,” and “hollow chamber” are homophonous monosyllables but are written with distinct graphs.

The taxonomic components have a nonarbitrary relationship to the semantics of the written morpheme.¹⁰ This relationship may be opaque or transparent, depending in part on historical changes in both script and spoken language that have occurred since the establishment of the character, a period that may be as long as several thousand years. The relationships in (1) and (2) will probably strike most readers as transparently well motivated. The motivation for the relationship in (3) is less obvious but becomes clear once it is understood that the earlier meaning of *táng* 膛 is the body part “chest.” By metonymic extension its semantics have shifted to mean “hollow chamber, cavity.” The morpheme occurs in the modern compound words *xiōngtáng* 胸膛, “chest [body part]” (“chest” + “cavity”), and *qiāngtáng* 枪膛/枪膛, “gun barrel” (“gun” + “cavity”).

The phonetic components, too, have a nonarbitrary relationship to the pronunciation of the written morpheme. This relationship also has varying degrees of transparency, depending in part on the historical sound changes that have taken place since the time of character creation. In examples (1) through (3) in table 6.1, the phonetic components are homophonous (including tone) with the written morphemes even today, many centuries after these characters were created. They are therefore all transparent to modern readers.

Phonetic components are always characters in their own right, at least historically; that is, they are or were used on their own as characters of the script to write morphemes of the language.¹¹ Their pronunciations are therefore the pronunciations of the morphemes they represent. But many phonetic components are now archaic or obsolete as stand-alone characters and so are not part of the modern writing system. In such cases their pronunciations are conventionalized; they are derived from historical pronunciations and are known from dictionary entries and/or from learned traditions of reading Classical Chinese texts aloud.

character forms dating to the time of the script’s creation, but many are historically continuous and so are structurally similar or even identical.

10 This relationship is not necessarily a superset one; therefore, the categorization as “taxonomic” is only approximate. The semantic category represented by the semantic component may be a supercategory containing the referent of the morpheme written, but it may also have a more complex metonymic relationship.

11 I am not aware of any exceptions to this statement. In English-language Sinology, these components are sometimes called “phonophorics” (Boltz 1994). In the psycholinguistic literature they are typically referred to as *phonetic radicals*, a term I consider misleading and prefer to avoid.

Many, but not all, semantic components are also characters in their own right; the three semantic components in table 6.1 are of this type. In the lexicographic tradition, semantic components that are not characters in their own right—that is, are not used as graphs to represent linguistic units—are nevertheless assigned conventional pronunciations (i.e., labels) by which they can be referenced; in other words, even in isolation they are pronounceable graphic components. All the semantic and phonetic components in table 6.1 are characters in their own right, as seen in table 6.2, which gives the pronunciations and meanings of the modern Chinese morphemes that they represent.

Table 6.2. Semantic and phonetic components as characters.

	Character	Semantic component	Phonetic component
(1)	<i>táng</i> 糖, “sugar”	米 <i>mǐ</i> , “uncooked rice”	唐 <i>táng</i> , “Tang dynasty”
(2)	<i>táng</i> 塘, “dike”	土 <i>tǔ</i> , “earth, dirt”	唐 <i>táng</i> , “Tang dynasty”
(3)	<i>táng</i> 腔, “hollow cavity”	肉 <i>ròu</i> , “flesh”	堂 <i>táng</i> , “hall, large room”

As exemplified in all three rows of table 6.2, the most common structural pattern for SP compounds has the semantic component on the left, occupying approximately one-third of the width of the character, and the phonetic component on the right, occupying approximately two-thirds of the width of the character.¹² A different positional pattern is exemplified in example (4), table 6.3. This SP compound has the semantic component placed below the phonetic component. The structural roles of this character’s components are more opaque in the modern script in the sense that its phonetic component is not homophonous with the character, and its semantic component ([SILK]) is not obviously related to the semantics of the character as a whole (“tight”). This development has occurred because of historical changes that have taken place in both the sound and meaning of spoken Chinese over the millennia since the character was first created.¹³

Table 6.3. Example of an opaque SP compound.

	Morpheme	Character	Semantic component	Phonetic component
(4)	<i>jǐn</i> , “tight”	緊/紧	糸 [SILK]	𠂔 <i>jiān</i>

In the modern Chinese writing system, the set of semantic components and the set of phonetic components are both closed sets.¹⁴ Characters themselves, however, form an

12 When characters function as components, they are typically slightly deformed (most often by compression along one dimension). In some cases they have distinctive allographic combining forms, as for example in (3), where the character 肉 has combining form 月.

13 The word *jǐn*, “tight,” apparently once referred to tightly rolled silk; its meaning was later generalized.

14 This statement must be qualified. In theory, any character is available to be employed as a phonetic component in a neogram. The closed set of conventional phonetic components can thus rather easily be expanded. In some traditions, such as the creation of “dialect characters” to write morphemes of spoken Cantonese or other nonstandard Chinese varieties, one common pattern is to employ full characters (including SP compounds), rather than established phonetic components, as new phonetic components

open set. Typically, the creation of a neogram, usually motivated by the need to write a morpheme that has newly entered the spoken language, involves the selection of suitable semantic and phonetic components from which a novel SP compound graph is formed.¹⁵ In practice, the semantic and phonetic components used in modern neography comprise a small subset of all the available components that occur in the modern writing system. My goal in this study is to identify and analyze these “active” or “productive” graphic components, which are presumably more cognitively salient to script users.¹⁶ My attention focuses on the semantic components; I shall leave the analysis of phonetic components for a future study.

3. ASIDE ON NOMENCLATURE: “RADICALS,” “DETERMINATIVES,” AND “CLASSIFIERS”

What I have so far been referring to with the term *semantic components* are variously called “(semantic) radicals,” “(semantic) classifiers,” “(semantic) determinatives,” and “significs” in the Sinological literature. Before I proceed with my analysis, it is important to say something about the meanings and usages of these terms and to arrive at a precise understanding of the terminology used in this study.¹⁷

China has a long lexicographic tradition, dating back at least to the Han dynasty (221 BCE–220 CE). Within this tradition, three methods have been used to classify and order characters for reference by dictionary users. These three methods correlate with the three features traditionally associated with written characters: meaning, pronunciation, and form. Dictionaries that organize characters based on meaning are sometimes called “thesauruses.” They group characters according to the semantic category of the referent. Examples of such categories include *heavenly phenomena*, *kinship relations*, and so on.¹⁸ Medieval dictionaries that organize characters by pronunciation are often called “rhyme books” in English. These dictionaries group characters into rhyming sets, within which they are further sorted into homophone groups. (In the modern era, dictionaries arranged by pronunciation are based on alphabetical order of Hanyu Pinyin romanization.) The third type groups characters by structural components. The first extant dictionary to group characters in this third way, *Shuō wén jiě zì* 說文解字 (100 CE), used a system of 540 graphic “classifiers” (lit., “section heads,” *bùshǒu* 部首). The semantic component of each

in combination with the semantic component *kǒu* 口, “mouth.” This semantic component signals that the character represents a colloquial Cantonese morpheme. According to Hoosain (1991), Written Chinese—that is, the current standard script—contains about two hundred semantic components and eight hundred phonetic components. There is some overlap between these two sets; that is, some components, such as *mǎ* 馬/马, “horse,” can serve as either phonetic or semantic components.

15 A number of other methods that can be employed in neography will not be discussed in detail here. One example involves the graphs 乒 and 乓, created to write the onomatopoeic word *pīng-pāng*, “ping-pong.” Each graph is formed by removing one stroke from the graph *bīng* 兵, “soldier,” which is used here for its phonetic value alone.

16 Here one might draw an analogy with morphological derivation and the distinction between productive and nonproductive affixes. The concept of *versatility* in morphology might also be an apt analogy.

17 For more on these terms, see Handel (2019, 43).

18 It is worth noting that these lexicographic categories do not correspond in any neat way with the taxonomic graphic components of the characters that are listed within them.

character in *Shuō wén jiě zì* explicitly identified as having SP compound structure is one of the 540 classifiers, and the character is grouped under that classifier; however, characters that do not have SP compound structure were sometimes classified under subcomponents or stroke configurations lacking an explicit functional role (see below the example of *zhōng* 中, “center”).

Early on in the lexicographic tradition, then, we see the potential for confusion between graphic components with semantic content and graphic components employed purely for lexicographic categorization, because either one could serve as a classificatory component for the purposes of dictionary ordering. It is not surprising, then, that in popular conception the two distinct types of formal component—graphic component and semantic component—have been conflated. Further complicating matters is that over time, changes to the forms of the written graphs resulted in the homography (merger of shape) of some once-distinct semantic classifiers and the obfuscation of others, leading to further mismatch between graphic form and semantic value.¹⁹ The unfortunate result is that today the popular terms *radical* and *classifier* are used vaguely, even by scholars, sometimes to refer simply to the structural component under which a character is classed in a dictionary and sometimes to a recognized semantic component. To avoid misunderstanding, I suggest using the term *lexicographic classifier* to refer to any subpart of a character that has classificatory function in a dictionary or in the lexicographic tradition as a whole.

An example of a lexicographic classifier that is not a semantic component is the vertical stroke |, under which the character *zhōng* 中, “center,” is traditionally classified, even though 中 is itself not a compound graph. The isolation of the vertical stroke is simply a lexicographic expedient; the vertical stroke has never functioned as a character by itself or as a semantic component in compound characters. It has a pronunciation only insofar as it has conventionally been given a label in the lexicographic and calligraphic tradition.

The term *semantic determinative* has been used to refer to semantic components of SP compounds (e.g., Boltz 1994). This usage is inspired by the Egyptological tradition and is meant to evoke the role that such components presumably played in the early developmental stages of the Chinese script. It is hypothesized by Boltz and others that the embryonic Chinese writing system, once established on the basis of pictographic logograms, developed by means of the rebus principle: the use of logograms for their phonetic value alone to represent words homophonous or nearly homophonous to the word originally written by the graph.²⁰ The result of this process of “phonetic borrowing” is either a desemanticized phonogram or a polysemous logogram. The resulting polyvalent graphic ambiguity—single graphs having more than one referent morpheme—was then resolved by appending a graphic component with semantics related to the meaning of one of the

19 An example is the semantic component 月 [FLESH], seen in (3) above, which is now formally identical to 月 [MOON].

20 Here I use the term *logogram* instead of *morphogram* because it appears that during the first millennium of Chinese writing, Chinese characters represented morphologically complex words (and, perhaps, bound clusters of morphemes), in some cases more than one syllable long. That the early morphology of Chinese is still a matter of debate makes the typological characterization of the writing system and of its individual graphs problematic. See Baxter and Sagart (2014) for one theoretical framework of early Chinese phonology and morphology. For simplicity, I shall describe early Chinese characters as “logograms” and their referents as “words,” while leaving the details open to further investigation.

referent morphemes. The semantic component in these modified graphs could thus be said to resolve or “determine” which of several possible referent words is the one intended: thus the term *semantic determinative*.²¹ This term may be appropriate when describing the developmental process of specific graphs, but when analyzing later stages of script development or a synchronic stage of the writing system, the term is misleading; it implies a process of character development that may not have occurred. Many characters were created as SP compounds without going through a stage of phonetic borrowing and polyvalency.

Avoiding the terms *radical* and *determinative*, I follow Goldwasser’s nomenclature for Egyptian in referring to the semantic components of Chinese characters as “classifiers.” And, when necessary to distinguish these classifiers from the lexicographic classifiers with which they overlap, the more precise term *semantic classifier* will be used. The reason I prefer *semantic classifier* is not only to avoid imprecise alternative terms but also to emphasize the fact that the role these components play, or have historically played, in the creation and learning of characters is to indicate a semantic class to which the referent belongs.²² In other words, the term explicitly ties these components to a cognitive categorization. One might equally well employ *taxogram*, but I am reluctant to introduce yet another term into a field that is already awash in excessive and confusing terminology.

I note, however, that a complication arises when using the term *classifier* because it is also used, with a different meaning, in the field of linguistic typology. In so-called “classifier languages,” there are certain contexts—typically when quantifying—in which nouns must co-occur with words that “classify” them according to some physical or interactional property of the noun’s referent, such as its shape or use. Mandarin Chinese (as well as all the other modern Chinese languages) are classifier languages of this kind.²³ The use of classifiers is shown in the following Standard Mandarin noun phrases, where the abbreviation [CLF] indicates that a word belongs to the classifier part of speech:

(5) *sān* *ge* *rén*
 三 個/个 人
 three [CLF] person
 “three people”

(6) *sān* *ge* *háizi*
 三 個 孩子
 three [CLF] child
 “three children”

21 See Boltz 1994 for a full articulation of this understanding of the development of the Chinese writing system during its formative stages.

22 See Myers (2019, 54) on this point and for additional references.

23 Chinese is a compact language family, also called Sinitic, consisting of dozens of mutually unintelligible languages. Although commonly referred to as “dialects” of Chinese, these language varieties are in fact distinct languages according to technical linguistic criteria. Mandarin is the most widely spoken Chinese language. The official language of China, called Modern Standard Mandarin, is a variety of Mandarin based on Beijing dialect. See Handel (2017, 85–88) for details.

- (7) *sān* *kē* *shù*
 三 棵 樹/树
 three [CLF] tree
 “three trees”
- (8) *sān* *tiáo* *yú*
 三 條/条 魚/鱼
 three [CLF] fish
 “three fish”

Gè 個 is a classifier for people as well as a default/general classifier; *kē* 棵 is a classifier for trees; and *tiáo* 條 is a classifier for objects with long, thin, flexible shapes. Their use is obligatory in noun phrases (5) through (8) and is a feature of the syntax of spoken Chinese that is independent of the writing system.

Goldwasser (2006), in advocating for the use of the term *classifier* rather than *determinative* for the semantic components of the ancient Egyptian script, has drawn explicit parallels between graphic components that indicate semantic categories (which we might call “graphemic classifiers,” as in the Egyptian and Chinese scripts) and the classifier part of speech (which we might call “linguistic classifiers,” as found in some spoken languages, such as modern Mandarin). To the degree that both types of classifiers might reflect a cognitive categorization, this use is not unreasonable. But the parallels can be drawn only so far. In the case of Chinese, graphemic classifiers have been present since the earliest-known uses of the script, while the spoken language did not become a classifier language until the transition between the Old Chinese and Middle Chinese stages—more than one thousand years after the script was invented (Peyraube 1991). This circumstance shows that there is no necessary correlation between the existence of one kind of classifier and the existence of the other. Second, linguistic classifiers in Chinese are typically used with nouns, and to a far lesser extent with verbs, while graphemic classifiers are found in graphs regardless of the part of speech of the linguistic units they write. This situation shows that even if the two kinds of classifiers reflect cognitive categories, those categories extend over different domains. Third, and perhaps most crucially, there is no clear correlation between the semantic categories found in the two kinds of classifier systems. This case can be easily demonstrated by comparing the graphic and syntactic properties of some common Chinese nouns. The following Modern Standard Mandarin nouns, such as *yú*, “fish” (8), all take the linguistic classifier *tiáo*, “classifier for long, thin, flexible shapes,” when they are counted:

- (9a) *shé* 蛇, “snake” (e.g., *sān tiáo shé*, “three snakes”)
 (9b) *lù* 路, “road” (e.g., *sān tiáo lù*, “three roads”)
 (9c) *hé* 河, “river” (e.g., *sān tiáo hé*, “three rivers”)
 (9d) *shéngzi* 繩子/绳子, “rope” (e.g., *sān tiáo shéngzi*, “three ropes”)

Yet the graphs writing the four nouns “snake,” “road,” “river,” and “rope,” employ four distinct graphemic classifiers: 虫 [INSECT]; 足 [FOOT]; 氵 [WATER]; and 糸 [SILK], respectively.

Conversely, the nouns *hé*, “river,” and *hú*, “lake,” are both written with graphs containing the 氵 [WATER], classifier (河 and 湖, respectively), reflecting the fact that both

represent bodies of water; but when counted the former takes the linguistic classifier *tiáo*, and the latter takes the general linguistic classifier *gè*, thus reflecting their different shapes. The morphemes *shéng*, “rope,” and *zhǐ*, “paper,” are both written with graphs containing the 糸 [SILK] classifier (繩 and 紙/纸, respectively), reflecting the material from which they were traditionally made; but the former takes the linguistic classifier *tiáo*, and the latter takes the linguistic classifier *zhāng* 張/张, a classifier for flat planal objects, thereby reflecting their different shapes.²⁴ From here on, I shall use the term *classifier* to refer to graphemic semantic classifiers, with the understanding that no particular claim of relationship to linguistic classifiers is intended or implied.

4. HYPOTHESIS: PREDICTING THE MODERN PRODUCTIVITY OF INHERITED SEMANTIC CLASSIFIERS

As table 6.2 illustrates, many semantic components—what we are now calling “classifiers”—are identical in form to Chinese characters that represent Chinese spoken morphemes. But as classifiers they play a role independent of speech units. They can therefore be considered to form a system of nonglottographic classificatory signs (“semantic classifiers”) that is separate from, but embedded within and related to, the glottographic functions of the graphic units (Chinese characters) of which they form a part.²⁵ There are three main reasons for considering them to be systemically distinct from Chinese characters:

- (1) The semantic correspondance between their use as classifiers and their use as characters that write morphemes is not identical. For example, 貝/贝 as a character is used to write the morpheme *bèi*, “shellfish, cowrie,” as in the word *bèiké* 貝殼/贝壳, “shell.” When used as the classifier [SHELL], 貝/贝 primarily indicates money or value, as in *huò* 貨/货, “goods, commodity”; *zī* 資/资, “expenses”; *dài* 貸/贷, “loan”; and *zhàng* 賬/账, “accounts.”
- (2) Many characters are not found among the closed set of classifiers, that is, they cannot be placed in the semantic-component slot of newly created SP compound characters, even though they are used to write morphemes that represent a salient semantic category. For example, the character 果 writes the morpheme *guǒ*, “fruit.” But it does not occur as a semantic classifier. It is not found in characters writing morphemes for kinds of fruit, such as *jú* 橘, “Mandarin orange”; *lí* 梨, “pear”; or *táo* 桃, “peach” (all of which contain the classifier 木 [TREE]).
- (3) Several semantic classifiers do not and have never functioned as characters. They have semantic values but do not represent words or morphemes of any variety of spoken Chinese. While they are listed in character dictionaries and given conventional pronunciations (and are therefore considered to be characters by the general populace), these pronunciations must be considered names or labels, not pronunciations of preexisting units of spoken language. For example, 宀 [ROOF] is named *mián*; 屮 [STEP] is named *chì*; and 疒 [DISEASE] is named *nè* or *nì*, but none of these are, nor have they ever been,

²⁴ For a more detailed comparison of graphemic and linguistic classifiers in Chinese, see Weibusch 1995.

²⁵ I use the term *glottographic* here as defined by Hyman (2006). What Hyman calls “glottographic writing” is termed by various other scholars “full writing,” “true writing,” or simply “writing.”

characters in their own right (so far as I am aware).²⁶ Interestingly, many of these traditional labels (such as *mián*, *chì*, and *nè*) are not well known by ordinary contemporary script users, who instead employ conventional phrasal labels, such as *bìngzìtóu* 病字頭/病字头, “top of the character *bìng* 病,” for 疒; and *shuānglìrén* 雙立人/双立人, “pair of standing people,” for 彳.

Before examining the data, I shall propose some criteria that might predict which semantic classifiers that occur in the script are likely to be “active” for modern script users. By “active” I mean that their semantics are salient to these script users when learning to read or when encountering an unfamiliar character and are available to those who wish to create neograms with SP structure. My proposal will be tested against the set of neogram data presented in §6. As a starting hypothesis, I propose the following criteria, in relation to the modern Chinese script as used to write Modern Standard Mandarin, as predictive of saliency:

- (a) Frequency. Is the classifier widely used, that is, does it occur in a high number of frequently occurring characters?²⁷ For example, the classifier 艹 [GRASS] occurs in hundreds of common characters, including *huā* 花, “flower,” and *fāng* 芳, “fragrant.” It is a high-frequency classifier. In contrast, the classifier 鼻 [NOSE] is found in only a handful of infrequently occurring characters, such as *hān* 鼾, “snore.” It is a low-frequency classifier. It should be noted that frequencies of classifiers are not close to being evenly distributed.²⁸
- (b) Identity. Is the classifier identical in form to a character that is commonly used in the modern script to write a Chinese morpheme? For example, the classifier 鳥/鸟 [BIRD] is identical in form to the character *niǎo* 鳥/鸟, “bird,” which is known to all literate script users. It therefore has a clear identity. In contrast, 彳 [STEP] is not a character in its own right; the Standard Mandarin word for “step” is *bù*, written 步.
- (c) Consistency. Does the classifier have consistent semantics across the commonly used characters in which it appears? For example, according to Chen and colleagues (2006, 176), “the semantic radical [鳥/]鸟 is 100 percent consistent with the meaning of a bird-like concept. Thus, any character containing this semantic radical represents some kind of bird or has something to do with ‘bird.’”
- (d) Compatibility. For classifiers that have both a clear identity (criterion b) and a high degree of consistency (criterion c), are those two features semantically compatible? For example, 鳥 [BIRD] has high compatibility because its consistent semantics as a classifier are the same as the semantics of the formally identical character—all “bird.” In contrast, 貝 [SHELL] has low compatibility (because its meaning as a character, “shell,” is different from its most common meaning, “value,” as a classifier). Any character that

26 In the simplified character system developed in mainland China in the 1950s and 1960s, 疒, an abbreviated form of 病, became a character in its own right, replacing 病 to write the word *bìng*, “illness; be ill.”

27 Frequency can be objectively determined through corpus analysis and school curricula. Published frequency tables are employed in many psycholinguistic studies, including those cited below. My criterion does not attempt to capture the difference between type and token frequencies, which are conflated here.

28 According to Honorof and Feldman (2006, 200, citing Chao 1948, 64), “the twenty highest-frequency [semantic] components index more than half of the characters.”

lacks a clear identity or has low consistency will by definition score low on the criterion of compatibility.

- (e) Identifiability. Does the classifier have a conventional label that reflects its semantics? For example, as noted above, 𠂔 [STEP] is commonly labeled *shuānglìrén* 雙立人, “pair of standing people,” or *shuāngrénpáng* 雙人旁, “pair-of-people side-radical,” which describes its superficial appearance (cf. the classifier 亻 [PERSON]) but is not relevant to its semantic value.²⁹ Therefore it has low identifiability.

To illustrate how these criteria might be used to predict the salience of a classifier, I have charted a selection of classifiers according to which criteria they satisfy (table 6.4). The total number of conditions satisfied are then used as a first-approximation index for “classifier salience.”³⁰ Based on the above criteria, then, we identify 鳥/鸟 [BIRD] as a highly salient classifier with index 5, while 𠂔 [STEP] and 彡 [HAIR] have very low salience with index 0. According to this method, I predict that characters with a higher salience index (3 to 5) will prove more “active” for script users and thus will be more likely both to occur in SP neograms and to play a more significant role in character learning and recognition. In contrast, those with a low salience index (2 or lower) would probably not occur in neograms, since their semantic values would be unclear to script users.³¹

Table 6.4. Salience indexes for selected semantic classifiers.

Classifier	Frequency ³²	Identity ³³	Consistency	Compatibility	Identifiability	Salience
[BAMBOO] 竹	√ high	? ≈ 竹	–	–	√	3
[BIRD] 鳥	√ high	√	√	√	√	5
[FISH] 魚	√ high	√	√	√	√	5

29 Note that because of the lack of iconicity in the writing system, the visual appearance of classifiers is not likely to be a factor in their degree of identifiability.

30 Future investigations will allow this model to be refined, for example by appropriately weighting the different criteria in the calculation of the saliency index.

31 We should further recognize that what is productively salient may be informed by patterns already present in the script, and so may not necessarily reflect the cognitive categories of modern Chinese speakers. For example, it is an open question whether modern Chinese speakers conceptualize a semantic relationship between “eye” and “sleep.” But the relationship is present in the inherited script: the classifier 目 [EYE] is seen, for example, in the high-frequency character *shui* 睡, “to sleep.” As there is no [SLEEP] classifier in the inherited system, a script user creating a neogram with sleep-related semantics might well employ the classifier 目 even in the absence of script-independent associative semantics between “eye” and “sleep.” As we shall see below, this very thing happened with the creation of the character 瞋 for *kùn*, “sleepy.”

32 The frequency values “high” and “low” are based on an arbitrary cutoff according to the number of characters with that semantic component appearing in the Macintosh system 10.6 traditional-character input method. Anything more than one hundred characters is considered high; anything below fifty characters is considered low. This crude metric will need to be refined in the future.

33 This criterion is based on the traditional character script. The identity feature is lost for many common semantic classifiers in the simplified character script, though the degree of loss depends on how generously one recognizes allographic variation.

Table 6.4. Saliency indexes for selected semantic classifiers (*continued*).

Classifier	Frequency ³²	Identity ³³	Consistency	Compatibility	Identifiability	Saliency
[SHELL] 貝	? medium	√	√	-	√	3.5
[STEP] 彳	- low	-	-	-	-	0
[NOSE] 鼻	- low	√	√	√	√	4
[GRASS] ⁺⁺	√ high	- (cf. 草)	√	-	√	3
[METAL] 金	√ high	√	√	√	√	5
[STEAM] 气	- low	- (cf. 氣)	√	-	√	2
[MOUTH] 口	√ high	√	-	-	√	3
[STONE] 石	√ high	√	-	-	√	3
[PERSON] 亻	√ high	? ≈ 人	√	√	√	5
[FIRE] 火	√ high	√	√	√	√	5
[HAND] 扌	√ high	? ≈ 手	√	√	√	5
[FOOT] 足	√ high	√	√	√	√	5
[HAIR] 彡	- low	-	-	-	-	0

5. COGNITIVE SALIENCE: REVIEW OF PSYCHOLINGUISTIC LITERATURE

There are a limited number of psycholinguistic studies on the role of semantic classifiers in the learning and processing of Chinese characters. To my knowledge, none of them explore the question of cognitive categories;³⁴ rather, they are concerned with the practical role of the classifiers for the processing of characters. These studies show that semantic classifiers are recognizable by accomplished readers of the script, who readily isolate them from the characters in which they occur, and that these readers extract semantic information from the classifiers during the process of character recognition. They further demonstrate that child learners interpolate the functions of these components through exposure to characters over time during schooling and make use of these components in recognizing characters and guessing the meaning of unfamiliar characters. Finally, they indicate that features here termed “frequency” and “consistency” are correlated in a statistically meaningful way with their saliency for script users. In this section I present a brief sample of results from some of the more prominent studies published in the last quarter century that arrived at these conclusions. As will be seen, these results are pertinent, though only suggestive. Additional studies will be required before the relationship between semantic classifiers and mental categories can be fully analyzed and quantified.

34 To be sure, Williams and Bever (2010, 593ff.) carry out a “semantic categorization task,” but they seem to presuppose the existence of certain universal categories (“water,” “animal,” etc.) without justification or explanation, rather than exploring the categorization system implied by the character components themselves.

Shu and Anderson characterize semantic classifiers as either “transparent” or “opaque” based on the properties I have here labeled “consistency” and “compatibility.” Their study investigates the way children make use of familiar semantic classifiers to help identify new characters.³⁵ They conclude:

Evidently, children as young as third grade are able to differentiate the semantic information provided by radicals, integrate this information with the meanings of words, and successfully infer the meanings of unknown characters [Shu and Anderson 1997, 87].

Importantly, the advantage of the good readers was confined to unfamiliar but transparent characters. Therefore, it appears that good readers can be distinguished from poor readers not just in their vocabulary knowledge, but in their ability to interpret novel characters on the basis of their radicals [Shu and Anderson 1997, 88].

And the authors confirm these results:

By the time they reach the third grade, most Chinese children rated as average or high ability are functionally aware that the radicals in compound characters contain information about meaning. They use this information to learn and remember characters introduced in school and to derive the meanings of unfamiliar characters. First graders, and older children rated low in ability, either are not aware of the function of radicals or they do not systematically use the information [Shu and Anderson 1999, 16].

Feldman and Siok used priming tests to study the ways that semantic classifiers prime semantic relationships in readers engaged in a character-recognition task. They found that the degree of “radical combinability” (equivalent to our “frequency”) and the degree of “semantic transparency” (equivalent to our “consistency”) predict the salience of semantic classifiers for readers, as reflected in recognition priming. They conclude:

The purpose of the present study was to investigate more systematically the role of semantic radicals in visual character recognition. Semantic radicals are distinctive because, unlike words or most morphemes, they do not necessarily have a phonological interpretation. That is, semantic radicals are primarily semantic and orthographic units and only incidentally do they have a pronunciation (*viz.*, when they can appear as free characters). Using the primed lexical decision task, we demonstrated the contribution of semantic radicals to Chinese character recognition [Feldman and Siok 1999a, 571].

In essence, the effects of orthographic similarity due to the presence of a shared radical and whole character relatedness were not sufficient to accommodate the present pattern of results in the short term priming task. Therefore, we argued that the semantic attributes of radicals provide another source of activation in the present task. This claim was motivated by the way in which semantic transparency of the radical influenced target recognition. When prime and target were presented in immediate succession (SOA 243 ms) and the mapping between form and meaning of radical in prime and in target was not consistent, inhibition was observed. When the mapping was consistent, facilitation was observed.

Our emphasis on the semantic transparency of the radical and the critical role it plays in Chinese character identification should not be interpreted to mean that the orthographic attributes have no role. In fact, we have reported that, under the appropriate temporal constraints, both the semantic and the orthographic characteristics of radicals produce significant and differentiable effects What is evident at present is that semantic analysis

35 Note that psycholinguists typically refer to both semantic and phonetic components of Chinese characters as “radicals.”

of radicals must play a role in the visual recognition of Chinese characters [Feldman and Siok 1999a, 572].

Shu and colleagues (2003, 28) characterize individual SP characters as “transparent,” “semitransparent,” or “opaque” depending on the degree to which the semantics of the classifier are deemed to correlate with the semantics of the character to which it is identical in form. After analyzing about 3,000 characters introduced to school-aged children as part of the mainland Chinese school curriculum, they identified 124 “radical families,” that is, sets of characters sharing a common semantic component, each containing an average of 15 members (Shu et al. 2003, 41). Summarizing earlier research, they note that “children may be able to use semantic analogy to understand the meanings of unfamiliar characters” (Shu et al. 2003, 45). They conclude that children learning to read Chinese develop a metalinguistic awareness of character structure and character component function and make use of this information to learn to recognize characters. With an eye toward pedagogical policy, they say:

So, does written Chinese have an orderly structure from which metalinguistically aware children can be expected to extract useful information? Or, is Chinese better described as a language [sic: should be “writing system”] that children must learn through repeated exposure and memorization? Although research on learning to read Chinese is still in its infancy, and only a handful of studies have been done, available evidence points clearly to the conclusion that written Chinese has a logic that young children can understand and use. The average effect size for phonetic regularity in four recent studies of Chinese children’s reading is 1.05. . . . Similarly, the average effect size for semantic transparency in two recent studies is .92. . . . These are large effects—large enough to be of more than theoretical interest [Shu et al. 2003, 46].

Tsai and Nunes specifically investigated the role of semantic classifiers when children learn novel characters. They conclude:

The two studies reported here provide for the first time evidence showing that Chinese children use their knowledge of the structure of ideophonetic compounds [i.e., SP compounds] when learning novel characters. When a pseudocharacter is a signifier for an object that has a transparent connection with its semantic radical and for a pronunciation that is consistent with its phonological component, it can be said to fit the children’s character schema. It is then more easily learned than when the sign-signifier relations expected from the structure of ideophonetic compounds are violated. The results are robust because they were replicated across modes of response and across age-levels. Because the pseudocharacters to be learned were the same across conditions, there is no way in which this difference could be explained by the visual characteristics of the stimuli.

The results of these studies are consistent with the growing literature that shows that Chinese readers attend to the semantic and phonological information provided by ideophonetic compounds in reading. . . . Our results extend the conception of use of character structure in processing from reading previously encountered characters to learning new ones [Tsai and Nunes 2003, 121].

Chen and colleagues provide careful definitions of “combinability” and “consistency” based on the character set found in a modern standard dictionary, as illustrated in table 6.5. They found that semantic combinability and consistency affected a semantic categorization task by student learners:

Transparent characters matched for character frequency were recognized faster than opaque characters in the two semantic categorization tasks, but not in single character naming. . . . These findings provide evidence that semantic radicals are processed in the course of character recognition during the task of semantic processing but not in naming [Chen et al. 2006, 181].

Our interpretation is [that] when a transparent character such as [sōng] 松 “pine” is presented, it activates two semantic representations in the lexicon, wood and tree. These two semantic representations are highly similar and this similarity would facilitate the recognition performance of the character 松 “pine.” In contrast . . . when an opaque character is presented, it activates several unrelated semantic representations. For example, the character [jī 機/]机 [“machine”] may activate several quite unrelated semantic representations, opportunity, machinery, and wood (because it has the semantic radical 木 “wood”). These semantic representations have the potential to interfere with each other in the processing of the character 机. Furthermore, for transparent characters, there was strong evidence of combinability effect on semantic categorization but not on naming. The effect of combinability on semantic categorization was consistent with the findings by Feldman and Siok (1999a), though they used a character decision task. Transparent characters with semantic radicals of large combinability were categorized more quickly than transparent characters with semantic radicals of small combinability [Chen et al. 2006, 182–84].

Table 6.5. Examples of semantic radicals varying in semantic radical consistency. Index of semantic radical consistency is a ratio between the number of transparent exemplars and the total number of characters in which the semantic radical appears (combinability) (reprinted from Chen et al. 2006, 178).

Semantic radical	Character/noncharacter semantic radical	Category meaning	Total number of characters with the semantic radical (combinability)	Number of transparent exemplars	Semantic radical consistency index
鸟	character	bird	76	76	1.00
女	character	female	162	156	.96
木	character	wood	241	222	.92
耳	character	ear	18	6	.33
灬	not a character	fire	16	10	.63

In a summary of previous research, McBride and Zhong draw a connection between semantic classifiers and children’s “understanding of meaning”:

Chinese children’s explicit understanding of meaning, specifically as it relates to print, has been demonstrated across several studies of children’s pseudocharacter building. For example, in both tests of reading (Chan & Wang, 2003) and spelling (Chan & Nunes, 1998; Ho, Yau & Au, 2003) young Chinese children have demonstrated both functional and positional understanding of semantic radicals within Chinese characters. Chinese children are also better able to learn to read and write new pseudocharacters when they are sensible than when they are nonsensical (Tsai & Nunes, 2003). Sensible pseudocharacters are ones in which both the semantic radical is helpful for understanding the meaning of the pseudocharacter and the phonological component gives a clue to its pronunciation. Blöte et al. (2003) even demonstrated that Chinese children were skilled in

integrating new phonological and semantic symbols together to recognize novel compounds in a simulated “new language.” Morphological awareness is also strongly associated with reading comprehension among grade schoolchildren (Ku and Anderson, 2004) [McBride and Zhong 2006, 87].

In a recent study, Williams and Bever revisited the role of semantic classifiers in the processing of Chinese characters. Their experiments used adult literate readers of Chinese rather than student learners. They note the high degree of overall consistency for most semantic classifiers, especially as compared to phonetic components:

Variable rates of accuracy from 65% (Fan, 1986, cited in Hoosain, 1991) to 100% (Jin, 1985, cited in Hoosain, 1991) have been found for specific semantic radicals, and most, if not all, semantic radicals are significantly more reliable than the 26% for the phonetic [components]. While the reliability of semantic radicals as predictors of semantic grouping varies from character to character, 100% of dictionary entries under semantic radicals such as 鱼 [/yu/: fish] and 鸟 [/niao/: bird] fit their respective categories [Williams and Bever 2010, 593].

Their broad conclusion is that semantic components are highly salient and significant in character recognition:

Our results suggest that semantic and phonetic radicals are each available for access when a corresponding task emphasizes one or the other kind of radical. But in a more neutral lexical recognition task, the semantic radical is more informative. Semantic radicals that correctly pertain to character meaning facilitated reaction time in semantic categorization tasks (Experiment #1), while radicals that had no immediately interpretable relation to character meaning had a strong inhibitory effect. Likewise, phonetic radicals that accurately indicated a character’s pronunciation facilitated a homonym recognition task (Experiment #2), whereas phonetic radicals that differed significantly in pronunciation from their character inhibited homonym recognition. In a lexical decision task (Experiment #3) where each character had either a blurred semantic radical or a blurred phonetic radical, the characters with a blurred semantic radical elicited a significantly higher error rate and a trend for longer response times. These results are interpreted to indicate that while educated native Chinese speakers have full use of both semantic and phonetic paths to character decoding, there is a slight predisposition to semantic decoding strategies over phonetic ones indicating that the semantic path is the default means of character recognition [Williams and Bever 2010, 589].

In terms of our present study, what can we conclude from these psycholinguistic investigations of the role of semantic classifiers in the processing and learning of Chinese characters? Unfortunately, our conclusions are limited at best. It seems clear that through their exposure to the script, children build semantic-category models that replicate the categories found in the “radical groupings” of the script. In other words, as children are exposed to more and more characters that share the same semantic classifier (such as 鳥/鸟 [BIRD]), they induce a semantic category from the meanings of the morphemes represented by those characters. They make use of the mental maps of these categories during categorization and recognition tasks. And these tasks are affected by the degree of “semantic transparency” of the classifier in question.³⁶ This process suggests the real possibility that

36 It should be pointed out that the researchers’ judgments of the degree of consistency and transparency of semantics seem to be entirely subjective and thus could be culturally conditioned or affected by

the categories found in the script correlate in a meaningful way with independent cognitive categories in the minds of script learners and users, such as the category *bird*.

None of these studies, however, attempt to measure, experimentally, degrees of semantic transparency and consistency in semantic components. Nor do they attempt to investigate cognitive categories independent of or *a priori* to what is found in the script. Moreover, it appears that the investigators' understanding of semantics is often unsophisticated and, so far as I can tell, not well informed by the semiotic and linguistic literature on this topic. Thus we find naïve statements such as this one: "Generally, a semantic radical has a dominant meaning and signifies a specific semantic category. For example, the semantic radical 女 represents the category 'female.' The character [mā 媽/妈] 'mother' is a very transparent exemplar of the female category whereas the character [xù] 婿 'son-in-law' would most likely be considered as a less transparent exemplar of the female category by Chinese speakers" (Chen et al. 2006, 177). The questions of what the category *female* actually means, the degree to which it varies across languages and cultures, and how we judge what constitutes a transparent exemplar are not acknowledged, let alone discussed.

Until psycholinguistic researchers perform experiments that focus more narrowly on the questions of interest in the present study, we cannot do much more with this field than draw broad conclusions. But even broad conclusions are helpful in providing evidence for a cognitive role of at least some semantic classifiers within the Chinese script and for raising questions that provide a direction for further research. With this thought in mind, we shall investigate the degree to which the creation of neograms correlates with the conclusions of the psycholinguistic literature.

6. DATA: IDENTIFYING NEOGRAMS AND DEALING WITH EDGE CASES

Let us turn now to our second primary data source: recently created semantic-phonetic compound graphs. Identifying neograms created in the past few centuries is a more difficult task than it might at first seem. The data set used here consists of neograms used to write "new" morphemes, that is, borrowings or colloquial/dialectal forms that need written representation, or derived or semantically extended morphemes conceptualized as having a new sense and thus constituting a new word. The advantage of limiting the study to graphs that are only a few hundred years old is that the semantics of the underlying morphemes have, in most cases, to the present day not shifted, so we can profitably compare the written graph's semantic classifier with the known meaning of the morpheme.

Below is the method I employed to assemble the neogram set:

- Start with characters in the Unihan database, which contains information taken from various documented sources on all of the CJK characters in the Unicode standard for computer encoding.³⁷

unconscious bias.

37 *CJK* (Chinese-Japanese-Korean), also sometimes *CJKV* (Chinese-Japanese-Korean-Vietnamese), is a term used to refer collectively to Chinese-derived script components used historically in the writing systems of China, Japan, Korea, and Vietnam. Within Unicode documentation they are also collectively termed *ideographs*. As this term is a highly problematic one, I prefer *sinographs* or *sinograms* (Handel 2009).

- Identify all characters that (a) are in the Big5 computer encoding that was standardized in Taiwan in 1984, and (b) do not appear in the canonical *Kāngxī* 康熙 Dictionary of 1716.³⁸ This exercise yielded 585 characters that were potentially neograms created in the past four hundred years.³⁹
- Inspect each of the 585 characters, eliminating all those that are attested prior to 1716 or are otherwise problematic or suspect.

My primary source for information about characters is the *Hànyǔ dà zìdiǎn* (HYDZD 1986). From the initial set of 585 characters, I eliminated all those that met any of the following criteria:

- not found in *HYDZD*;
- attested in any text or dictionary prior to 1716;
- used only to write Cantonese or Japanese morphemes (i.e., not part of Standard Written Chinese);
- used as a graphic variant having the same structure as a character attested before 1716;⁴⁰
- used primarily in regional place names;
- having history, meaning, use, or structure that is unclear or doubtful.⁴¹

It is worth noting that I retained characters for colloquial Mandarin words that eventually entered the Standard Written Chinese language. Although some of these words might be quite old, their written forms are new. I also retained onomatopoeic characters in cases where they appeared to be created after 1716. I retained novel character forms for older existing morphemes, because these neograms were presumably created to account for a shift in the meaning of a morpheme, a shift in the conception of the semantic class of the morpheme, or by people who were ignorant of the “correct” character form. This category excludes new characters for existing morphemes that retain the same semantic component while substituting a new phonetic one.

Finally, I eliminated any characters without standard SP structure.⁴² In this way I eliminated 413 characters, leaving 172 as the object of investigation. The full set of 172 characters can be found in the appendix.

38 On the Big5 encoding standard, see <http://en.wikipedia.org/wiki/Big5>.

39 The accuracy of these results depends on the accuracy of the Big5 and *Kāngxī* fields in the Unihan database, which I am unable to evaluate. For information on data sources in the Unihan database, see <http://www.unicode.org/reports/tr38/>. The version of the Unihan database I used was downloaded on September 23, 2014, from <http://www.unicode.org/Public/UCD/latest/ucd/Unihan.zip>.

40 For example, any character containing components 為, 真, and 良 showed up in the set of 585 only because of allographic forms that have distinct computer encodings.

41 Pending further investigation, it is possible that some of these characters could be reinstated.

42 Note that this process included elimination of some characters that superficially seem to have SP structure. For example, there were a number of characters with the 口, “mouth,” classifier that did not contain a phonetic component. In this interesting set of characters, the “mouth” component is meant to signal a desemanticized use of a character as a phonogram or a dephoneticized use of a character as a synonym of a foreign word (cf. the use of *liǎng* 兩, *lí* 哩, and *chī* 呎 as ways of writing the equivalent of the English words *ounce*, *grain*, and *foot*, respectively). This use of the “mouth” component is as a marker, but it does not encode a semantic class. Whether or not it should be considered a semantic component with empty or default semantics is an interesting and open question.

There are some limitations to this method of assembling the character set. No characters created after the establishment of the 1982 Big5 encoding are included. Also, no characters invented in the PRC after 1949 are included.⁴³ Additionally, some characters that may have been created in Japan and then borrowed into Chinese writing might be unintentionally included. Another problematic situation is one in which a neogram is created that is, coincidentally, identical in form to an older attested character that is rare or has become obsolete. For example, the English word *lemon* was borrowed into Chinese and written with the graphs *níngméng* 檸檬, “lemon.” Both graphs 檸 and 檬 appear in the eleventh-century dictionary *Guǎngyùn* 廣韻, writing morphemes unrelated to “lemon.”⁴⁴ Because these graphs are attested quite early, my criteria have mechanically excluded them from my data set. But perhaps they should be included, because in their modern use the two characters are either neograms that just happen to resemble earlier existing graphs or are “borrowed” graphs that were available for repurposing precisely because they were obsolete graphs whose semantic and phonetic components were transparently related to their new referent. Either way, the graphs would be relevant to the study. My set of characters can hopefully be revised and made more accurate in the future through detailed philological and etymological analysis on a case-by-case basis.

It is also critical to note that there are a number of script-independent factors that might affect how “active” classifiers are. One such factor is technological. Although 竹 [BAMBOO] scores high on salience (see table 6.4), it is no longer as commonly employed as a material for constructing objects as it was in the past. It is therefore less likely to be semantically relevant to newly coined or borrowed morphemes in the spoken language. Another factor is related to the processes of calquing and borrowing found in modern Chinese. Speaking very generally, Chinese has proven resistant to the direct borrowing of foreign words, exhibiting a preference for calquing or compound-word coinage.⁴⁵ If we were unaware of

43 One might think that a comparison of characters in the GB character set 1980 (see http://en.wikipedia.org/wiki/GB_2312) with the *Kāngxī Dictionary* would produce a set of potential mainland neograms. But because of the use of the simplified script in mainland China, which has Unicode encodings that are distinct from the traditional script forms found in *Kāngxī*, the result of such a comparison would include thousands of simplified character forms that are not neograms. Genuine neograms, such as 鋳, “Einsteinium,” would be extremely difficult to pick out from this set.

A broader question is the degree to which Chinese characters remain an open set following the establishment of the Unicode standard and the increasing digitization of text in the modern age. Handwritten neograms are presumably much less likely to become integrated into the script, even informally, since they cannot be easily used in texting, word processing, typesetting, or similar processes that are essential to written communication. On the other hand, innovative technologies or practices, and Unicode encodings allowing the structure of new characters to be specified in terms of component parts, might counteract the tendency toward closing the set.

44 I am grateful to Abraham Chan (personal communication) for providing me with this example.

45 This preference may be shifting in recent decades with the increasingly high familiarity with foreign languages, especially English, among the educated classes of China. Chinese speakers may be becoming more comfortable with polysyllabic borrowings whose phonotactics and morphology are markedly “foreign.”

this tendency, we might suppose that a foreign word such as *zebra* might be phonologically adapted and integrated into Chinese, after which a neogram would be created to represent the new morpheme. According to this scenario, *zebra* might get borrowed as *zé* and perhaps would then be compounded with the native morpheme *mǎ* 馬/马, “horse,” to form a new word: **zémǎ*, “zebra.” To create a neogram for *zé*, the highly salient classifier 馬 [HORSE] could be combined with an appropriate phonetic component such as *zé* 責/责, “duty,” thus yielding **贖*. But this is not what happened. The Chinese word for “zebra” is in fact *bānmǎ* 斑馬 (“striped” + “horse”), a compound coined from native morphemes. Because of this tendency to avoid direct phonological loans, such loans are mostly limited to certain semantic fields, and this limitation in turn constrains which semantic classifiers are likely to occur. As we shall see below, this result likely accounts for the prevalence of neograms related to chemical components and chemical compounds.

7. ACTIVE SEMANTIC CLASSIFIERS AS EVIDENCED IN NEOGRAMS

The appendix lists the 172 characters in the data set, sorted by semantic classifier (as defined above). The semantic classifiers are labeled with their number according to the standard sequence of the 214 *Kāngxī* radicals. Table 6.6 lists all thirty-nine of the semantic classifiers attested in these neograms, ordered by frequency.

Table 6.6. The thirty-nine semantic classifiers attested in modern neograms with SP compound structure.

Classifier	Frequency	Semantic categories of neograms
167 金 [METAL]	47	Chemistry (45), Metal object (2)
84 气 [STEAM]	19	Chemistry (19)
30 口 [MOUTH]	14	Mouth action (4), Onomatopoeia (9), Unit of measure (1)
112 石 [STONE]	10	Chemistry (7), Violent action (3)
9 人 [PERSON]	9	People (8), Pronoun (1)
86 火 [FIRE]	9	Cooking (7), Physics (2)
64 手 [HAND]	6	Hand/arm motion (6)
157 足 [FOOT]	5	Foot motion (4), Collapse (1)
61 心 [HEART]	3	Attitude (1), Emotion (3)
94 犬 [DOG]/[ANIMAL]	3	People (2), Animal (1)
130 肉 [FLESH]	3	Biology (3)
137 舟 [BOAT]	3	Boat (3)
140 艸 [GRASS]	3	Chemistry (2), Plant product (1)
164 酉 [WINE]	3	Chemistry (3)

(continued)

Table 6.6. The thirty-nine semantic classifiers attested in modern neograms with SP compound structure (*continued*).

Classifier	Frequency	Semantic categories of neograms
32 土 [EARTH]	2	[difficult to categorize]
75 木 [TREE]	2	Plant (1), Fruit (1)
104 疒 [DISEASE]	2	Disease (2)
109 目 [EYE]	2	Sleep (1), Vision (1)
118 竹 [BAMBOO]	2	Material object (2)
119 米 [RICE]	2	Food (2)
145 衣 [CLOTHING]	2	Clothing (2)
177 革 [LEATHER]	2	Shoes (2)
190 髮 [HAIR]	2	Disease (2)
195 魚 [FISH]	2	Fish (2)
38 女 [WOMAN]	1	Female (1)
46 山 [MOUNTAIN]	1	Geographic feature (1)
50 巾 [TURBAN]	1	[difficult to categorize]
57 弓 [BOW]	1	Unit of measure (1)
62 戈 [HALBERD]	1	Metal object (1)
93 牛 [CATTLE]	1	Unit of measure (1)
96 玉 [JADE]	1	Decoration (1)
113 示 [SPIRIT]	1	Religion (1)
127 耒 [PLOW]	1	Farm implement (1)
142 虫 [INSECT]	1	Animal (1)
149 言 [SPEECH]	1	Cognition (1)
154 貝 [SHELL]	1	Value (1)
182 風 [WIND]	1	Weather (1)
184 食 [FOOD]	1	Food (1)
209 鼻 [NOSE]	1	Nose (1)

We can draw some general conclusions from a cursory overview of this data set. First, eight of the thirty-nine semantic classifiers are present in 69 percent of the neograms (119 out of 172). These eight, with the single exception of 气 [STEAM], are all high-frequency classifiers (table 6.4). The remaining thirty-one classifiers, each appearing in three or fewer

neograms, account for the remaining 31 percent of the neograms. Thus we can conclude that our criterion of frequency is indeed relevant to salience and use in neograms.

Second, among the neograms, the most commonly occurring semantic category is *Chemistry* (76 out of 172; 44 percent). If we add other semantic areas related to modern science, *Physics* (2) and *Biology* (3), the total reaches 47 percent—so nearly half the total number of graphs are scientific. This preponderance reflects the creation of neologistic morphemes as borrowings or calques of Western scientific concepts. The secondmost frequent categories are *People* (10), *Onomatopoeia* (9), *Cooking* (7), *Hand/arm motion* (6), and *Foot motion* (4). The terms in the *People* category are neologisms used for the names of minority ethnic groups in China. The others represent colloquial, dialectal, or slang terms that became part of Standard Written Chinese with the twentieth-century transition from Classical Chinese to a Mandarin-based written language and that therefore needed written representation.

From this data we see the high degree of semantic salience of several classifiers. Of particular note is the role of the “mouth” classifier, which not only refers to verbal actions involving the mouth (including semantically empty vocalization) but also is used as a marker of onomatopoeic sounds. Neograms with the “metal” and “stone” classifiers were created for chemical components, on the model of characters created in the premodern period to write words for natural substances that were later recognized to be chemical components (e.g., *yín*, 銀/銀, “silver,” and *tàn*, 碳, “carbon”). Once again, 气 [STEAM] is an exception; not surprisingly, there are no ancient names for gaseous chemical components. This low-frequency, low-salience classifier has gained salience through its motivated use in neograms for modern chemical gases.

A number of classifiers we identified as highly salient according to the criteria in table 6.4, such as 言 [SPEECH], 食 [FOOD], 鳥 [BIRD], and 魚 [FISH], are poorly represented among the neograms, contrary to our prediction. This lack of attestation reflects, I believe, not a lack of salience but historical accident. As suggested by the example given earlier for the word *zebra*, some semantic domains (such as animals) have not seen the introduction of new morphemes into the language, so neograms have not been created to represent them in writing. As a result, these classifiers, salient as they may be, are not represented in the data.

8. CONCLUSION (WITH A NOTE ON IDEOGRAPHY)

This study permits some tentative conclusions. It also raises a number of questions and indicates several directions for future research.

A study of salient semantic classifiers in the Chinese writing system, based on analysis of neograms, could be carried out for any historical period within the past three thousand years. Such a study would reveal the result of the complex interaction between contemporary cognitive categories and inherited categories as reflected in the script. Although it is not possible to carry out psycholinguistic experiments on script users of the past, we can still undertake studies of character creation in earlier periods that would complement the present study by adding a diachronic dimension. A comparative study across all periods would no doubt yield extremely interesting results. The difficulty, of course, is obtaining reliable data for these studies. It is not easy to identify the creation date of characters or to tease out and properly weight the important distinction between rare characters found in

the lexicographic tradition and those in regular use among literate Chinese. In short, the difficulties encountered in putting together a reliable data set for the current study would only be multiplied as we move further back in time.

When it comes to modern Chinese, psycholinguistic studies, though limited in scope, clearly indicate that semantic classifiers have a high degree of salience for script users and learners, and they strongly suggest that the classifiers interact with mental categories in a meaningful way. But the focus of such studies to date has been on character learning and recognition, not on cognitive categories per se. Moreover, to my knowledge none of the studies have determined which subset of the lexicographic classifiers convey meaningful semantic information to script users, that is, which ones truly function as semantic classifiers in the synchronic rather than historical sense. This area is one in which further investigation should be carried out.

This investigation has identified thirty-nine classifiers that, by virtue of their application in the creation of neograms, must have semantic salience for modern script users. All these neograms are, as predicted, also salient by the metric employed in §4 (table 6.4), with the exception of 气 [STEAM]. It is also significant that classifiers identified there as having a low salience index (such as 𠂇 [STEP] and 彡 [HAIR]) do not show up at all in the set of neograms. The next step in this research project will be to isolate from the list of lexicographic classifiers all those that have identifiable semantic content for any historical period, calculate their salience indexes, and then determine whether there is a meaningful statistical correlation between degree of salience and frequency of occurrence in neograms.⁴⁶ This exercise would test the current preliminary conclusions against a larger set of classifiers than that given in table 6.4.

Still we are left with the question of the precise nature of the closed system of semantic classifiers. What exactly are they, and how do they function within the script? The best answer I can provide at present is that they represent a complex intersection of multiple types of graphic units: recurring subgraphemic stroke groupings, lexicographic units for dictionary organization, historically relevant semantic markers, and synchronically salient semantic categories. In other words: semantic classifiers comprise a closed, nonglottographic system of graphic components that are embedded within the Chinese writing system. Because this system has been in use over thousands of years, some components have become opaque, while others are transparent to modern users. Opacity and transparency are not related to visual iconicity, which is for all intents and purposes completely lacking in the script.

It is likely that saliency can be predicted, and perhaps even quantified, based on a number of factors, such as frequency of occurrence, semantic consistency and transparency, and relevance to active mental categories. More effective metrics for these features need to be developed and tested, but at the same time we must recognize that evaluation of these metrics is difficult because of limitations of psycholinguistic data and the skewed domain of neograms. It may be impossible to overcome these challenges completely.

46 One can imagine such a correlation taking two possible forms. One is simply binary: whether or not a classifier can occur in a neogram depends on its having a minimal degree of salience. The other is spectral: the frequency (or probability) of a classifier's occurrence in neograms correlates with its degree of salience. Both types of correlation should be tested for.

The data set investigated in this study (see the appendix for a comprehensive list) strongly suggests the existence of real taxonomic categories in the minds of script users and of consistent metonymic associations of graphic classifiers with those categories, including 火 [FIRE] with cooking; 足 [FOOT] with actions involving the foot; and 口 [MOUTH] with nonintelligible sounds. Other equally strong correlations reflect conventions within a technical field, such as the use of 气 [STEAM] in characters writing the names of chemical gases. Whether these classifiers reflect general taxonomic categories, as opposed to technical knowledge in a particular field of expertise, is an open question.

Goldwasser (2002, 41) argues that some Egyptian classifiers, such as that for [TREE], represented concepts for which no words existed. Based on the evidence, she argues that for a period of about five hundred years the superordinate mental category [TREE] was “a covert concept, represented only by a ‘silent’ icon.” The existence of the concept is revealed by the existence of the classifier, even though no lexical item in the language corresponds to it. Could the same have been true of some concepts in Chinese cultural history? So far we are unable to answer the question of whether classifiers that are not (and may never have been) logograms, such as 宀 [ROOF], represent this kind of covert concept, as they are not found in our neogram data. A few classifiers found in the 172 neograms are not themselves characters used in the modern writing system for spoken morphemes, including 酉 [WINE] and 疒 [DISEASE]. Like the Egyptian [TREE] classifier, these classifiers would seem to be candidates for covert concepts. But ordinary Mandarin words for these concepts do exist: *jiǔ*, “wine, alcoholic drink” (written 酒), and *bìng*, “disease, illness” (written 病). So the concepts are not covert; it is just that the classifiers for the concepts are not graphically identical to the characters representing the words for those concepts.

In conclusion, I note the key point made earlier by Feldman and Siok (1999a), who pointed out that a number of semantically salient classifiers lack a phonological value. Therefore they cannot be considered glottographic writing, at least not in isolation. One is tempted to argue that the “ideographic myth,” which mistakenly attributes to Chinese characters an inherent meaning disembodied from spoken language, contains a grain of truth here. The system of semantic classifiers might well be considered an “ideographic” sign system, insofar as the categorizations of objects and concepts they reflect may be language-independent constructs in the minds of script users. Seen in this context, the term used by Tsai and Nunes (2003) for what we call “semantic-phonetic compounds,” namely, *ideophonetic compounds*, may after all be quite apt.

APPENDIX: LIST OF 172 NEOGRAMS, SORTED BY *KĀNGXĪ* RADICAL

Note: The “Definition” field is taken directly from the Unihan database. Some fields are empty, and some contain errors. Although corrections and emendations are in the “Note” field, only the first line of the Note field is visible in these pages. The “Semantics” field contains a rough-and-ready first approximation of the semantic category of the morpheme represented by the neogram. The gloss in the “Radical” field is intended as a useful label rather than an accurate semantic categorization. For a useful list of all *Kāngxī* radicals, see http://en.wikipedia.org/wiki/Kangxi_radical.

Char	Radical	Pinyin	Definition	Note	Semantics
Radical # 9					
仨	人 person	sā	(coll.) three (cannot	HYDZ cites 1950s novel 红旗谱 by 梁斌.	People
伙	人 person	huǒ	companion,	late Qing attestation in 《二十年目睹之怪現狀》	People
伢	人 person	yá	child	dialectal.	People
佉	人 person	wǎ	the Va (Wa)	no early citation	People
佉	人 person	kā		佉佉族 is old name of Wa	People
傢	人 person	jiā	stubborn, obstinate,	definition different from Unihan; appears in	People
傣	人 person	dǎi	the Dai minority		People
僮	人 person	sù	minority name	In 僮僮.	People
僮	人 person	zá	(same as U+54B1		Pronoun
Total number of characters with Radical # 9 : 9					
Radical # 30					
噘	口 mouth	juē	pouting	翘起	Mouth action
嘛	口 mouth	sū	loquacious; nag		Mouth action
囁	口 mouth	nǎng	muttering, indistinct		Mouth action
叨	口 mouth	diāo	holding in mouth		Mouth action
咕	口 mouth	gū	mumble, mutter,	onomatopoetic	Onomatopoeia
咚	口 mouth	dōng	onomatopoetic, a	onomatopoetic	Onomatopoeia
哞	口 mouth	mōu	moo	onomatopoetic	Onomatopoeia
啪	口 mouth	pā	syllable	onomatopoetic; sound of a slap or explosion.	Onomatopoeia
唧	口 mouth	lāng	a clanging or rattling	onomatopoetic	Onomatopoeia
喵	口 mouth	miāo	the mew of the cat	onomatopoetic: cat’s cry	Onomatopoeia
啾	口 mouth	dū	sound of horn	onomatopoetic	Onomatopoeia
噗	口 mouth	pū	burst	onomatopoetic	Onomatopoeia
噼	口 mouth	cā	a cracking or	onomatopoetic	Onomatopoeia
噱	口 mouth	hú		bushel; transliteration of English (apparently)	Unit of
Total number of characters with Radical # 30 : 14					
Radical # 32					
垮	土 earth	kuǎ	be defeated, fail,		Collapse
塠	土 earth	wēn	fish farm	provenance unclear; is this a new word?	Place

Char	Radical	Pinyin	Definition	Note	Semantics
Total number of characters with Radical # 32 : 2					
Radical # 38					
媛	女 woman	ài	(your) daughter		Female
Total number of characters with Radical # 38 : 1					
Radical # 46					
崗	山 mountain	gù	a mesa, hill with flat	frequently used in place names (but not	Place
Total number of characters with Radical # 46 : 1					
Radical # 50					
幛	巾 turban	zhàng	scroll of silk or cloth	Edge case. First attested with this meaning in	Object
Total number of characters with Radical # 50 : 1					
Radical # 57					
彙	弓 bow	jìng	circular measure	not clear how old it is; “弧度” radian, arc.	Unit of
Total number of characters with Radical # 57 : 1					
Radical # 61					
慇	心 heart	tān	a polite version of he		Attitude
惦	心 heart	diàn	think of, remember,		Emotion
愣	心 heart	lèng	be in a daze	variant of (older?) 楞.	Emotion
Total number of characters with Radical # 61 : 3					
Radical # 62					
戥	戈 halberd	děng	a small steelyard for	need to explore origin.	Metal object
Total number of characters with Radical # 62 : 1					
Radical # 64					
掎	手 hand	qǐ	to bear on the	Rulin Waishi is earliest	Hand/arm
摠	手 hand	èn	to press with the		Hand/arm
撻	手 hand	liào	put down, put aside;	《儿女英雄传》	Hand/arm
揷	手 hand	qìn	press; push	《老残游记》	Hand/arm
攔	手 hand	gē	place, put, lay down;	Hong Lou Meng (mid-18th century)	Hand/arm
撵	手 hand	niǎn	drive away, expel,	Jin Ping Mei	Hand/arm
Total number of characters with Radical # 64 : 6					
Radical # 75					
樣	木 tree	shē	mango	not clear how it relates to 芒柱.	Fruit
槪	木 tree	pèng	Machilus nanmu,	origin unclear.	Plant
Total number of characters with Radical # 75 : 2					
Radical # 84					
氕	气 steam	piē	hydrogen-1, protium	Interesting structure; the “pie” also looks like a	Chemistry
氖	气 steam	nǎi	neon		Chemistry
氘	气 steam	dāo	deuterium	the “dao” knife echoes the first syllable of	Chemistry
氙	气 steam	xiān	xenon		Chemistry
氚	气 steam	chuān	tritium	interesting structure: the name seems to come	Chemistry
氦	气 steam	nèi	neon		Chemistry
氟	气 steam	fú	fluorine		Chemistry
氧	气 steam	shēn		former way of writing xiān 氙 ‘xenon’	Chemistry

Char	Radical	Pinyin	Definition	Note	Semantics
氡	气 steam	dōng	radon		Chemistry
氙	气 steam	xī	xenon		Chemistry
氟	气 steam	hài	fluorine	Helium. The Unihan definition is in error. Seems to	Chemistry
氧	气 steam	yǎng	oxygen		Chemistry
氨	气 steam	ān	ammonia; hydrogen		Chemistry
氪	气 steam	kè	krypton		Chemistry
氢	气 steam	qīng	amonia; hydrogen	is the Unihan def correct? Seems to be in periodic	Chemistry
氩	气 steam	yà	argonium		Chemistry
氙	气 steam	dàn	xenon	Unihan definition is wrong. this is Nitrogen #7.	Chemistry
氯	气 steam	lǜ	chlorine		Chemistry
氰	气 steam	qíng	cyanogen; ethane		Chemistry

Total number of characters with Radical # 84 : 19

Radical #86

炸	火 fire	zhà	to fry in oil; to scald; not so new. attested in Ming. But then in Hong Lou		Cooking
烤	火 fire	kǎo	bake, roast, toast,		Cooking
煲	火 fire	bāo	to heat; to boil a	"dialectal".	Cooking
焯	火 fire	biān	to stir-fry before		Cooking
炆	火 fire	qiàng	stir-fry or boil in		Cooking
焗	火 fire	mèn	simmer, cook over		Cooking
燴	火 fire	huì	ragout, cook, braise		Cooking
熔	火 fire	róng	melt, smelt, fuse;	etymology?	Physics
熵	火 fire	shāng	entropy	etymology?	Physics

Total number of characters with Radical # 86 : 9

Radical #93

犏	牛 cattle	jù		measure word: 牵引犁、耙等农具的畜力单位. Modern	Unit of
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Total number of characters with Radical # 93 : 1

Radical #94

猓	犬 dog	shē	a wild cat; 猓獬, a	need to check origin. Is it a new word?	Animal
狨	犬 dog	zhòng	pekinese dog, lap	old name for Bouyei; HYDZD doesn't have this	People
狃	犬 dog	kū		《清稗類鈔》徐珂（1869年－1928年）	People

Total number of characters with Radical # 94 : 3

Radical #96

珐	玉 jade	fà	enamel, cloisonné	origin unclear.	Decoration
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Total number of characters with Radical # 96 : 1

Radical #104

瘡	疒 sickness	da	pimples	Note: used in compound with 疙瘩, which is	Disease
癌	疒 sickness	ái	cancer; marmoset		Disease

Total number of characters with Radical # 104 : 2

Radical #109

睏	目 eye	kùn	be tired, sleepy		Sleep
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Char	Radical	Pinyin	Definition	Note	Semantics
瞄	目 eye	miáo	take aim at; look at	Cf. 瞅 which is excluded because it is attested in	Vision
Total number of characters with Radical # 109 : 2					
Radical # 112					
矽	石 stone	xì	silicon		Chemistry
砷	石 stone	shēn	arsenic		Chemistry
硒	石 stone	xī	selenium		Chemistry
碘	石 stone	diǎn	iodine		Chemistry
碲	石 stone	dì		tellurium #52	Chemistry
碳	石 stone	tàn	carbon		Chemistry
礞	石 stone	shuāng	arsenic		Chemistry
砸	石 stone	zá	smash, crush, break;		Violent action
碰	石 stone	pèng	collide, bump into		Violent action
碴	石 stone	chá	chipped edge of a		Violent action
Total number of characters with Radical # 112 : 10					
Radical # 113					
祂	示 spirit	tā	he (honorific form,	not in HYDZD	Religion
Total number of characters with Radical # 113 : 1					
Radical # 118					
筐	竹 bamboo	pō	flat basket for grain		Object
筷	竹 bamboo	kuài	chopsticks	Form without classifier attested in Ming with this	Object
Total number of characters with Radical # 118 : 2					
Radical # 119					
糌	米 rice	bā	tsamba (food in	roasted barley flour, tsamba, Tibetan staple (糌粑).	Food
糌	米 rice	zān		roasted barley flour, tsamba, Tibetan staple (糌粑).	Food
Total number of characters with Radical # 119 : 2					
Radical # 127					
耨	耒 plow	pàng	plow, cultivate	Not clear how old this is. May be influenced by 耕.	Agriculture
Total number of characters with Radical # 127 : 1					
Radical # 130					
腺	肉 flesh	xiàn	gland	Is this a recent borrowing?	Biology
胰	肉 flesh	cùi	pancreas	Perhaps a Japanese borrowing, according to	Biology
臃	肉 flesh	gǔ	dropsical swelling;	possibly new, first attested in Qing.	Biology
Total number of characters with Radical # 130 : 3					
Radical # 137					
舢	舟 boat	shān	sampan		Boat
舫	舟 boat	zhōng		The mid-point in the length of a boat.	Boat
舳	舟 boat	wěi		Back end of boat.	Boat
Total number of characters with Radical # 137 : 3					
Radical # 140					
苾	艸 grass	kān		organic chemical compound (camphane?) <	Chemistry
蒞	艸 grass	pài		organic chemical compound C10H16 < English	Chemistry

Char	Radical	Pinyin	Definition	Note	Semantics
蔻	艸 grass	kòu	肉豆蔻 nutmeg, 豆蔻	etymology? Not in HYDZD.	Plant product
Total number of characters with Radical # 140 : 3					
Radical # 142					
蟑	虫 insect	zhāng	cockroach	is this really a new character?	Animal
Total number of characters with Radical # 142 : 1					
Radical # 145					
裱	衣 clothing	kèn	seam in a garment	etymology?	Clothing
褲	衣 clothing	kù	trousers, pants		Clothing
Total number of characters with Radical # 145 : 2					
Radical # 149					
諳	言 speech	shēn	know in detail	new character to write 審. familiar with, know in detail.	Cognition
Total number of characters with Radical # 149 : 1					
Radical # 154					
賬	貝 value	zhàng	accounts; bill, debt;	First attested in Qing; 帳 is older?	Value
Total number of characters with Radical # 154 : 1					
Radical # 157					
躪	足 foot	zāo	to spoil; to ruin	Note appears with variants in compounds 糟蹋 躪躪	Collapse
趴	足 foot	pā	lying prone, leaning		Step
躪	足 foot	cǎi	step on, tread on;		Step
躪	足 foot	liū	stroll, take walk		Step
躪	足 foot	bèng	hop, leap, jump;		Step
Total number of characters with Radical # 157 : 5					
Radical # 164					
酚	酉 wine	fēn	carbolic acid; phenol		Chemistry
酯	酉 wine	zhǐ	ester	etymology? from 脂 'fat'?	Chemistry
醣	酉 wine	táng	carbohydrates	etymology? from 糖 'sugar'?	Chemistry
Total number of characters with Radical # 164 : 3					
Radical # 167					
釷	金 metal	yī	yttrium		Chemistry
釷	金 metal	nǎi		old way of writing neodymium #60 and neptunium	Chemistry
釷	金 metal	tǔ	thorium		Chemistry
釷	金 metal	xī		old way of writing silicon #14	Chemistry
釷	金 metal	nǚ	neodymium		Chemistry
鈣	金 metal	gài	calcium		Chemistry
釷	金 metal	rì		old way of writing germanium #32 and radium	Chemistry
釷	金 metal	huō	holmium		Chemistry
鈦	金 metal	tài	titanium		Chemistry
釷	金 metal	kàng	scandium		Chemistry
鉬	金 metal	mù	molybdenum		Chemistry
鉬	金 metal	tǎn	tantalum		Chemistry

Char	Radical	Pinyin	Definition	Note	Semantics
釹	金 metal	yī		Used for "illinium", mistakenly discovered as	Chemistry
鈳	金 metal	sī		old way of writing scandium #21	Chemistry
鈷	金 metal	kǎ	cadmium		Chemistry
銣	金 metal	rú	rubidium		Chemistry
銕	金 metal	mǐ		old way of writing Osmium #76 and Americium	Chemistry
銱	金 metal	yī	iridium		Chemistry
銲	金 metal	yīn	indium		Chemistry
銴	金 metal	guāng	point of a sword	HYDZD has definition old translation for 'chemical	Chemistry
銵	金 metal	ǎn	ammonium		Chemistry
銿	金 metal	diū	thulium		Chemistry
銻	金 metal	yōu	europium		Chemistry
銷	金 metal	sè	cesium		Chemistry
銸	金 metal	gào	zirconium		Chemistry
銹	金 metal	lǐ	lithium		Chemistry
銺	金 metal	tè	terbium		Chemistry
銻	金 metal	měng	manganese	element #25	Chemistry
銼	金 metal	lù		old way of writing rhodium #45	Chemistry
銿	金 metal	huā		old way of writing holmium #67	Chemistry
銻	金 metal	lái	rhenium	element #75	Chemistry
銷	金 metal	kěn		old way of writing scandium #21	Chemistry
銸	金 metal	nài	neptunium (Np)	element #93	Chemistry
銹	金 metal	mén	mendelevium (Md)	element #101	Chemistry
銺	金 metal	měi	magnesium	element #12	Chemistry
銻	金 metal	pài		old way of writing protoactinium #91	Chemistry
銷	金 metal	niè	nickel	element #28	Chemistry
銸	金 metal	xí		old way of writing strontium #38	Chemistry
銹	金 metal	jiā	gallium	element #31	Chemistry
銺	金 metal	mǎ		used for incorrectly identified #43, termed	Chemistry
銻	金 metal	kāng		old way of writing scandium #21	Chemistry
銷	金 metal	pǔ	praseodymium	element #59	Chemistry
銸	金 metal	fèi	fermium	element #100	Chemistry
銹	金 metal	yì	ytterbium	element #70	Chemistry
銺	金 metal	ài	ionium	isotope of thorium element #90	Chemistry
銻	金 metal	kào	shackles, manacle		Metal object
銷	金 metal	biǎo	a watch, clock		Metal object

Total number of characters with Radical # 167 : 47

Char	Radical	Pinyin	Definition	Note	Semantics
Radical # 177					
靴	革 leather	wù	leg warmer	In 靴靴, apparently a Manchu word for a type of	Shoes
鞞	革 leather	la	leg warmer	In 鞞鞞, apparently a Manchu word for a type of	Shoes
Total number of characters with Radical # 177 : 2					
Radical # 182					
颱	風 wind	tái	taiphoon		Weather
Total number of characters with Radical # 182 : 1					
Radical # 184					
饅	食 food	mó	bread	A kind of bun, a northern mantou.	Food
Total number of characters with Radical # 184 : 1					
Radical # 190					
鬚	髮 hair	lì	favus	part of 鬚鬚. Apparently new in Qing. Fingal	Disease
鬚	髮 hair	là	favus, scabies	part of 鬚鬚. Apparently new in Qing. Fingal	Disease
Total number of characters with Radical # 190 : 2					
Radical # 195					
魷	魚 fish	yóu	cuttlefish	Could character be from Japanese?	Fish
鱈	魚 fish	xuě	codfish	Could character be from Japanese?	Fish
Total number of characters with Radical # 195 : 2					
Radical # 209					
臃	鼻 nose	nàng	stoppage of the nose		Nasal
Total number of characters with Radical # 209 : 1					
Grand Total: 172					

ABBREVIATIONS

CJK	Chinese-Japanese-Korean
CJKV	Chinese-Japanese-Korean-Vietnamese
CLF	indication that a word belongs to the classifier part of speech
Big5	Chinese character encoding method
GB	Guobaio standards
HYDZD	<i>Hànyǔ dà zìdiǎn</i> 漢語大字典 editorial committee, 漢語大字典 Han yu da zi dian. 漢語大字典編輯委員會/Han yu da zi dian bian ji wei yuan hui. Wuhan: Hubei ci shu chu ban she/ Chengdu: Sichuan ci shu chu ban she, 1986–90
PRC	People's Republic of China
SP	semantic-phonetic

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7 Iconic and Grammatical Dimensions of Sign Language Classifiers

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1. INTRODUCTION

Throughout this volume we have been considering classifiers—those logographs, ideographs, and elements of iconic writing that are relationally bound to their lexical or semantic counterparts in their respective languages. The present contribution gives a primer on how a different type of visual language employs classifiers, namely, how classifiers are expressed in sign languages. Sign languages are not secondary communication media, as writing systems are, but rather the primary media of their respective languages; therefore, the visual iconicity is also expressed in the primary form of the language rather than in the written form. Here I shall focus on the most iconic forms in sign languages; these forms are called “classifier constructions,” or sometimes “depicting constructions.” Classifier/depicting constructions are highly iconic but are also integrated into the grammar in a range of ways that will be described.

1.1. PROPERTIES OF SIGN LANGUAGE CLASSIFIERS

Sign language classifiers have the following properties:

1. they are iconic;
2. they are integrated into the grammar;
3. they require an antecedent (previous mention) in the discourse;
4. some are morphological, productive;
5. some have a syntactic function; and
6. they are widely used in narratives and literary forms.

The five phonological primitives in sign languages (called “parameters”) are handshape, orientation of the hand, movement, location, and nonmanual expressions on the face and body (Brentari 2019). Phonological primitives, including syllables, should therefore be understood not as connected to sound but as the units that make up a word, as words are units that make up a sentence. I shall focus on the parameter of handshape because classifiers are expressed using this parameter, but it is also important to understand that the phonological role of movements in sign languages is analogous to the phonological role

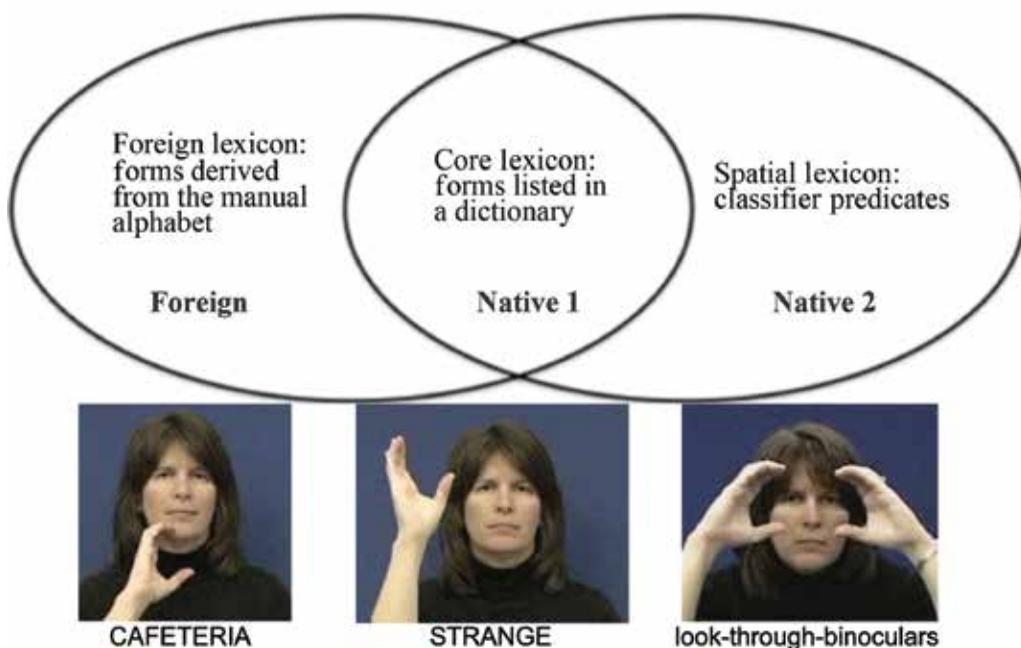


Figure 7.1. The components of a sign language lexicon (e.g., ASL; Brentari and Padden 2001; Brentari and Eccarius 2010).

of vowels in spoken languages, and, as such, movements form the nucleus of syllables in these languages (Brentari 1998, 2019). The three main arguments for movements as syllable nuclei are that (1) when children are acquiring a sign language as a first language, they pass through a stage of syllabic sign babbling using movement at the same age as children acquiring a spoken language (Petitto and Marentette 1991); (2) signed words are typically ill formed if they have no movement, and phonological repairs are employed to fix potentially ill-formed signs if they have no movement, just as is the case with spoken words that have no vowel (Brentari 1993); and (3) various types of morphological operations are sensitive to the type of movement a sign has, and they select just some types of movements as potential candidates for these processes, such as nominalization (Brentari 1998; Abner et al. 2019).

In sign languages, iconicity is widely used throughout the lexicon, but used differently depending on the type of vocabulary item. Sign languages manage, organize, structure, and control iconicity in very specific ways. Figure 7.1 shows a model of the American Sign Language (ASL) lexicon (Brentari and Padden 2001) with three types of vocabulary: core, foreign, and spatial. The words of most languages, spoken or signed, can be divided into groups according to their morphological properties and historical sources: Was the word derived from existing forms in the language, or was it created anew? Was the word borrowed from another language, or is it native? Notice that the examples of signs in each of the three lexical components have the same handshape, , thus demonstrating that the same handshape can appear in all three kinds of vocabulary but with a different status in each kind.

In “core” vocabulary items (fig 7.1, middle), most words have much less iconicity than in the foreign or spatial lexical components. Core vocabulary items are the signs that



Figure 7.2. Signs for TREE in American Sign Language (ASL), Italian Sign Language (LIS), and Turkish Sign Language (TiD). Reproduced from “Spread the Sign” (<http://www.spreadthesign.com/us/>).

would appear in a dictionary—that is, whole lexemes or stems of words. The handshape for core vocabulary is phonological. For example, in figure 7.1 (middle) we see the ASL sign STRANGE; it is produced at the location of the face, with the handshape  and a movement extending the wrist. The form FAKE is produced at the same location as STRANGE and with the same movement, but instead of  the handshape is . The handshapes used in both of these forms mean nothing in themselves; the two forms are not semantically related, and thus these two signs form a minimal pair. The handshapes in core vocabulary are therefore comparable to the consonant /s/ in spoken English in the word /s/pell, where /s/ is part of the word but has no meaning on its own.

There can also be iconicity in the core lexicon; some core lexical items are iconic when all the parameters are put together into a word. Figure 7.2 shows types of iconicity used in the sign TREE. The whole tree—trunk and branches—is represented in ASL (left), the trunk alone in Italian Sign Language (LIS; center), and the leaves alone in Turkish Sign Language (TiD; right). As in the sign STRANGE, the handshape, movement, and location in TREE do not mean anything as primitives, but together they comprise a single meaning, and the visual iconicity associated with the real-world object must be learned despite the iconicity.

In the “spatial” component of the lexicon (fig. 7.1, right) we find forms that express motion and location events (classifier constructions), and in these forms the handshape parameter is morphological—it is morphologically discrete, has meaning, and is used productively (e.g., the English final morpheme /s/ in *spell/s/*). In sign languages, the handshapes of classifier constructions are typically iconic. An example of one type of highly iconic classifier appears in figure 7.1 (right): it means “look-through-binoculars” and uses this handshape  as it is moved toward the eyes. Different meaningful, discrete, productive handshapes can be substituted here in the same location and with the same movement to express different meanings: “to put on glasses by the temples,” using a  handshape, or “to put on a mask for Halloween,” using an  handshape.

The third type of vocabulary item represented in figure 7.1 (left) consists of “foreign” vocabulary, so called because it interacts with the writing system of English. The foreign group includes handshapes that are based on or derived from the manual alphabet, and some (though not all) of the handshapes have an iconic association with the alphabetic

letter. There can be minimal pairs in this component also. An example is CAFETERIA, produced at the location of the lower face with the  handshape and a movement that touches both sides of the mouth in turn. This sign can be contrasted with BACHELOR, produced at the same location and with the same movement but with the handshape  (B-handshape). These forms are not called “classifiers” (such that we would put them into the spatial category), and here I leave them aside because they are not considered native forms of the language.

2. CLASSIFIERS AND THEIR ROLES IN THE GRAMMAR AND TYPOLOGY OF SIGN LANGUAGES

To be a classifier handshape, the form should be meaningful as a primitive and be morphological, which can be defined by the properties of **discreteness**, meaning that the form can be isolatable from other parts of the form; **listability**, meaning that all the relevant forms for a given meaning can be listed; and **productivity**, meaning that it must be generalized to new cases. Within the literature on the typology of classifiers across the languages of the world, sign language classifiers fall into the set of verbal classifier languages (Allan 1977) and operate in a way that is similar to Waris, a Papuan language of northern New Guinea (Brown 1981).

2.1. VERBAL CLASSIFIER (SPOKEN) LANGUAGES

Consider the following examples from the Papuan language Waris:

- (1) **sa** **ka-m** **put-ra-ho-o**
 coconut I-dat **class**_[round]-give-ben-imp¹
 “Give [round object] me a coconut”;
- (2) **nelus** **ka-m** **ninge-ra-ho-o**
 greens I-dat **class**_[leaf-wrap]-give-ben-imp
 “Give [leaf-wrapped object] me some greens.”

In English, meanings for the shapes of objects are underrepresented, and when they are expressed it is via lexicalized forms implying different types of objects, often as either mass nouns or count nouns, but not necessarily different shapes of objects. For example, one can use *grains* with *sand* but not **peanut butter*, even if peanuts can become granulated. One can use *chunks* with *earth* and with *plaster*, but not with **pens* or **picture frames*. But unlike Waris, ASL and other sign languages that use classifier constructions do not concatenate the morphology sequentially; rather, they layer the morphemes simultaneously. The visual modality is quite efficient for conveying simultaneous information (Brentari 2002; Meier 2002), and classifiers are well adapted to this simultaneous expression.

If we consider the way that ASL classifier constructions fit into the organization of “word shape” (the syllable-to-morpheme ratio) across the world’s languages as shown in figure 7.3 in a 2 × 2 typological grid (cf. Brentari 1995, 1998, 2011, 2019; Goldin-Meadow

1 These examples incorporate the following abbreviations and symbols: “dat” = dative; “ben” = benefactive; “imp” = imperative. An asterisk is used to indicate an ungrammatical structure.

	Monosyllabic	Polysyllabic
Monomorphemic	<i>Hmong</i>	<i>English</i>
# of morphemes	1 #noj#	1 #character#
# of syllables	1 .noj.	3 .kæ.ɹək.tə.
translation	“eat”	“character”
Polymorphemic	<i>ASL</i>	<i>Hopi</i>
# of morphemes	3 #people-go forward-carefully#	3 #pakiw-maqto-ni#
# of syllables	1 .go forward	5 .pa.kiw.maq.to.ni.
translation	“people go forward carefully”	“will go fish-hunting”



Figure 7.3. Structural organization of word shape across the world’s languages (from Brentari 1998, 2019; Goldin-Meadow and Brentari 2017).

and Brentari 2017), we see each of the four types of languages that result from crossing these two dimensions (number of syllables, number of morphemes). Some languages have an abundance of words that contain only one morpheme (e.g., Hmong, English), while others have an abundance of words that are polymorphemic (e.g., ASL, Hopi). Some languages have many words that contain only one syllable (e.g., Hmong, ASL); others have many words that are polysyllabic (e.g., English, Hopi). English (fig. 7.3, top right) tends to have words composed of several syllables (i.e., are polysyllabic) and one morpheme (i.e., are monomorphemic); *character* [kæ.ɹək.tʃ], with three syllables and one morpheme, is such a word. Hmong (fig. 7.3, top left) tends to have words composed of a single syllable and a single morpheme (Ratliff 1992; Golston and Yang 2001). Each of the meaningful units (marked here by a period and hyphen) in the Hmong sentence *Kuv- noj- mov- lawm*. (English, “I ate rice”) is a separate monomorphemic word; even the perfective marker *lawm* is made up of a single syllable. Hopi (fig. 7.3, bottom right) tends to have words composed of many morphemes that are each composed of one or more syllables; the verb phrase *pa.kiw-maq.to.-ni*. (English, “will-go-fish-hunting”) is a single word with three morphemes, and each of the first two of these morphemes contains two syllables (Mithun 1984). Finally, ASL (fig. 7.3, bottom left) has many words/signs composed of several morphemes packaged into a single syllable (i.e., one movement). Here we see a classifier form that means “people-go forward-carefully,” which is composed of three concomitant morphemes: (1) the index finger handshapes (B = “person”); (2) the path movement (linear path = “go forward”); and (3) the nonmanual expression (pressed-together lips and squinted eyes = “carefully”).

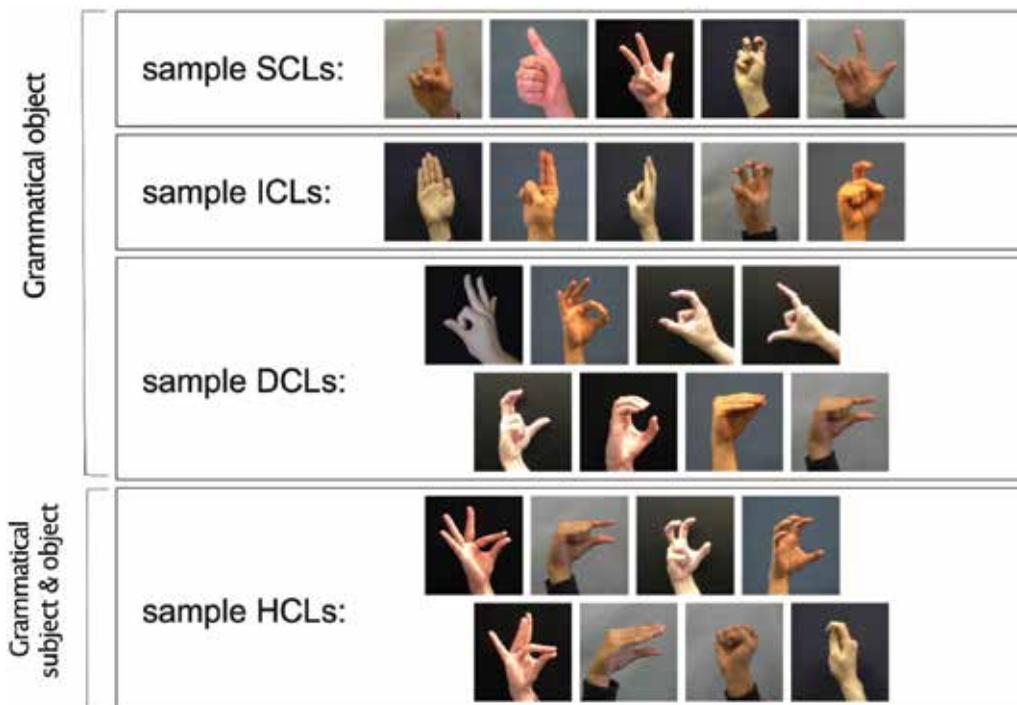


Figure 7.4. Examples of morphological classifier types in ASL and their syntactic groupings (Brentari and Eccarius 2010; reprinted with permission, Cambridge University Press).

Spoken languages that fall into three of the four cells in this typology have been identified. No spoken language has been found in the group in which sign languages are found; that is, no *spoken* language has been found that is polymorphemic and monosyllabic in this compositional way, especially if we look beyond three morphemes per syllable (Brentari 2002). Moreover, most of the signed languages analyzed to date have been found to be both polymorphemic and monosyllabic, and they form a natural class of languages. Although sign languages are different in kind from spoken languages, they fit neatly into the grid displayed in figure 7.3 and, in this sense, can be characterized by the linguistic tools developed to describe spoken languages.

3. MORPHOLOGICAL AND SYNTACTIC PROPERTIES OF SIGN LANGUAGE CLASSIFIERS

Some types of ASL classifiers are shown in figure 7.4. *Semantic classifiers* (SCLs) are classes of objects (e.g., vehicles, upright beings). *Instrumental classifiers* (ICLs) refer to a whole instrument (e.g., toothbrush, scissors). *Descriptive classifiers* (DCLs), sometimes called “size and shape specifiers” (SASSes), refer to whole or parts of objects defined primarily by their shape (e.g., a bed or paper) and capture their properties of being (flat-and-square). *Handling classifiers* (HCLs) refer to the way objects or instruments are held or manipulated (e.g., grabbable object, such as a cup or bat; flickable object, such as a page). Some hand-shapes appear in more than one category.

3.1. NEGATIVE IMPERATIVE FINISH!

One might ask whether classifiers function uniformly in the grammar, and the answer is that they do not. In figure 7.4, the SCLs, ICLs, and DCLs have syntactic properties that are different from those of HCLs. Diagnostic tests of a syntactic nature can be performed—tests that obtain differing results. These tests are commonly applied in spoken languages and work equally well when applied here to ASL. For example, the “negative imperative” test, which expresses the command, “Don’t do X” is sensitive to a subject/agent (implying the second-person singular form “you” in the sentence). In English, “Don’t bounce the ball!” implies that someone (an agent, not the ball) is present. In ASL, sentences with HCL predicates (below, example 1) readily co-occur with the negative imperative sign FINISH (from the core lexicon), because with an HCL an agent is implied (Benedicto and Brentari 2004).

In contrast, sentences with SCLs (below, example 2) are ungrammatical (indicated with the * symbol) when this syntactic test is applied by adding the negative imperative sign FINISH to the sentence, because with an SCL no agent is implied. To summarize:

- (1) HCLs allow negative imperatives
(e.g., the form illustrated in fig. 7.5 [left]+FINISH
[verb+HCL]+FINISH!)
“[You], stop moving the book on its side!”
- (2) SCLs/DCLs disallow negative imperatives
(e.g., the form illustrated in fig. 7.5, [right]+FINISH
*[verb+SCL]+FINISH!)
“Book, stop falling on your side!”



BOOK Handling-flat-object:

 (HCL)+MOVE (VERB)

“[Someone] put a book on its side.”



BOOK flat-object:

 (SCL)+MOVE (VERB)

“A book fell on its side.”

Figure 7.5. Left: HCL (handling classifier used in (1) above (under negative imperative test) and (1) below (under WILLING test). Right: Classifier form in (2) above (under negative imperative test) and (2) below (under WILLING test).

3.2. WILLING TEST

A second diagnostic test for subject/agent is the addition of the word (the sign) WILLING from the core lexicon, which also requires an implied agent somewhere in the sentence. Again, HCLs combined with WILLING readily allow such structures (below, example 1), while SCLs combined with WILLING either do not occur or obtain questionable grammaticality judgments (below, example 2).

- (1) HCLs allow WILLING:
WILLING+the form illustrated in figure 7.5 (left)
WILLING+[verb+HCL]
“Are you willing to move the book on its side?”
- (2) SCLs/DCLs disallow willing:
WILLING+the form illustrated in figure 7.5 (right)
WILLING+[verb+SCL]
“Is the book willing to fall on its side?”

3.3. CLASSIFIER FORMS: REQUIREMENT OF AN ANTECEDENT IN THE DISCOURSE

An additional syntactic property of sign language classifiers is that they require a preceding grammatical argument as a first mention. In the famous story by Ben Bahan, “The Ball” (Bahan 2007), we can see a number of instances of classifier use. In each case the antecedent is introduced in the narrative, then the classifier is used; if the classifier forms in examples (1) through (5) below are used alone without an antecedent, the clause would be ungrammatical.

- (1) BIRD SCL (flying entity)  SCL+go; *  SCL+go
- (2) BICYCLE SCL (vehicle)  SCL+go; *  SCL+go
- (3) DOG SCL (small animal)  SCL+go; *  SCL+go
- (4) GIRL SCL (upright being)  SCL+go; *  SCL+go
- (5) LADY large (round-shaped with legs)  SCL+go; *  SCL+go

In the structures from “The Ball,” the movements that combine with the classifier forms are structured in an alternating fashion that repeats as the story progresses: a quick, straight movement followed by a staccato movement. While this topic is beyond the scope of the current essay, here I observe that the potential to create “rhymes” with the movements of classifier forms makes them particularly amenable for use in stories and sign language poetry. Iconicity adds texture and presence to a narrative, so classifiers are heavily used in sign language stories and narratives.

4. COMPARISON WITH ANCIENT WRITING SYSTEMS

Even though writing is a secondary mode of language, while a sign language as a primary mode of language functions as speech does, both the classifiers seen in the ancient writing systems discussed in this volume’s other contributions and the sign language classifiers are “living” elements. Unlike with writing systems that make use of a keyboard, ancient

writing systems were produced manually every time. A written form may have a longer life than an uttered sign or word, but the pressure to be efficient operates across both types of systems, particularly if the act of writing is intended to take place within a limited time and space. Another similarity across the two types of systems is that new forms in the language often appeal to the elements of earlier forms (iconic or otherwise), self-referentially drawing on the internal resources already created and used within the system already.

One possible difference concerning iconicity in writing systems and in sign language might be the relative weighting of efficiency versus iconicity. In other words, the value of efficiency (ease of both articulation and perception) may dramatically outweigh the value of iconicity in writing systems, so continued use makes the iconic properties of the system less relevant over time; hence, over that time, there may be a more linear, incremental loss of iconicity in writing systems than in sign languages. By contrast, in sign languages the grammar seems to work with iconicity and to complement it, especially in literary forms and also in newly constructed lexical items, so the iconicity might remain in the system longer.

ABBREVIATIONS

ASL	American Sign Language
ben	benefactive
dat	dative
DLC	descriptive classifier
HCL	handling classifier
ICL	instrumental classifier
imp	imperative
LIS	Italian Sign Language
SCL	semantic classifier
TiD	Turkish Sign Language
*	ungrammatical structure

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PART III

SCRIPT EVOLUTIONS

8

Encounters between Scripts in Bronze Age Asia Minor*

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1. INTRODUCTION

The study of language contact has steadily evolved into an independent subfield of linguistics possessing its own methodology. The study of contacts between writing systems has naturally received less attention, because, more frequently than not, their morphosyntactic structure mirrors that of the languages they are meant to render or that of their historical prototypes. On the other hand, less dependence of the scripts on language can sometimes be observed in those societies where epigraphic communities were small and exclusive. Under such conditions, the conventions of other scripts practiced in the same communities could, in principle, interfere with the constraints governing the correspondence between the structure of writing and the morphosyntax of the spoken language. In addition, shared features of writing systems could independently develop in response to the similarities of their use in particular communities, defined in either ethnic or geographic terms.

In the present chapter, we illustrate these basic points with reference to the situation in Bronze Age Anatolia. It provides a suitable test setting for the study of interference between writing systems, being a region characterized by the use of three different scripts, namely, Assyrian cuneiform, Hittite cuneiform, and Anatolian hieroglyphs, which partially overlap during certain periods.¹ Furthermore, each of these three logosyllabic scripts

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1 Alternative designations used for the Anatolian hieroglyphs in earlier literature are *Hittite hieroglyphs* and *Luwian hieroglyphs*. The preference for the term *Anatolian hieroglyphs* in the present chapter follows

was associated with circumscribed circles of practitioners and featured complex conventions that could, in principle, be transferred to a different writing system without having any counterpart in the spoken language.

Our essay is organized as follows: in §2 we introduce the epigraphic communities of Bronze Age Anatolia and provide arguments for their partial overlap in space and time; in §3 we present evidence for the influence of cuneiform scribal conventions on Anatolian hieroglyphic texts; in §4 we address nontrivial similarities between the graphic rendering of proper nouns in Old Assyrian and Hittite cuneiform and argue that the Old Assyrian texts provide a missing link for the explanation of Hittite graphic conventions, whether or not one is dealing here with a contact-induced transfer; in §5 we assess the hypothesis that the Anatolian hieroglyphic scribal tradition influenced the habits of Hittite and Old Assyrian cuneiform scribes and conclude that it lacks sufficient empirical foundation, whereas the observed similarities can be better accounted for in typological terms; and, finally, in §6 we summarize the results of these investigations.

2. SOCIOLINGUISTIC SETTING

The first writing system to become widely used in Asia Minor was Old Assyrian cuneiform. It was brought to this region by merchants from Assur in Upper Mesopotamia. Trading colonies, set up by these merchants, operated in various parts of Anatolia in the twentieth through eighteenth centuries BCE, with the main center in Kaneš/Nesa (Bryce 2005, 21–40). During this period, clay tablets, inscribed in Assyrian (a dialect of the Semitic Akkadian language) using a cuneiform writing system, were primarily deployed for the internal needs of the Assyrian expatriate communities, as well as for formalizing their contacts with the local population. The documents emanating from indigenous communities initially were very rare, but they became more widespread during the final phase of the Colony Period, just before the withdrawal of the Assyrians from the large-scale Anatolian trade (Michel 2011, 105).² After this departure, Old Assyrian literacy eventually died out in Asia Minor; however, for the period from the late seventeenth century onward, we have hard evidence that a new writing system was introduced in Anatolia for writing Akkadian. This system developed from a peripheral variety of Old Babylonian script and was brought to the region via Syria.³ Despite this innovation's also being a cuneiform writing

from the assumption that this writing system developed in a Hittite and Luwian bilingual environment (see the following section).

2 Examples of Old Assyrian tablets that appear to have been written by *native* Anatolians (i.e., not Assyrians) based on their linguistic features are collected in Kryszat 2007, 233–37. Based on the content of these texts, their authors were likely to be integrated in Assyrian society. More cogent examples of Old Assyrian literacy serving the needs of the native community are the few available texts emanating from the local rulers (Michel 2011, 109–10, 112). On the Deeds of Anitta, whose original version has indirectly been assigned to the same period, compare below.

3 The transmission of this new system from Syria to Anatolia is traditionally linked with the rise of the Kingdom of Hattusa, and in particular with the Syrian campaign of Hattusili I. The frequently iterated claim that the scribal school of Alalakh (VII) represents a direct and specific ancestor of the epigraphic community of Hattusa has become more problematic after Popova (2016) demonstrated significant differences in the orthographic conventions of the two traditions. But the more general claim about the North Syrian origin of the cuneiform script used in the Kingdom of Hattusa remains as viable as before.

system—therefore ultimately having the same genetic origin as the Old Assyrian script—these two writing systems were characterized by both distinct sign shapes and divergent orthographic conventions.

The datings of the original cuneiform tablets speak, at face value, against the overlap between Old Assyrian and Old Babylonian literacy in Anatolia, a fact that would be consistent with postulating an intervening period when none could read cuneiform in this region. Nevertheless, the textual history of the Deeds of Anitta—a Hittite composition written in a derivative of Old Babylonian cursive, which describes the historical events of the eighteenth century BCE and does not appear to reflect a later retrospection—suggests otherwise. Archi (2015) plausibly argues that this text was originally composed in the Akkadian language and written down in the Old Assyrian script during the time when Anitta, a king of local Anatolian origin, ruled Kaneš/Nesa while the Assurite trading colonies were still operating in Anatolia. This text was then translated at a later point into the Hittite language using the Old Babylonian writing system. In his study of the transmission of this text, Archi concludes that it “demonstrates that there was not a sudden and total interruption in writing but a phase of adaptation to a new writing” (Archi 2015, 6).⁴ A confirmation of Archi’s conclusion comes from the Old Assyrian eponym list KEL G (Günbattu 2008). As kindly pointed out to us by Guido Kryszat, the ductus (i.e., script characteristics) of this tablet, inscribed no later than the eighteenth century BCE, presumably in Anatolia, comes very close to the Syrian ductus of the same period.

The multiethnic Kingdom of Hattusa (also known as the Hittite Kingdom) used Akkadian as the primary written language until the mid-fifteenth century BCE (as plausibly argued by van den Hout [2009] based on the analysis of the datable original compositions). Nevertheless, the role of scribes during this period radically differed from that of scribes living during the Old Assyrian period. Whether or not of Semitic extraction, the scribes of peripheral Old Babylonian no longer served the needs of expatriate communities but instead were employed by the court of Hattusa. Accordingly, they had to familiarize themselves quickly with Hittite, the probable language of the Hattusa court. A philological testimony to this scribal bilingualism is the presence of embedded Hittite phrases, endowed with proper inflectional endings, in the Akkadian texts of this period. Such a phenomenon, known to linguists as “code-switching,” is already found in the *Siege of Uršu* text (KBo 1.11), arguably the most ancient tablet preserved in the archives of Hattusa, perhaps being written in the seventeenth or sixteenth century BCE (van den Hout 2009, 91–92; cf. Beckman 1995, 25a). It is also attested on sealed tablets recording royal land grants, the earliest of which are commonly dated to the fifteenth century BCE (Rüster and Wilhelm 2012, 38).⁵

4 The principal alternative to this solution is the scenario of Neu (1974, 133–35), according to which the Deeds of Anitta were initially written in Hittite, the language of Kaneš/Nesa, perhaps in the script of Alalakh VII. A modification of this scenario is now presented in Kloekhorst and Waal 2019, where the so-called “cushion-shaped” tablets, including the oldest manuscript of the Deeds of Anitta, are identified with the Hittite scribal tradition predating the move of the capital to Hattusa. Note, however, that both approaches would also imply an overlap in the use of Old Assyrian and peripheral Old Babylonian scripts in Anatolia. As stressed by Kloekhorst and Waal (2019, 194), the hypothesis of oral transmission of the Deeds of Anitta emerges as highly unlikely, since, among other reasons, the text itself explicitly prescribes its written record.

5 Compare, for example, Land Grant 3 (Rüster and Wilhelm 2012, 92–97), which contains numerous embedded Hittite phrases on the reverse side (2–14). We are grateful to Michele Cammarosano, who turned

The transition from Akkadian to Hittite as the primary language of cuneiform literacy in the Kingdom of Hattusa happened at some point during the fifteenth century BCE, perhaps at the time of the reformer king Telipinu. This linguistic reform did not entail a shift to a new writing system; rather, the same script of Syro-Babylonian inspiration was adapted to writing Hittite. A testimony to this language shift within the cuneiform scribal community of Hattusa is the presence of numerous Sumero- and Akkadograms in Hittite texts, which will be collectively called “heterograms” in the remainder of this chapter.⁶

The notion of heterogram can be defined as *a conventional sign or combination of signs that reproduces in writing a segment of A as a part of a text composed in B, where A and B are two distinct languages and one can reasonably assume that the segment in question did not exist in the spoken language B.*⁷ In our case, language B is Hittite, whereas language A is Sumerian or Akkadian, depending on whether one is dealing with Sumero- or Akkadograms. The subsets of heterograms are logograms, “morphograms,” transferred phonetic complements (see n. 7), determinatives (classifiers), and elements of morphosyntactic annotation (e.g., the Akkadographic prepositions *ANA* and *INA* deployed for marking noun valences).⁸ It is important to emphasize the difference between heterograms, on the one

our attention to this example. Typologically, this source presents an instance of code-switching, comparable, for example, to the later use of Hittite and Luwian glosses in the Akkadian medical text KUB 37.1 (Giusfredi 2012). This practice is emphatically different from the borrowing of Anatolian proper nouns in Akkadian as stem-forms, to be discussed in §4.

6 The term *logogram*, frequently used in roughly the same meaning as *heterogram* in the earlier Hittitological publications, is retained here with reference to a subset of heterograms that correspond to Hittite lexical units or their stems (e.g., LUGAL = *haššu-* “king”; BAL = *šipant-*, “to libate”). Such a usage corresponds better to the etymology of *logo-gram*, literally “word-writing.” There are additional understandings of the term *heterogram*. In the area of word games, it is defined as a word, phrase, or sentence in which no letter of the alphabet occurs more than once. Currently, the longest English heterogram (in this sense) is *The big dwarf only jumps*, consisting of twenty letters. Furthermore, Ilona Zsolnay pointed out to us that the alternative spellings of a particular word that do not interfere with its pronunciation can also be called heterograms. An example of such a phenomenon would be the spelling “nite” instead of “night,” frequent in SMS messages. Since such definitions generally concern modern alphabetic languages, they are unlikely to cause confusion with our definition of “heterogram,” adopted here for the purpose of discussing the history and typology of writing systems.

7 The “segment of A” in this definition is a cover term for morphemes and recognizable phonetic sequences. A case in point is the complex heterogram DINGIR-*LIM*, “god,” where DINGIR is the Sumerogram derived from the Sumerian sign for the nominal root, “god” (or, “heaven”), while *LIM* is the Akkadographic phonetic complement derived from the final sign of Akkadian *i-lim*, “god [gen.]” which can also be spelled DINGIR-*lim* in Akkadian texts. The combinations of Sumero- and Akkadograms are sometimes called “complex heterograms” in Hittitological literature (see, e.g., Kassian and Yakubovich 2004).

8 For a more substantial discussion of the classification of heterograms in Hittite, see Kudrinski and Yakubovich 2016. Hittitological transcription uses capital letters for Sumerograms pronounced in Hittite and the other Anatolian languages; italic capitals for Akkadograms; superscripted letters for unpronounceable determinatives (classifiers); and minuscules for the phonetically spelled Anatolian forms. For example, the sequence *A-NA^mU-uh-ḫa-LÚ*, “to Uhhaziti,” contains the Akkadographic dative case marker *ANA*, the Sumerogram <LÚ>, “man” corresponding to the sequence *ziti* (etymologically the Luwian word for “man”), the determinative <m>, which suggests that Uhhaziti is a male personal name, and the phonetically spelled morpheme *Uḫḫa-*. Here and below, angular brackets are used to indicate the phonetic or logographic values of individual cuneiform or hieroglyphic signs. By convention, syllabic signs belonging to the same word are hyphenated in the narrow transliteration. The term *phonetic complement* is used for a sequence of syllabic signs appended to heterograms and rendering the sounds of the matrix language. While, strictly speaking, the sequence *U-uh-ḫa-* represents a phonetic complement in *^mU-uh-ḫa-LÚ* under

hand, and loanwords/code-switches in a written text, on the other hand. In the situation of borrowing, the transferred element becomes part of the spoken language B, whereas the heterograms do not; in the situation of code-switching, the transfer is not conventionalized, whereas in the instance of heterograms it is.

This Anatolian adoption and retooling of a cuneiform script, which was originally used to encode an unrelated Semitic language, expanded to the provincial centers of the Kingdom of Hattusa. There is no evidence, however, that it spread in use beyond the public domain. Beginning at least in the fourteenth century BCE, this inspired writing system came to be in competition with the genetically unrelated but also fairly complex system, namely, the Anatolian hieroglyphic script, which had originally developed in the Hittite and Luwian bilingual environment but gradually acquired exclusive association with the Luwian language. The bulk of the Anatolian cuneiform texts available to us are written on transferable clay tablets, while the Anatolian hieroglyphic texts are preserved on monumental inscriptions and personal seals.⁹ Unlike the cuneiform script, the Anatolian hieroglyphic script survived the collapse of central power in Anatolia in the early twelfth century BCE and remained in use in the so-called “Neo-Hittite” states of southwestern Anatolia and Syria (also known as “Syro-Hittite” or “Syro-Anatolian” states) at least up to the eighth century BCE.

The Anatolian hieroglyphic script is typologically similar to the cuneiform in that it represents a hierarchical system featuring syllabic signs, logograms (signs for lexical units), and determinatives (Weeden 2014). But because it developed internally rather than having an external origin (as with cuneiform), it lacks heterograms. The logograms of this writing system do not signify the lexemes of any non-Anatolian language; however, in many instances they retain a high degree of iconicity (i.e., their form correlates to their meaning). Obviously, the default convention, according to which the Anatolian hieroglyphic logograms and determinatives are transcribed into Latin, does not convey any implications regarding the origin of this script. A typical example of a hieroglyphic phrase in transcription would be (DEUS)ku+AVIS SACERDOS-sa, “priest of Kubaba.” Here the stem of the head-noun “priest” is written with the logographic sign <SACERDOS>, while the phonetic complement <sa> marks its nominative ending. The dependent noun “Kubaba” is written semilogographically, with the sign <ku> indicating the first syllable of the divine name, the ideogram <AVIS> representing a bird as the symbol of the goddess Kubaba, and the determinative <DEUS> marking a theonym. The inflectional ending of the genitive is not rendered in writing. The spelling ku+AVIS, as opposed to ku-AVIS, suggests that the two signs are written as a ligature (i.e., they are bound together).

Because longer hieroglyphic inscriptions appear in Hattusa relatively late in its history, it was believed for a long time that the Anatolian hieroglyphs originated elsewhere, in some unidentified Luwian-speaking environment in either the west or south of Asia Minor. More recently, however, it has become increasingly clear that the Luwian speakers

the proposed definition, the more canonical phonetic complements are appended to the right and frequently correspond to inflectional endings, for example, <aš> in MUNUS.LUGAL-aš, corresponding to Hittite *haššušaraš*, “queen [nom. sg.]”

⁹ The publications of hieroglyphic documents associated with the Kingdom of Hattusa include Hawkins 1995; Herbordt 2005; and Herbordt, Bawanypeck, and Hawkins 2011.

had already comprised a significant part of the population of Hattusa well before the appearance of the first Luwian hieroglyphic inscriptions. Furthermore, Yakubovich (2008) has demonstrated that the Anatolian hieroglyphic script must have originated in the mixed Hittite and Luwian environment, because the phonetic values of several Anatolian hieroglyphs have been acrophonically derived via Hittite rather than Luwian lexemes. For example, the sign <CAPERE>, graphically a taking hand, also has the syllabic value <tà> = [da], suggesting that it was derived via the Hittite verb *dā-*, “to take,” rather than its Luwian counterpart *la(la)-*, “to take.”¹⁰ This entire scenario is compatible with the assumption that the hieroglyphic writing system evolved in the circles of Hattusa literati as an alternative to the cuneiform script emphasizing the local identity.

There is also evidence, though limited, for the stylistic influence of Anatolian hieroglyphic inscriptions on late Hittite cuneiform texts. Thus the *res gestae* of the last Hattusa king, Suppiluliuma (Suppiluliyama) II, contain the formula “I am His Majesty, labarna, Suppiluliyama, Great King, King of Hattusa.” This formula differs from the standard incipit of the cuneiform *res gestae*: “Thus speaks such and such, Great King, King of Hattusa.”¹¹ On the other hand, the formula found in Suppiluliuma II’s *res gestae* literally corresponds to the beginning of the hieroglyphic inscription NİŞANTAŞ, belonging to the same Suppiluliuma II (Güterbock 1967, 81; Laroche 1970).¹² This type of introductory formula is also attested in later hieroglyphic inscriptions. While one cannot claim that the NİŞANTAŞ inscription represents the translation of Suppiluliuma II’s *res gestae* (KBo 12.38+) or vice versa, as subsequent studies of the hieroglyphic text have confirmed, one can agree with van den Hout (2006, 234) that the Hittite formula represents “a deliberate phrasing of the text according to typical Hieroglyphic Luwian stylistic patterns by a court scribe intimately familiar with Luwian and able to switch from one to the other.”

Direct evidence for the simultaneous use of the two scripts comes from the royal seals of Hattusa kings.¹³ These seals typically carry the hieroglyphic legend in the center and the

10 This claim was recently challenged by Kloekhorst (2019), who argues that the <CAPERE> = [ða] sign is rather derived from **ða-*, the reconstructed early form of Luwian *la-*, “to take.” The author acknowledges that to make this idea work, the acrophonic derivation of the value [ða] must be pushed back to the eighteenth century BCE. This suggestion is in line with the hypothesis of Waal (2012) that the syllabic hieroglyphic script was already in existence in the Old Assyrian period, which is, however, not substantiated through epigraphic evidence. The claim of Kloekhorst (2019) is undermined by the lack of alignment between <tà> and the postvocalic dental fricative in the hieroglyphic inscriptions of the Bronze Age: compare the graphic variants EMİRGAZİ 1A §§7, 16 *sà-ka-la-tà-* versus KUB 35.108+ 19 *ša-kal-da-*, reflecting the same stem, /skalda-/, “to scratch” (Rieken and Sasseville 2019, 524–30), or the personal name TONTRUS-*tà-mi* = Tarhuntami (phonetically, possibly [tarxundami-]), attested on the Hattusa and Emar sealings and in the HANYERİ inscription (cf. Weeden 2013, 78). For the likely reading /da-/ of the Hittite verb “to give,” see Rieken 2015, 221; Yakubovich 2020, 232.

11 Mark Weeden (personal communication) indicates a possibility that the Akkadogram *UMMA*, literally “thus,” had been used for a while as an equivalent of Hittite *ūk=za*, “I am,” at the beginning of texts attributed to the king. But even if this was the case, one can still attach sociolinguistic significance to the abandonment of this artificial convention harking back to the traditions of Akkadian literacy in favor of the written formula that had a close counterpart in hieroglyphic texts.

12 The pioneering readings of Laroche (1970) have been fully confirmed by the recent study of the NİŞANTAŞ inscription involving the technology of three-dimensional scanning (Bolatti-Guzzo et al. 2017, 33).

13 A representative selection of royal sealings from Hattusa is published in Herbordt, Bawanypeck, and Hawkins 2011.

cuneiform legend on the periphery, while the content of the two legends is usually identical or nearly identical. Given that the content of the matching texts is restricted to personal names and titles, it is impossible to say whether they were meant to be read in two languages. An additional dimension of reconstructing the structure of scribal communities in the Kingdom of Hattusa is the problem of waxed wooden boards (GIŠ.HUR, ^{GIS}LE-U₅), which were in use but have not survived with texts on them. It is likely that at least some of these boards were inscribed with hieroglyphs, for otherwise a separate profession of “a scribe on wooden boards,” attested in Hittite texts, would make little sense (Waal 2011, 22). Furthermore, the special styli made for the purpose of writing on wooden boards are markedly different from the usual cuneiform styli (Cammarosano 2014, 77). On the other hand, there is evidence for cuneiform tablets’ being collated with GIŠ.HUR and ^{GIS}LE-U₅ (cf. Waal 2011, 26b, and §5 below).¹⁴

The facts addressed in this section flesh out the settings within which the scripts in use in Bronze Age Anatolia could mutually influence each other. Naturally, these facts do not constitute proof of such influence, which can be reached only based on empirical analysis of the relevant texts. The three case studies pertaining to the potential effects of digraphy (biscriptalism) in particular ancient Anatolian communities constitute the topic of the rest of this chapter.

3. INVERTED THEONYMS

The impact of the Mesopotamian cuneiform writing system on Anatolian hieroglyphic inscriptions is most evident in cases in which one finds copying of the word order that is limited to combinations of heterograms. It is well known that noun phrases in Hittite written texts can branch in both the left and right directions, meaning that the syntactic dependents can both precede and follow their heads. When the Hittite noun phrases are syllabically written, the left-branching word order is the norm. Curiously, when Sumerographic, Akkadographic, or the complex heterographic phrases appear in Hittite cuneiform to represent the Hittite language, they usually show the right-branching word order. This tendency reflects the imitation of the right-branching pattern that characterizes noun-phrase syntax in both the Sumerian and Akkadian languages.¹⁵ The discrepancy between the two word-order patterns in Hittite texts can be illustrated with the help of the following example:

14 Compare the approach of Gordin (2015, 209–13), who suggests that one should distinguish between the spurious Sumerogram (pseudo-Sumerogram) ^{GIS}LE.U₅, designating a wooden writing board, and the Sumerogram GIŠ.HUR, referring to the specific format and/or genre of the tablet rather than its material.

15 It is crucial that we are dealing here with the copying of a syntactic pattern, as opposed to the transfer of frozen Sumerian and Akkadian noun phrases (though such a transfer may have represented the starting point for the further analogical spread of the phenomenon under discussion). This conclusion follows from the lack of combinatory restrictions on heterograms in right-branching constructions, as well as the extension of the right-branching word order to noun phrases with pseudoheterograms/stem-forms (see the following section).

(1) KUB 43.28 ii 6 (OS) (Neu 1980, 154)

MUNUS.LUGAL-aš	A-‘NA’	É	ᵀIŠKUR	pa-iz-zi
queen.NOM.SG	ALL	house	Storm-god	go.PRS.3SG

“The queen goes to the house of the Storm-god.”

Here the phrase ANA É ᵀIŠKUR, consisting of Sumero- and Akkadograms, presumably renders the Hittite combination *Tarḫunnaš parna*. In Hittite, the name of the Storm-god *Tarḫunna-* in the genitive case precedes its head-noun, *pēr/parn-*, “house,” while the syntactic relationship of the phrase to the rest of the clause is expressed by means of the allative ending *-a* attached from the right to the stem for “house.” In contrast, the Sumerogram for “house” precedes the Sumerogram for “Storm-god,” while the Akkadographic preposition ANA, attached to its left edge, expresses the directional function of the phrase.¹⁶

A similar state of affairs is attested in Luwian cuneiform texts. Here the dominant way of expressing possessive relationship in a noun phrase was not by using a construction with the genitive case, as would normally be done in Hittite, but instead by using a construction with the possessive adjective. Nevertheless, possessors conventionally precede their head-nouns in Luwian inscriptions (as they do in Hittite). For example, the complex divine name *ti-ya-am-ma-aš-ši-iš* ᵀUTU-za, “Sun deity of the Earth” (KUB 35.45 ii 26 [Starke 1985, 153]) features the possessive adjective /*tiyammassis*/, derived from /*tiyamm(i)-*/, “earth,” which is attached from the left to the noun ᵀUTU-za = /*tiwats*/, agrees with its head-noun in number and gender, and copies its case. Any attested deviations from this tendency are lexically or pragmatically conditioned (Bauer 2014, 240–70). Therefore, one has to assume that the heterographic phrase ᵀIŠKUR AN, “Storm-god of Heaven,” embedded in the Luwian clause in example 2, likewise has to be inverted and read as /*tappassassis tarhunts*/, where the epithet precedes the theonym proper:

(2) KUB 35.133 ii' 27 (NS) (Starke 1985, 280)

a-a=wa	ᵀIŠKUR	AN
PTCL=PTCL	Storm-god	sky
tu-ú-iš	UD.KAM-iš	ta-at-ta
thy.NOM.SG.C	day.NOM.SG	arrive.3SG.PRT

“[Now], Storm-god of Heaven, your day has arrived.”

Hittitologists normally operate on the assumption that the Sumero- and Akkadograms in Hittite texts were read and dictated in Hittite and therefore would not have been heard (Hoffner and Melchert 2008, 22). This state of affairs is, of course, expected; otherwise the very notion of “heterogram” would have made little sense. Limited evidence from orthographic errors suggests, however, that certain scribes could pronounce Sumerograms and Akkadograms in Sumerian and Akkadian, which would make them similar to learned

16 The account of this paragraph naturally represents no more than the first approximation. For the more complex heterographic construction, which involves both right- and left-hand branching, see Lorenz and Rieken 2012. The less frequent left-branching constituents tend to be preceded in such cases by the Akkadographic particle ŠA, e.g., KUB 20.2 iii 7–8 A-NA ŠA ᵀUTU URU A-ri-in-na GISBANŠUR-i, “to the table of the Sun-goddess of Arinna.” The additional complication of this case is the double case marking on the head-noun (Akkadogram ANA and the phonetic complement).

loanwords in the respective idiolects (Weeden 2011, 333–36). For example, the spelling *A-NA PA-NI IA-BI-RAD-DA* instead of the expected **A-NA PA-NI A-BI-RAD-DA* (KUB 19.41 ii 19) suggests that the Akkadogram *PANI* was dictated, and its phonetic merger with the following personal name triggered its misperception. The problem becomes even more acute in the instance of the right-branching word order in heterographic noun phrases, which are fairly frequent in Hittite texts. Their interaction with second-position clitics in Hittite texts seems to suggest that the scribes did occasionally dictate these syntagms as right-branching constructions, though it is unclear whether they pronounced them in such cases in Sumerian, Akkadian, or Hittite (Kudrinski 2016).

Yakubovich (2010) argued for the ongoing language shift from Hittite to Luwian in Hattusa in the thirteenth century BCE. In view of this hypothesis, a question worthy of a separate investigation is whether the moribund character of New Hittite could contribute to its syntactic interference with languages of written tradition. To be consistent in turning heterographic right-branching noun phrases into their Hittite left-branching counterparts, the scribes must have processed texts as finite-state machines rather than word-by-word. This procedure is the expected one if a trained specialist translates into his native language, but if the target language has been imperfectly learned, the syntactic calquing of source-language constructions becomes more likely. (For the potentially related phenomenon of partial restructuring in New Hittite triggered by the calquing of Luwian morpho-syntax, see Rieken 2006).

A rather different scribal attitude emerges from an analysis of those Luwian texts that are attested in cuneiform transmission. The majority of these texts are Luwian magical incantations embedded in Hittite rituals. Unlike Hittite, Luwian was not considered a literary language within the context of cuneiform literacy, and the relevant passages were merely recorded from Luwian speakers for the sake of their ritual efficacy (Yakubovich 2010, 280–81). There was little incentive to retain Sumero- or Akkadograms in such texts for traditionalist reasons, since there had been no tradition of recording Luwian incantations in Akkadian. As a consequence, the heterograms in them are generally few and far between and mostly deployed as a sort of shortcut in lieu of the longer Luwian equivalents, not unlike the use of Latin abbreviations in modern English texts. As for the rare phrases consisting entirely of heterograms, their use appears to be limited to the lexicon reflecting the official religious life in Hattusa—for example, *LUGAL KUR^{URU}HAT-TI*, “king of [the land] of Hattusa,” ^d10 AN, “Storm-god of Heaven,” or *EN SISKUR/EN SÍSKUR*, “patron of the ritual.”¹⁷ Therefore, it seems probable that the scribes in charge of editing Luwian incantations were ultimately responsible for the insertion of such terminology.¹⁸

The adaptation of the Sumerographic noun phrase *EN SISKUR* (with the variant *EN SÍSKUR*) demonstrates that, at least in Luwian texts, the right-branching syntax in this phrase was indeed only seen but not heard. In examples 3 and 4 below, and in all the

17 For the complicated question of whether the combination *KUR^{URU}HAT-TI* can alternatively be transliterated *KUR^{URU}HAT-TI* and translated simply as “Hattusa,” see Kudrinski 2017 and n. 27 below.

18 The most common heterographic phrase in Luwian texts is *EN SISKUR/EN SÍSKUR*, “patron of the ritual.” One can hypothesize that the oral performance of the rituals contained references to the names of specific patrons—names that were replaced with the generic reference based on the available Hittite model. A blessing formula running closer to the original state of affairs is KBo 13.260 iii 16–20, “Then, to this *za-tu-pa²-ti²* child [(she) calls his name], let them bring life, *wayahid-*, strength [and] virility.”

other instances where the head-noun EN, “lord” (or its Akkadographic equivalent *BE-EL*, “lord”) appears without phonetic complementation, it *precedes* its syntactic dependent SISKUR = Luwian /malhass(a)-/, “ritual,” thus displaying right-branching word order typical of Sumerian and Akkadian noun phrases. But once a phonetic complement on EN is present—as in examples 5 and 6, where it is *-an* and *-aš*, respectively—the word order is automatically adjusted to the Bronze Age Anatolian left-branching pattern. As becomes apparent when comparing examples 4 and 5, the order of constituents is not affected when SISKUR is accompanied by a phonetic complement.¹⁹ The completely mechanical character of this distribution, attested through the pool of sixteen left-branching noun phrases with complementation on the head-noun and twenty-one right-branching noun phrases without complementation on the head-noun, shows that the Luwian-speaking scribes felt no difficulties interpreting heterographic phrases with correct Luwian word order, even in those cases in which these syntagms were ultimately of foreign origin.²⁰

- (3) KUB 35.54 ii 39–41 (MS) (Starke 1985, 67)

a=ta		a[-ap-p]a		DINGIR.MEŠ-an-za	
PTCL=it.NOM		again		god.DAT.PL	
ŠA	EN	SÍSKUR	pár-ra-an	ni[-iš]	a-ú-i-ti
GEN	lord	ritual	before	PROHIB	come.3SG.PRS

“Let it not come again before the gods of the ritual patron.”

- (4) KUB 35.45 ii 21–22 (NS) (Starke 1985, 152–53)

ku-i-š=a-an		ša-aḫ-ḫa-ni-iš-ša-at-ta		ku-i-š=a-an
who.NOM=he.ACC		restrain.3SG.PRT		who.NOM=he.ACC
ip-pa-tar-ri-<iš>-ša-at-ta	EN	SÍSKUR-aš-ši-in		
distrain.3SG.PRT	lord	ritual.POSS-ACC.SG.C		

“Whoever restrained him, whoever distrained him, the patron of the rituals . . .”

19 Compare the situation in Hittite cuneiform texts, where the phonetic complementation on the syntactic dependent frequently triggers left-hand branching in the noun phrase; for example, KBo 3.4+ i 21 SAG.UŠ-aš A-NA EZEN₄.H.A, “to the regular festivals” (Lorenz and Rieken 2012, 76). Hittite and Luwian share the rule according to which phonetic complementation on the head-noun triggers the left-hand branching (cf. Weeden 2011, 33).

20 Hittite phrases that represent calques of Akkadian idiomatic expressions headed by *bēl*, “lord,” or perhaps sometimes reflect further extension of the same model within Hittite, are collected in Dardano 2012, 399. An additional member of this list is Akkadian *bēl niqē*, literally “lord of the offering,” which commonly occurs in Hittite rituals in Sumerographic form EN SISKUR (Hoffner and Melchert 2008, 14). There is no doubt that this expression, which idiomatically refers to the commissioner and/or patient of Hittite rituals, was somehow pronounced in Hittite, but the precise Hittite equivalent of SISKUR remains thus far unknown. If this term represents a learned borrowing, then one cannot exclude that it was originally borrowed as a Sumerogram, while its Hittite reading varied in its individual instantiations. The Luwian equivalent of this term likewise may represent a backward translation of the Sumerographic expression, though in this case the standard equation SISKUR = /malhass(a)-/ is beyond doubt.

- (5) KUB 35.48 ii 14–15 (NS) (Starke 1985, 155)

ku-i-š=a-an	ša<-ah>-ḥa-ni-eš-ša<-at>-ta	[(ku-i-š=a-a)]n
who.NOM=he.ACC	restrain.3SG.PRT	who.NOM=he.ACC
i-ip-pa-tar-ri-eš-ša<-at>-ta	SISKUR.HI.A-ši-in	EN-an
distrain.3SG.PRT	ritual.POSS.PL-ACC.SG.C	lord.ACC.SG

“Whoever restrained him, whoever distrained him, the patron of the rituals . . .”

- (6) KUB 32.9+ obv. 16 (MS) (Starke 1985, 87)

[i-li-i]l-ḥ[a-]i=t[i]	ma-al-ḥa-aš-š[a-aš-ši-iš	E]N-aš
wash.3SG.PRS=3SG.REFL	ritual.POSS-NOM.SG.C	lord.NOM.SG
ta-pa-ru	da-a-ta-ri-ya-ma-an [. . .]	
t.ACC.N	curse.ACC.N	

“Let the ritual patron wash [it away]: *tabaru*, curse . . .”

At this point one can turn to the evidence of those Luwian texts that are attested in hieroglyphic transmission. As usual, the Anatolian hieroglyphic texts faithfully reflect the left-hand branching of the Luwian noun phrases, as in the combination (DEUS)*ku*+AVIS SACERDOS-*sa*, “priest of Kubaba,” mentioned in the previous section. The exception is the rendering of certain complex divine names. There is no doubt that the Luwian divine epithets normally preceded the associated nouns, both in the cuneiform, as in KUB 35.107+ iii 10 ^{URU}*Ta-ú-ri-ši-iz-za-aš wa-aš-ha-az-za²-aš²* ^dLAMMA-*aš*, “very holy Tutelary Deity of Taurisa” (Starke 1985, 238), and in hieroglyphic transmission, as in TELL AHMAR 2 §2 |*ha+ra/i-na-wa/i-ni-i-sa*(URBS) (DEUS)LUNA+*MI-sa* = /harranawanis armas/, “Moon-god of Harran” (Hawkins 2000, 1:228). This construction reflects the standard Luwian word order, which naturally did not depend on the writing system. But in the early Luwian hieroglyphic inscriptions emanating from the Kingdom of Hattusa, we occasionally encounter a different syntax, as illustrated by the following blessing formula:

- (7) EMİRGAZİ 1B §29 (cf. Hawkins 1995, 88
- ²¹
-)

*a-wa/i-na	(DEUS)SOL	SOL+RA/I	(DEUS)TONITRUS
PTCL=PTCL=him.ACC	Sun-deity	Arinna	Storm-god
CAELUM	CERVUS ₃ .DEUS.L463-ti	(DEUS)MONS.THRONUS	
sky	Stag-god of the Countryside	Mount.Sarpa	
á-(FEMINA.DEUS)L461	su-na-sa-ti	PUGNUS-mi-tu	
Ala	fullness.INSTR	strengthen.3SG.IMPV	

“Let the Sun-goddess of Arinna, Storm-god of Heaven, Stag-god of the Countryside, Mount Sarpa, and [the goddess] Ala fully strengthen him.”

21 For the identification of (DEUS)MONS.THRONUS as Mount Sarpa and á-(FEMINA.DEUS)L461 as the goddess Ala, see Forlanini 1987. For the identification of CERVUS₃.DEUS.L463-*ti* as Stag-god of the Countryside, see Hawkins 2004. It is not certain, however, whether he was known to the kings of Hattusa as /immarassis (K)runtiyas/, /Immara-(k)runtiyas/, or simply /(K)runtiyas/.

We expect that the Luwian names of the Sun-goddess of Arinna and the Storm-god of Heaven began with the epithets, just as was the case of the Tutelary Deity of Taurisa and the Moon-god of Harran. The name of the Sun-goddess of Arinna is, unfortunately, not attested in the first millennium BCE, but the Storm-god of Heaven remains fairly popular in the Neo-Hittite period and shows the expected left-branching word order (e.g., KARKAMIŠ A11b §9 CAELUM (DEUS)TONITRUS-*sa* [Hawkins 2000, 1:103]). On the other hand, the right-branching spellings on the EMİRGAZI blocks are by no means isolated in the late second millennium BCE. Thus the theonyms (DEUS)SOL SOL, “Sun-goddess of Arinna,” (DEUS)TONITRUS *HATTI*, “Storm-god of Hattusa,” and (DEUS)TONITRUS EXERCITUS, “Storm-god of the Army” occur in SÜDBURG §2 (Hawkins 1995, 22). The ÇAĞDIN inscription reads (DEUS)TONITRUS TONITRUS(URBS), which can be identified with the Storm-god of Tarhuntassa (thus Hawkins 1995, 32), Storm-god of Kummanni (cf. Oreshko 2016, 260–61), or perhaps another town with the established cult of the Storm-god. The main part of the NIŞANTAŞ inscription, commissioned by Suppiluliuma II, still lacks a definitive edition, but its publication will reveal additional right-branching divine epithets. In all these instances, the head-nouns that precede their syntactic dependents are spelled without phonetic complements, as was the case in the heterographic phrases in examples 3 and 4 above.

Thus, the evidence at hand leaves no doubt that the Luwian hieroglyphic texts of the fourteenth and thirteenth centuries BCE were characterized by a peculiar graphic convention of spelling divine names. Its origins are not difficult to guess if we remember the heterographic cuneiform combinations such as ^dIŠKUR AN, “Storm-god of Heaven,” ^dIŠKUR ^{URU}HATTI, “Storm-god of Hattusa,” and ^d10 KARAŠ, “Storm-god of the Army.” All these theonyms occur in the Hittite or Luwian texts of the same period, but not afterward, because the collapse of the Kingdom of Hattusa marked the end of cuneiform literacy in Central Anatolia. It stands to reason that the Late Bronze Age hieroglyphic scribes adopted the cuneiform convention of arranging logographically written theonyms according to the rules of Sumerian and Akkadian syntax. This copying had nothing to do with linguistic interference: the cuneiform evidence suggests that the Luwian scribes always read the heterographic combinations in the correct left-branching word order, while resorting to the transposition of written elements wherever necessary. The process of copying must instead have reflected the familiarity of Hattusa hieroglyphic scribes with the conventions of cuneiform literacy. In other words, we are dealing with a graphic-interference phenomenon, which could be seen but not heard. The hieroglyphic phrase (DEUS)TONITRUS CAELUM, “Storm-god of Heaven,” was built on the model of the cuneiform phrase ^dIŠKUR AN, but both were read as /tappassassis Tarhunts/, “Heavenly Storm-god.”

The proposed episode of graphic interference may not be isolated. Late in the preparation of our essay, we came across the following observation concerning Anatolian hieroglyphic determinatives: “It may also be significant that determinatives used to show a relative proximity to determinatives attested in Hittite cuneiform, i.e. there may have been a level of influence between the two writing systems used by the imperial administration. Such influence may be at the root of two post-positioned A[natolian] H[ieroglyphic] determinatives, URBS and REGIO” (Payne 2017, 223). The contrast between the unusual placement of these two signs and the regular placement of other classifiers in front of the word they classify is apparent in the above-mentioned ÇAĞDIN inscription (DEUS)

TONITRUS TONITRUS(URBS). The Anatolian cuneiform likewise features, albeit rarely, the post-posed determinative ^{KI} (Weeden 2011, 273–74). Therefore, the post-position of (REGIO), a close functional equivalent of ^{KI}, may indeed represent a graphic calque from the cuneiform. Observing that the glyph <REGIO> represents the reduplicated form of <URBS>, Payne (2017) advances an additional hypothesis that the position of (REGIO) influenced the position of (URBS) in the Anatolian hieroglyphic script.

4. STEM-FORMS

A salient feature of Old Assyrian texts is the frequent use of indeclinable proper nouns, whether they are of Akkadian or Anatolian origin. While some Old Assyrian names, for example Imd(i)-ilum or Šu-Anum, could be declined, the majority of them, such as Puzur-Aššur or Pušu-ken, had no inflectional forms (cf., e.g., Hecker, Kryszat, and Matouš 1998, 379–403). The presence of indeclinable proper nouns clearly represents a feature shared by Old Assyrian with other Akkadian dialects (cf. Ungnad 1969, §39c).²² In this instance, there is no doubt that the stem-forms of the respective names were both seen and heard. The presence of numerous stem-forms in Old Assyrian texts naturally implies that the prepositions frequently functioned as the main exponents of syntactic relations. For example, the text Prag I 716 contains the symmetrical formulae *um-ma Šu-ma-li-bi-ì-lí-a-ma a-na A-šur-ma-lik-ma*, “thus (says) Šumma-libbi-ilija to Aššur-malik” (lines 7–8, 23–25) and *um-ma A-šur-ma-lik-ma a-na Šu-ma-li-bi-ì-lí-a-ma* (lines 13–15), “thus (says) Aššur-malik to Šumma-libbi-ilija,” where the preposition *ana* constitutes the only segmental marker of the addressee function.

The extension of the same indeclinable pattern to Anatolian proper nouns suggests that the members of the Old Assyrian epigraphic community treated them as loanwords. The grammar of the Akkadian language offered them a choice between assigning the borrowed lexemes to the three-case declension and treating them as indeclinable stem-forms. The first strategy was adopted in the instance of the borrowed appellatives, which were frequently but not universally provided with the additional *-nn-* suffix of disputed origin (Dercksen 2007, 42). The inflection was also extended to certain geographic names, notably nominative *Bu-ru-uš-ḫa-tu[m]*, genitive *Bu-ru-uš-ḫa-tim* (Hecker, Kryszat, and Matouš 1998, 404), which corresponds to the toponym *Purushanda*, attested in later Hittite sources. But the majority of place names and nearly all indigenous personal names were rendered as stem-forms, as in example 8 below. A necessary licensing condition for this pattern of transfer was the abundance of indeclinable proper nouns in the inherited stratum of Old Assyrian onomastics.

²² A cross-dialectal minimal pair that can well illustrate this phenomenon is Akkadian *šamšu-*, “Sun,” versus *Šamaš*, “Sun-god.” For the complex Hittite heterogram ⁴UTU-AŠ, where the Akkadographic complement ultimately reflects Akkadian *Šamaš*, see Kassian and Yakubovich 2004. Guido Kryszat (personal communication) informs us that in a few cases the Old Assyrian names had both inflected and indeclinable variants—for example, *Lāqēp* vs. *Lāqēpum* (*-im/-am*).

(8) ICK III 57 4–7 (Hecker, Kryszat, and Matouš 1998, 372)

Ḫa-pu-a-šu	Ḫi-iš-ta-aḫ-šu-šar	a-bu-um	um-mu-um
Hapuasu	Histahsusar	father.NOM.SG	mother.NOM.SG
Wa-li-a-ša-zu	Ku-nu-wa-an	a-ḫu-šu	
Waliasazu	Kunuwan	brother.NOM.SG-his	
be-tám	pu-ḫu-ur	uš-bu	
house.ACC.SG	as.a.group	live.PRT.3PL	

“Hapuasu [and] Histahsusar, father [and] mother, Waliasazu [and] his brother Kunuwan dwell in this house together.”

The shape of the stem-forms of borrowed origin requires a brief comment. The majority of the inherited Akkadian indeclinable nouns ended in a consonant, so the Anatolian nouns were also frequently truncated up to the last stem-consonant. For example, the second element of the female name *Ḫi-iš-ta-aḫ-šu-šar* cannot be separated from Hittite *haššušara-*, “queen” (nom. *haššušaras*), while the toponym known as *Kà-ni-iš/Ka-né-eš* in Old Assyrian transmission corresponds to Hittite *Neša*. Such an abbreviation process can be typologically compared with the English adaptation of commonly known Latin names, for example, Vergil/Virgil, Horace, or Ovid instead of *Vergilius*, *Horatius*, and *Ovidius*. In practice, however, the abbreviated forms may have caused difficulties of communication or protests from native speakers, in particular if they were too short or less common. Therefore, the alternative strategy of preserving the final stem-vowel, as in the male name *Ḫa-pu-a-šu* or the toponym *Wa-aḫ-šu-ša-na*, was also frequently deployed. The borrowings of such a shape are reminiscent of Sanskrit personal names and titles in English transmission—for example, Buddha, Manu, or Panini.

The overall phonetic character of the Old Assyrian script implies that the stem-forms of Anatolian proper nouns do not represent a mere graphic convention but must have been pronounced as such by Akkadian native speakers. At the same time, it is reasonable to expect that the Anatolians integrated in Old Assyrian society could display occasional interference with the grammar of their native dialects. And indeed, the tablet Kt 88k/713, exceptionally featuring *-s* attached to the borrowed *a*-stems, bears witness to the Anatolian background of its scribe (Kryszat 2007, 239). In the passage below, <áš> can be understood as a Hittite genitive ending, but later in the same text we find Kt 88k/713 28–29 *Tù-ut-ḫi-li-áš i-za-bi-il₅*, “Tudhaliya will deliver,” where <áš> clearly renders a nominative marker.

(9) Kt 88k/713 1–3 (Donbaz 1993, 145)

KIŠIB	Na-ki-li-e-et	DUMU	[Ša-al-ku-a]-ta-áš
seal	Nakiliet	son	Salkuata
KIŠIB	Šé-er-wa-ta-[ar]	a-ḫu-šu	
seal	Serwatar	brother.NOM.SG-his	
KIŠIB	[Ša]-al-ku-a-ta-áš	KIŠIB	Lá-[ba]-ar-na-áš
seal	Salkuata	seal	Labarna

“Seal of Nakiliet, son of Salkuata, seal of Serwatar [who is] his brother, seal of Salkuata, seal of Labarna . . .”

The comparison of Old Assyrian texts with the later Akkadian texts emanating from the Kingdom of Hattusa reveals a nontrivial resemblance in the treatment of proper nouns. The personal names and titles usually appear in stem-forms in Akkadian texts from Hattusa even in those cases where their appearance can cause syntactic confusion, thus making them structurally similar to Sumerograms without phonetic complements. The obvious alternatives leading to syntactic disambiguation would be treating them as inflected Akkadian loanwords or deploying the Anatolian inflection, as in example 9 above, but none of these devices was commonly in use. Thus the Akkadian version of the Annals of Hattusili I features several occurrences of the Hittite royal title *tabarna-* as an indeclinable form.

(10) KBo 10.1 obv. 1 (Devecchi 2005, 34)

LUGAL	GAL	ta-ba-ar-na	i-na	^{URU} KÙ.BABBAR-ti
king	great	Tabarna	in	Hattusa.GEN
LUGAL-ut-ta		i-te-pu-uš		
kingship.ACC		do.PERF.3SG		

“Great King, Tabarna, exercised kingship in Hattusa.”

(11) KBo 10.1 obv. 13 (Devecchi 2005, 38)

LUGAL	GAL	ta-ba-ar-na	na-ra-am	^d UTU
king	great	Tabarna	darling.CONSTR	Sun-god
< ^d UTU>	a-na	šú-ú-ni-šu	iš-ku-un-šu	
Sun-god	to	lap.GEN-his	place.PRT.3SG-him.ACC	

“Great King, Tabarna, beloved of the Sun-god, <Sun-god> placed [him] on his lap.”

In this case, it is impossible to know whether the stem-forms such as *ta-ba-ar-na* in examples 10 and 11 were pronounced as such, because we do not know whether the Akkadian texts were commonly read aloud in the scriptorium of Hattusa. The more meaningful question is whether they had any counterpart in spoken Hittite. The Hittite version of the Annals of Hattusili I gives contradictory clues: the counterpart of *ta-ba-ar-na* in example 10 is KBo 10.2 i 1 [*ta-ba-ar-]na*’, but *ta-ba-ar-na* in example 11 corresponds to the nominative form KBo 10.2 i 27 ‘*ta-ba-ar-na*’-aš. Clearly, the first form cannot be dismissed as a scribal error, because there are other contexts where the stem-form *ta-ba-ar-na* occurs in royal titles at the beginning of Hittite narratives. The *Chicago Hittite Dictionary* (L–N:42) refers to such forms as “Akkadographic” but transcribes them as genuine Hittite forms. It is important to stress that *ta-ba-ar-na* is placed in example 10 next to a Sumerogram—LUGAL.GAL, “great king.”

The problem outlined above is not limited to a particular royal title or in general to personal names and titles. Both the Akkadian and Hittite texts from Hattusa also contain a great number of toponyms written as stem-forms. For example, the Hittite counterpart of the proleptic noun phrase in example 11 is KBo 10.2 i 27 LUGAL.GAL ‘*ta-ba-ar-na*’-aš NA-’RA-AM ^dUTU ^{URU}A-ri-in-na, “Great King, Tabarna, beloved of the Sun-goddess of Arinna.” Here the stem-form of the toponym *Arinna* is placed after the Sumerogram for the Sun-deity, running afoul of the standard Hittite left-branching word order but finding numerous parallels in the structure of other phrases involving stem-forms. One of the

relevant types, namely LÚ^{URU}X, “man of [the town] X,” is discussed in detail by Weeden (2011, 291–98), who concludes that it usually corresponds to the Hittite left-branching combination with the dependent noun in the genitive case. Here one can again observe that the stem-form in Hittite context follows a string of Sumerograms.

Another common instantiation of the same phenomenon comprises the proper nouns used in the function of indirect objects and accompanied by Akkadian/Akkadographic prepositions. It is crucial that the use of stem-forms in such constructions frequently occurs in both Akkadian and Hittite texts from Hattusa. Thus, in the examples below, the Akkadian version of the Annals of Hattusili I renders both the starting point and the goal of movement as stem-forms governed by prepositions, while its Hittite counterpart replaces the first one with the ablative case noun but retains the second one. It is important to observe that here the preservation of stem-form goes hand-in-hand with the retention of the Akkadographic preposition (even though it is different from the preposition used in the Akkadian version).²³

- (12) KBo 10.1 obv. 8–9 (Devecchi 2005, 36)

iš-tu	URU	kà-ka-li-iš	a-na	URU	Tí-iš-ḫi-ni-ia	al-lik
from		Ikakalis	to		Tishiniya	go.PRT.1SG

“From Ikakalis I went to Tishiniya.”

- (13) KBo 10.2 i 18–19 (de Martino 2003, 36)

URU	I-ka-ka-la-az=ma	I-NA	URU	Ta-aš-ḫi-ni-‘ya’	pa-a-un
	Ikakal.ABL=but	in		Tashiniya	go.1SG.PRT

“From Ikakal I went to Tashiniya.”

For the sake of fairness, one must add that the use of stem-forms with Akkadographic prepositions in Hittite texts is not entirely limited to the rendering of proper nouns. Occasionally, though less frequently, this practice is also attested with the appellatives—for example, KUB 30.15+ obv. 4 *IŠ-TU la-ap-pa*, “with the tongs,” presumably the equivalent of ablative *la-ap-pa-az* (Weeden 2011, 12). The stem-forms of appellatives also occur after numerals and alternate in this position with regular singular and plural forms, depending on the numeral (Rieken 2013, 323). A particularly striking case is 3 *wa-ar-pu-wa*, “three washbasins” (KBo 18.161 rev. 7), discussed in connection with example 17 below. Since the numerals are always written as Sumerograms in Hittite texts, this case can again be subsumed under the more general category of stem-forms occurring next to heterograms.

The treatment of Hittite stem-forms in secondary literature was not uniform. Friedrich (1960, §345) referred to their inflection as “*akkadisierend*,” and this theoretical stance finds its practical counterpart, for example, in Oettinger 1976, Starke 1985, and Weeden 2011, where the Hittite stem-forms are transcribed as Akkadograms. Miller (2013) likewise transcribes the stem-forms in italic capitals but prefers to separate their individual signs by dots rather than hyphens, thus distinguishing them from true Akkadograms. The

23 Compare Kudrinski and Yakubovich 2016, 62–63, for the general preference toward the use of *INA*, as opposed to *ANA*, with toponyms in New Hittite, and Cajnko 2017 for the discussion of Akkadographic prepositions as elements conveying an additional level of functional distinctions beyond those rendered by the case system of spoken Hittite.

graphic explanation of stem-forms is also considered one of the options in Zeilfelder 2001, 150, though the extension of the vocative case is offered there as a viable alternative. On the other hand, the phonetic reality of Hittite stem-forms, at least in their use in naming constructions and for certain subjects, is advocated in Neu 1979, 180–85 (and by a number of other scholars whose views are quoted in this chapter). The special naming construction featuring a bare nominal stem is also postulated in Hoffner and Melchert 2008, §16.15. Patri (2007, 93–94) even suggests a special grammatical term, *onomastif*, for the endless case deployed in such constructions, acknowledging that it is particularly common with proper nouns.

It seems, however, clear that if the whole class of Hittite stem-forms can be uniformly explained as a graphic phenomenon, there is no need to make a special exception for the naming construction, which is not associated with special case-forms in other Indo-European languages.²⁴ The likely reason the naming construction shows a predilection for stem-forms is that they usually co-occur there with the Akkadogram *ŠUM*, “name” (e.g., KUB 24.10 i 10 *Ap-pu ŠUM-an-še-et*, “Appu [was] his name”). In fact, Craig Melchert now explicitly gives up the phonetic reality of stem-forms in this environment, and he even cites an example where the nominative case is spelled out in a naming construction (KBo 15.37 i 21 *ŠUM-ŠU E-ri-pu-uš-ki-iš* [Melchert 2017, sub 242]).

A positive argument against the phonetic reality of Hittite stem-forms is the complete absence of a comparable phenomenon in other Anatolian Indo-European languages, including those transmitted in cuneiform. Thus the Palaic texts contain more than twenty occurrences of the royal title *tabarna-*, but none of them is a bare stem (cf. Carruba 1970, 73). The structure of complex theonyms in Luwian texts has been addressed in the preceding section, and we have seen that neither the post-position nor the stem-forms of divine epithets is attested in phonetically spelled Luwian phrases.²⁵ As for the stem-forms of indirect objects with Akkadographic prepositions in Hittite texts, there is a structural argument for their status as pseudoheterograms. Akkadographic prepositions, such as *A-NA*, *I-NA*, and *IŠ-TU*, rarely occur in front of declined Hittite nouns (cf. example 13 above),²⁶ but they are common with Sumerograms—for example, *A-NA LUGAL*, “to the king,” and *I-NA É.GAL*, “to the palace.” The consistent use of these prepositions with indeclinable proper nouns suggests that the Hittite scribes grouped them together with heterographic expressions, just as Frank Starke and Jared Miller did through their transliterations. Finally, the most common toponym occurring in Hittite texts, namely, *Hattusa*, is usually replaced

24 The only freestanding endless forms of the common gender that can be justified for Hittite on comparative grounds are some vocatives, but the Hittite vocative forms are provided with the ending *-e* in the *u*-declension (Hoffner and Melchert 2008, §4.47). Even in the instance of the *a*-declension, there is variation between the vocatives in *-a* and *-i* (Hoffner and Melchert 2008, §4.2). Therefore, the Hittite vocatives as a class are not formally identical to stem-forms.

25 The obvious exceptions here are compound personal names, which frequently feature the stems of divine epithets, including toponyms, mostly as their first components but sometimes as their second components. For typical patterns of such onomastic compounds, see Yakubovich 2013, esp. 98–108.

26 This generalization is not absolute; compare, for example, KUB 17.36+ i 11 *ŠA LÜ.MEŠ a-šu-ša-a-la-aš* versus KUB 17.36+ iii 4 *A-NA LÜ.MEŠ a-šu-ša-a-la-aš* (Neu 1980, 120, 123), where the Akkadographic prepositions are apparently used for disambiguating oblique plural forms, and the presence of the complex Sumerographic determinative *LÜ.MEŠ* facilitates their exceptional use.

with its Akkadographic equivalent *ḪA-AT-TI* after Akkadographic prepositions or in other indeclinable contexts (Weeden 2011, 247).²⁷

It is probably fair to say that the current vagueness in the treatment of Hittite stem-forms is mainly due to the lack of clarity regarding the origin of this category. Indeed, why on earth would the Hittite scribes systematically replace the proper nouns of their own spoken language with petrified bare stems? The problem appears to lack a solution as long as one considers the Hittite cuneiform texts in isolation. But the typological comparison with Old Assyrian cuneiform sheds more light on the picture. Here the use of uninflected Anatolian proper nouns merely represents a logical extension of the preexisting contrast between uninflected Akkadian proper nouns and inflected Akkadian appellatives. The question is how to turn this typological comparison into a credible hypothesis about the historical origin of Hittite stem-forms.

One point that is fairly obvious is that the cuneiform script of Hattusa does not represent a genetic descendent of the Old Assyrian script. Such a claim could be easily falsified by referring to the radically different shapes of many signs. But another assumption, which is perhaps not universally accepted but is gaining ground, is that Akkadian was the main written language in Hattusa until approximately the mid-fifteenth century BCE (cf. §2). This possibility could mean in practice that the Old Assyrian conventions of rendering Anatolian proper names as stem-forms could be independently replicated in Hattusa in the Akkadian scribal milieu of the seventeenth and sixteenth centuries. The licensing condition for this adaptation pattern consisted in the abundance of indeclinable proper nouns in peripheral Old Babylonian, just like everywhere else in Akkadian in the same period.²⁸

If one accepts this hypothesis, then the stem-forms of Hittite texts have the same explanation as the Sumero- and Akkadograms in the same corpus: they represent heterographic spellings carried over from the local Akkadian texts. After the scribal community in Hattusa shifted to Hittite, all these heterograms, including stem-forms, could be seen but no longer heard, except perhaps occasionally in the scribal jargon. Nevertheless, the overall conservative character of the Anatolian cuneiform favored the preservation

27 Although Weeden (2011) consistently transliterates *ḪATTI* as an Akkadogram, he actually entertains two mutually exclusive hypotheses regarding the synchronic status of this form: (1) an Akkadogram for Hattusa (either city or state) versus (2) an indeclinable Hittite word for the kingdom of Hattusa. Since the other instances of indeclinable toponyms are treated by Weeden as stem-forms, it seems that the only possible origin of the Hittite stem **hatti-* could be Akkadian. But the additional dimension of this problem is the alternation between *ḪATTI* and *Ḫattusa-* with reference to the same entity (Weeden 2011, 244–45). Furthermore, Kudrinski (2017) has presented arguments in favor of the more general claim that in the majority of cases the combination *KUR*^{URU}*X* has the same Hittite reading as *URU*^{URU}*X*, while the sign <*KUR*> is systematically used for graphic disambiguation. Therefore, the assumption that the Hittite speakers deployed a special Akkadian loanword for designating the Kingdom of Hattusa appears to be unnecessary, though one naturally cannot exclude that the element *ḪATTI* was occasionally pronounced as such in the scribal jargon. Mark Weeden (personal communication) informs us that he has now independently embraced hypothesis (1) (cf. also Kryszewski 2017).

28 As mentioned above, the specific Alalakh origin of peripheral Old Babylonian scribes who came to Hattusa can no longer be regarded as probative, but the corpus of Alalakh VII tablets can still be treated as a typical representative of the peripheral Old Babylonian dialects of North Syria. The survey of the relevant personal and place names indexed by Wiseman (1953, 125–57) indicates that the majority of them were indeclinable. Note also that some Anatolian proper nouns are attested as stem-forms in a Mari text from the time of Zimri-Lim (Weeden 2011, 245 with n. 1105).

of stem-forms, as was also the case with the other heterograms. We have seen that stem-forms in Hittite texts are usually retained in those cases where they occur next to other heterograms. Since Sumerographic determinatives also represent a species of heterograms (cf. §2 above), the likely additional reason for the retention of proper nouns as stem-forms was their frequent co-occurrence with determinatives ^{m/f} for personal names, ^d for theonyms, or ^{URU} for towns.²⁹

Under the simple scenario proposed above, there is no need to assume any influence of the Old Assyrian phonetic stem-forms on the development of scribal conventions in Hattusa. This option, however, is not the only one. On the one hand, the transmission of the Deeds of Anitta provides an independent suggestive argument for the contacts between the Old Assyrian and Old Babylonian scribal communities in Asia Minor (cf. §2). On the other hand, it is important to keep in mind the sociolinguistic differences between the two communities. The Assyrian merchants maintained constant ties with their homeland in Upper Mesopotamia by virtue of their trade, and the setting of a merchant colony was conducive to the maintenance of Old Assyrian as a spoken language even in the instance of mixed marriages. Whether or not the cuneiform scribes who came from Syria to Hattusa had a native command of Akkadian is unclear, but even if they did, that was clearly not the case for their local disciples. Without an external incentive, the Akkadian scribes of Hittite origin would have been unlikely to truncate the proper nouns of their own language and deploy artificial stem-forms.³⁰ A more natural approach would have been to generalize the nominative form, as happened, for example, to Iranian proper nouns in Elamite transmission, recorded mostly by the native Iranian scribes in Achaemenid chanceries.³¹ In fact,

29 In individual cases, the use of stem-forms could also represent an escape strategy when dealing with loanwords. Thus the epithet of the Storm-god *piḥaššaš(š)i*, the personal god of Muwattalli II, is usually spelled as nominative *piḥaššaš(š)iš*, accusative *piḥaššaš(š)in*, but the stem-form *piḥaššaš(š)i* is used in lieu of the other cases (CHD, P:256). The probable reason for this distribution is that, etymologically, /pihassass(i)-/ represents a Luwian possessive adjective. Its declension in the nominative and the accusative is similar to that of the Hittite forms, but in the oblique cases the endings are quite different. The written use of the stem-form instead of the oblique forms presumably helped the Hittite scribes avoid the dilemma between resorting to code-switching and deploying the artificial Hittite forms with no counterparts in the spoken language.

30 An example of native proper nouns' being persistently corrupted in the circles of the literati is the use of Latin in medieval and later Europe. Thus the sources published in England feature "Oliverius Cromwellus," "Oliverius Cromvellus," and "Olivarius Cromwell" as the Latin rendering of "Oliver Cromwell" (https://la.wikipedia.org/wiki/Oliverius_Cromwellus). In this case and similar ones, however, one can argue that the addition of Latin inflectional endings was triggered by the necessity to decline the respective lexemes. A putative parallel for such a situation would have been retaining the declined form *Burušhatum* in Akkadian texts from Hattusa, but this retention is precisely what did not happen.

31 For the concise morphological description of Iranian names in Achaemenid Elamite transmission, see Mayrhofer 1971, 313–14. Some of the Iranian stems are morphologically ambiguous, but *i*- and *u*-stems offer clear evidence in favor of the nominative interpretation; see, for example, *Ba-ak-tar-ri-iš/Ba-ak-tur-ri-iš/Ba-ik-tur-ri-iš*, "Bāxtriš/Bactria," or *Mar-ku-iš*, "Marguš/Margiana" (Tavernier 2007, 25, 28). The ethnolinguistic composition of the Achaemenid Elamite scribal community is most recently discussed in Henkelman 2011, 586–87. Mark Weeden (personal communication) reminds us that the nominative forms of Hittite names also frequently appear in Egyptian hieroglyphic transmission. Furthermore, he suggests that Hurrian personal names, whose absolute case form is formally indistinguishable from the stem-form, may have played a role in the functional extension of the stem-form in Anatolian cuneiform texts.

example 9 above shows the exceptional implementation of the same strategy when an Old Assyrian scribe of native Anatolian origin declined to follow the standard conventions.

The alternative scenario would imply that when the scribes who had been imported from Syria had to decide how to deal with local proper nouns, they drew on the preexisting convention of the Old Assyrian cuneiform. The isolated character of this horizontal transfer need not surprise us, because it was the one feature where the Syrian scribes arguably could not draw on their previous expertise. One must specify that if it did take place, the scribes borrowed only the general convention, not the specific stem-forms. The allure of this writing convention, hallowed by time, could have precluded the scribes from generalizing any case form attested in Hittite. On the contrary, they further generalized the use of stem-forms, as suggested, for example, by the replacement of the declined toponym *Burušhatum* with the stem-form *Purušhanda*.³²

5. SIMPLIFIED ORTHOGRAPHY

The development of the Anatolian hieroglyphic script was a gradual process. The corpus of texts that were assuredly composed in the fourteenth century BCE consists of the short legends on the seals of the Hattusa royals predating Muwattalli II (whose representative selection is found in Herbordt, Bawanypeck, and Hawkins 2011, 108–24). The analysis of this corpus reveals an inventory of hieroglyphic logograms, deployed for rendering both proper nouns and appellatives, and phonetic signs, normally reserved for the stems of proper nouns. The inflectional endings were left unmarked, and the relevant legends could, in principle, be read in either Luwian or Hittite.

The discussion of the early hieroglyphic texts took on a new dimension in the light of suggestions to redate the SÜDBURG inscription to the reign of the mid-fourteenth-century Hattusa king Suppiluliuma I (Klinger 2015; Oreshko 2016).³³ This hypothesis now remains *sub judice*, and a number of scholars recently voiced their support of SÜDBURG's traditional dating to about 1200 BCE (Melchert 2018; Mora 2020; Weeden 2020). Whatever is the outcome of this discussion, it highlighted the unusual features of this reasonably long text, which belongs to the genre of the royal *res gestae*. Its language is clearly Luwian, but its orthography displays marked differences from the other longer Luwian hieroglyphic inscriptions attributed to Hattusa kings, such as EMIRGAZI or YALBURT. It predominantly consists of logograms, but even in those cases where individual forms are written

32 This graphic borrowing episode naturally cannot be proven. A devil's advocate could argue, for example, that the peripheral Old Babylonian cuneiform was used for a while in the border area between the Semitic and Anatolian languages before coming to Central Anatolia. The sociolinguistic conditions in such an environment could be similar to those of Old Assyrian trade colonies and, therefore, could trigger the same pattern of systematically truncating the Anatolian proper nouns to their stem-forms. But as long as the relevant texts remain unknown, they cannot be used as arguments in empirical research. In this sense, the Old Assyrian cuneiform texts occupy a unique position as a typologically parallel corpus that features Hittite stem-forms in large quantities, regardless of whether this tradition represents a source of areal influence on the cuneiform conventions of Hattusa.

33 An important argument advanced for the fourteenth-century date of SÜDBURG is the shape of the sign <PURUS>, which resembles its representation on the seals of Suppiluliuma I but not in the texts attributable to Suppiluliuma II (Klinger 2015, 104; Payne 2015, 83–84; for a different view, cf. Hawkins 1995, 19).

syllabically, in whole or in part, they usually remain devoid of inflectional endings. This orthography is consistent with the conventions of seal legends but renders the translation of the SÜDBURG inscription a truly daunting task, as can be illustrated with the help of the passage in example 14; its interpretation as provided below is quite different from the available alternatives, not only at the level of individual lexemes but also with respect to the postulated syntactic structure and clause division.³⁴ The Luwian speakers must themselves have experienced comparable difficulties: the passage under discussion does not feature a single grammatical morpheme! One way of accounting for this state of affairs is to suppose that the SÜDBURG inscription was for meant the gods, whose reading abilities were deemed superior to those of ordinary humans.

(14) SÜDBURG §11 (§§14–15 according to Hawkins 1995, 22)

PURUS.FONS.MI	MAGNUS.REX	ali-wa/i-ní	á-INFRA.KA
Suppiluliuma	Great King	enemy	POSTP
CAPUT.VIR	TONITRUS(URBS)	REGIO	á-INFRA.KA
chieftain	(town)T.	LAND	POSTP/PREV
ARHA	CAPERE		
away	take		

“Suppiluliuma, Great King, [acting] against the enemy, removed the chieftain from the land of the town TONITRUS.”

Whether the application of Anatolian hieroglyphs in the fourteenth century BCE was confined to personal seals or also included an idiosyncratic royal inscription, one may doubt that such uses alone would provide sufficient incentive for the maintenance of a writing system for a long period of time. Therefore, claims have been made (notably in Waal 2011) that already by the fourteenth century BCE the hieroglyphic script had been extended to the economic texts written on wooden tablets. If such texts existed, they must have been characterized by the deficient rendering of inflectional morphology; otherwise, more advanced orthography would surely have been adopted for SÜDBURG. A salient parallel that can clarify the picture and is not that distant in time and space is the Linear B script of the Mycenaean palatial chanceries. The absence of notation for word-final consonants would automatically disqualify this graphic system from rendering the key oppositions of Greek nominal morphology (Bartoněk 2003, 165, 188). Nevertheless, Linear B was a perfectly functional tool within the narrow domain of formulaic economic documents (Bartoněk 2003, 85–94). The same can generally be said about earlier logographic scripts, such as proto-cuneiform, to the extent that the content of the relevant texts can be understood. Furthermore, one can offer a formal Anatolian parallel that appears never to have been discussed as such in the previous literature, namely, the Hittite inventory texts in cuneiform transmission.

34 Compare the alternative translations of the same passage: “Suppiluliuma, Great King, *Sun*(?), subject(ed), ‘Prince-man’ the land of the city Tarhuntassa subject(ed), took away” (Hawkins 1995, 23) and “Šuppiluliuma, Great King, set the frontiers between the *arawani*-ruler and the princes of the land of Kizzuwatna” (Oreshko 2016, 307).

We have seen in the previous section that the use of the stem-forms of proper nouns instead of case forms represents a common feature of Hittite written texts, which must have ultimately been transferred from Akkadian orthography. The Hittite compositions are consistent in deploying a number of Akkadograms, such as *ŠA*, *INA*, and *ANA*, as a compensation strategy for marking the syntactic functions of heterograms and stem-forms even in those cases where they appear to be contextually clear. A typical example is the New Hittite sentence below, which is taken from the Annals of Mursili II.

(15) KBo 3.4 ii 29–30 (cf. Kudrinski and Yakubovich 2016, 63)

nu	<i>I-NA</i>	^{URU} A-pa-a-ša	<i>A-NA</i>	URU- <i>LIM</i>
PTCL	LOC	(town) Apasa	DAT	town.OBL

ŠA	^m U-uh-ḫa-LÚ	an-da-an	pa-a-un
GEN	Uhḫa-ziti	into	go.1SG.PRET

“I entered Apasa, the town of Uhha-ziti.”

A salient exception to this state of affairs is the orthography of the Hittite palace inventory texts, where Akkadographic prepositions can be freely omitted at the whim of a scribe. Given that the majority of forms in these texts appear in heterographic transmission, the resulting difference in orthographic conventions is fairly significant. For example, *lalameš*, “receipt,” is provided with the nominative case ending in example 16, but the syntactic functions of the following two nouns are to be guessed from context. Particularly interesting are the orthographic conventions reflected in example 17, where *warpuwaš*, “washing vessel, bathtub”—the etymologically freestanding genitive of *warpuwar*, “washing”—was arguably not declinable in such a meaning. Nevertheless, the genitive ending -š is removed in writing after the numeral in this example, which turns the noun into a pseudoheterogram, but there is no overt indication of its function. Examples 18 and 19 show no marking of the syntactic relation between the container and its content, while in example 19 the source valence is also left without overt syntactic expression.

(16) KBo 9.91 obv. 1 (Kořak 1982, 24)

la-la-me-eš	^{TUG} hu-ni-pa	‘GABA’
receipt.NOM.SG.C	H.-cloth	breast

“Receipt [for] the *hunipa*-cloth [of/for] the breast.”

(17) KBo 18.161 rev. 7 (Kořak 1982, 104)

21	MA.NA	URUDU	3	wa-ar-pu-wa	3	wa-a[k-šur
21	mina	copper	3	bath-tub	3	clepsydra

“21 minas of copper [for] 3 bathtubs and 3 clepsydras.”

(18) IBoT 1.31 obv. 1 (Kořak 1982, 4)

1	^{GİS} PISAN	SA ₅	GAL	SÍG	ZA.GÌN	SA ₅
1	basket	red	large	wool	blue	red

“One large red basket [with] blue and red wool.”

(19) KBo 9.91 obv. 15 (Kořak 1982, 24)

la-la-me-eř	^{GIS} PISAN	^{KUR} MI-Iř-RI
receipt.NOM.SG.C	basket	Egypt

BI-IB-RI	KÛ.BABBRAR
vessel	white

“A receipt [for] the chest [from] Egypt [with] silver rhyta.”

Despite the simplified orthography of the palace inventory texts, their translation usually does not cause major difficulties. The Hattusa scribe could process the message “receipt; chest; Egypt; silver rhyta,” just as modern readers are capable of interpreting Excel spreadsheets or tabular invoices. Furthermore, the omission of Akkadographic prepositions in this corpus was not consistent. Thus *la-la-me-eř* ^{GIS}PISAN in KBo 9.91 obv. 15 follows *la-la-me-eř* řA ^{GIS}PISAN in KBo 9.91 obv. 5, while the structure of example 17 is clarified two lines later through KBo 18.161 rev. 9 [x MA.N]A URUDU A-NA 22 *wa-ak-řur*, “x minas copper for 22 clepsydras.” Incidentally, such deviations from the tabular format suggest that the texts under discussion were dictated as well-formed phrases, and perhaps could even be read aloud as such, if, for example, the keepers of the palace treasury had to report to the king or high-ranking officials.

The Hittite inventory texts represent one of the genres regarding which wooden boards are frequently mentioned. Thus the palace inventory texts published in Kořak 1982 refer five times to the collation with the ^{GIS}HUR and mention (^{GIS})LE-U₅ another three times. The inventory texts available to us generally date from the thirteenth century BCE, and the hieroglyphic texts they possibly refer to must be assigned the same date, because the waxed wooden tablets were meant for ephemeral messages. It seems, however, perfectly likely that the thirteenth-century hieroglyphic inventories retained simplified orthography of the previous century, because one can observe similar continuity in the instance of seals. While it is true that the orthography of thirteenth-century inscriptions, such as EMİRGAZĪ and YALBURT, shows considerable elaboration in comparison with SÛDBURG, this elaboration may have been prompted by the requirements of the genre, in particular if the SÛDBURG inscription was indeed regarded as a failed experiment.³⁵

Thus, at least in the thirteenth century BCE, the Hittite cuneiform texts with simplified orthography could have been copied from wooden tablets, and one cannot exclude the possibility that their hieroglyphic prototypes were recorded without inflectional endings. But does this hypothesis entail the explanation of the peculiarities of Hittite inventory texts through the orthographic conventions of their hieroglyphic *Vorlagen*? We must argue that although such a scenario cannot be absolutely ruled out, it is not the most likely possibility. To defend the opposite view, one would have to claim that Hittite simplified orthography represents a nontrivial phenomenon, as do the inverted hieroglyphic theonyms discussed in §3 or the stem-forms of proper nouns in Hittite texts addressed in §4. In fact,

35 For the residual stem-forms *tu-pi* in the EMİRGAZĪ and YALBURT inscriptions, see Rieken 2015, 222. On the other hand, one should observe that the Luwian formulaic economic texts of the first millennium BCE, in particular the KULULU lead strips (Hawkins 2000, 2:513), faithfully render the Luwian inflectional endings. In this case, however, one can hypothesize that the near-collapse of Anatolian civilization in the twelfth century BCE forced hieroglyphic literacy to pass through a “bottleneck,” which led to the abandonment of archaic styles.

the omission of certain syntactic markers in particular genres of written texts is perfectly natural. As a cross-linguistic parallel that should still be familiar to today's older generation, one can mention the telegram style. Since the telegraph companies charged customers per word or restricted the number of words within a given message, it was common practice to omit from telegrams prepositions and certain other forms, such as copulae, to optimize cost. As a result, telegrams frequently looked like gibberish to outsiders, though their content was usually clear to their addressees, who expected a message on a particular topic or were simply familiar with the specific conventions of the sender.³⁶

The motivation in our case must, of course, have been different and probably had to do with the economy of time and effort. The Hittite scribes in charge of compiling and processing the inventory lists probably formed a subgroup within the epigraphic community of Hattusa, which developed a special written style to optimize its task. In essence, this practice applies Grice's maxim of quantity: "give as much information as needed, and no more." As for the early Luwian scribes, they arguably omitted inflectional morphology in writing simply because they had been taught to do so. As long as rudimentary writing systems remained adequate communication tools within particular functional domains, there was no incentive toward further elaboration. In this case, the typological parallel between the orthographies of the Hittite inventory texts and the attested Luwian texts of the fourteenth century BCE should, preferably, be treated as an instance of purely formal resemblance. Accordingly, this resemblance cannot be used as an argument for reconstructing the existence of hieroglyphic economic texts in Hattusa in the fourteenth century BCE.³⁷

6. CONCLUSIONS

Within the context of the "Seen Not Heard" conference, it appears appropriate to summarize our results by way of indicating what could only be seen and what could also be heard among the contact phenomena discussed in this chapter. Reservations regarding the tentative nature of some of our conclusions are suppressed below for the sake of clarity. For more nuanced discussion, readers should consult the preceding sections.

The syntactic dependent normally followed its head in Sumerian and Akkadian nominal phrases, both in writing and in speech. The same word-order pattern was naturally

36 A better parallel here may be the omission of prepositions and articles in written Italian—for example, *ufficio stampa Juventus* instead of *ufficio stampa della Juventus*, "Juventus press office" or *Berlusconi minaccia caduta governo* instead of *Berlusconi minaccia la caduta del governo*, "Berlusconi threatens with the fall of the government." Such abbreviated writings can, in principle, be used by everyone but appear to be particularly common in certain types of texts, such as headlines and advertisements. The likely motivation here is increasing the amount of information to be processed by someone who is prepared to read only a very short message.

37 Michele Cammarosano reached similar conclusions in his monographic edition of Hittite cult inventories. He observes that, unlike palace inventories, they rarely feature simplified orthography, and he attributes this discrepancy to "the different degree of morphosyntactic complexity that characterizes the two genres" (Cammarosano 2018, 32). Since the cult inventories commonly describe the use of individual objects, sometimes in considerable detail, the omission of crucial syntactic information was more likely to render them unintelligible. It seems, however, unlikely that the Hattusa scribes would use two distinct protocols for recording luxury items, namely, using wooden tablets for the drafts of palace inventories but recording cult inventories directly on clay. If the complexity of cult inventories precludes the hypothesis of a hieroglyphic *Vorlage*, it also speaks against such a *Vorlage* in the case of palace inventories.

deployed when the Anatolian scribes were dictating or reading aloud the Akkadian texts. After Hittite became the main written language in Hattusa, the right-branching word order could be visually observed in heterographic (Sumero- and Akkadographic) noun phrases embedded in Hittite cuneiform texts. We assume that such expressions were commonly read in Hittite with the left-branching word order, which created a mismatch between the syntax of written and spoken texts. Nevertheless, in some cases, the Hittite scribes appear to have copied the right-branching syntax in their spoken jargon by either calquing the heterographic expressions or code-switching to Sumero-Akkadian. Thus the scribal jargon probably represented an interface between written and spoken Hittite. No comparable interface can, however, be observed in the instance of the Luwian texts transcribed in the cuneiform. Here the rare heterographic expressions could only be seen—and apparently never heard. Therefore, the appearance of right-branching complex theonyms in the Luwian hieroglyphic texts of the Bronze Age must be taken purely as instances of interference between scripts.

The stem-forms of Anatolian proper nouns are first attested in Old Assyrian texts. More frequently than not, their scribes were native speakers of the Old Assyrian dialect of Akkadian, and they must have processed Anatolian proper nouns as genuine loanwords. The pattern of their adaptation as indeclinable forms was presumably triggered by the indeclinable character of most Akkadian proper nouns and shared by the written and spoken language. In contrast, Hittite speakers did not make a morphological distinction between the proper nouns and appellatives; therefore, the stem-forms in Hittite texts could normally be seen but not heard. The common use of stem-forms in heterographic context in Hittite texts underscores their synchronic status as pseudoheterograms. The hypothesis that the graphic use of stem-forms for Anatolian proper nouns was ultimately adopted in Hattusa from the Old Assyrian scribal tradition deserves serious consideration, though the independent elaboration of the same convention in North Syria represents a viable alternative.

The simplified orthography that suppresses some or all grammatical information is attested in both cuneiform and hieroglyphic texts emanating from Hattusa. Although the two groups of texts may well sometimes have been processed by the same scribes, the historical origin of simplified orthography appears not to have been uniform. In the case of Hittite cuneiform, the convention of abbreviated writing was secondarily and perhaps deliberately adopted in the community of scribes responsible for inventory texts. In the case of the earliest hieroglyphic inscriptions, this convention was rather a natural stage in the development of the script and was maintained in certain genres where further elaboration was not required. Common to both practices, besides the general cognitive similarity between their effects, was that neither one of them could have a counterpart in spoken Hittite or Luwian.

We hope to have demonstrated that the study of coexistence and contact between scripts is conducive to raising nontrivial research questions and can on occasion even shed light on the structure of the extinct languages associated with the respective writing systems. Therefore, in addition to epigraphists, semioticists, and art historians, this field should also claim the attention of historical and contact linguists.

ABBREVIATION

CHD Hans G. Güterbock, Harry Hoffner, and Theo van den Hout, eds., *The Hittite Dictionary of the Oriental Institute of the University of Chicago*. Chicago: Oriental Institute, 1989–

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9

Iconicity, Composition, and Semantics: A Structural Investigation of Pictures in an Early Writing Environment

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1. INTRODUCTION

THERE IS GENERAL agreement that the invention of proto-cuneiform script, understood to occur at the site of Uruk in the late fourth millennium BCE, was embedded in a larger universe of visual images and symbols preserved on a variety of media. These media included, but are not limited to, hollow clay balls and clay tokens, numerical and numerical-ideographic tablets, and glyptic art in the form of cylinder seals (Nissen, Damerow, and Englund 1993; Woods 2010; Cooper 1990; Michalowski 1990; Dittmann 1986; Pittman 1994a, 1994b). The relationship between these visual and material symbolic forms and the invention of the script is complex and debated. Regardless of where one sits in that debate, however, there is no question that these distinct and different elements were used together in the same administrative environment to record economic and other information. In a conference titled “Seen Not Heard,” which engaged with the visual and nonlinguistic aspects of early writing systems, an examination of the imagistic evidence surrounding the emergent proto-cuneiform script was appropriate.

The practice of impressing imagery carved on stamp seals had great antiquity by the time proto-cuneiform appeared. Stamp seals were used from the Late Neolithic period, about 7000 BCE and onward (Duistermaat 1996; Rothman 2002; Pittman 2001; von Wickede 1990), to mark clay masses that secured containers with geometric patterns carried on stamp seals of various shapes, as well as with images of animals, most commonly horned quadrupeds. More rarely humans or humanoids, frequently wearing the horns of a goat, are attested. Accompanying these images were often “fillers” in the shape of vegetation, stars, and marks whose semiotic status is uncertain. Building on that small repertoire of imagery, by the Uruk period the role of images engraved on seals used for administration vastly expanded to include marking inscribed tablets, clay tags, and a variety of clay locking devices for mobile and immobile storage (Rova 1994; Pittman 1994b, 2013; Amiet 1972, 1985; Dittmann 1986, 2012). These images, carried on hundreds of seals, are preserved most frequently through their ancient impressions on clay. At an early stage in the administrative system before the appearance of proto-cuneiform script, many numerical tablets—and virtually all tags, hollow clay balls, container sealings, and door locks—were impressed

with seals. This profound expansion in the repertoire of visual imagery on seals and their proliferation just before the appearance of proto-cuneiform signs was certainly a response to the needs of an increasingly complex social, political, economic, and administrative environment.

In this chapter I shall argue that the imagery carried on the cylinder seals impressed on administrative documents served first and foremost to communicate within the domain of the complex and hierarchical economic messages relevant to the administrative content carried by the documents. This role for the imagery operated both for tablets and for all the other clay masses that were used to seal thousands of closing devices for mobile and immobile storage. Further, the message of the images was not first and foremost to identify individual responsible actors but instead to indicate that commodities or written records had been controlled by a responsible institutional agent and were directed to the specific economic domain for which they were relevant. The corpus of images for this communicative task was designed to be legible, consistent, and efficient. The imagery was fully developed at the time when the earliest stages of the proto-cuneiform script appeared and served as the semiotic forerunner of the transformative invention that linked mark to spoken utterance. Indeed, the images carried on the seals served as pictograms/ideograms before they began to be incised directly onto the surface of a clay tablet. While tokens may have been the forerunners of the archaic numbering system (Schmandt-Besserat 1992), seal imagery was a forerunner of script. As will be made clear, the images stored and transmitted information relevant to the economic administration in a manner and with a structure to a large degree parallel to the earliest stages of the proto-cuneiform script. These images and the writing system were developed in response to the same administrative pressures to meet complementary and overlapping communicative needs. When the writing system had developed to the point where it no longer needed images, as early as the Uruk III period, we see the beginning of a profound imagistic turn in which the imagery on the seals, their “scriptorial” nature, quickly and forever became “pictorial.”

The imagery was certainly developed in the context of large urban centers of the Uruk period in the southern alluvium of Mesopotamia and neighboring Khuzistan. As that culture expanded by planting colonies and outposts along the Tigris and Euphrates, the administrative system employing the seals carved with the imagery was introduced in centers that were participating in the system (Pittman 2013). This imagery and its use in administrative practice was shared across a very wide geographical zone and is indeed the most articulate material evidence (together with ceramic types) for the so-called “Uruk expansion.” Significantly, the proto-cuneiform script was not employed beyond a few southern Mesopotamian centers (fig. 9.1) (Algaze 2008; Stein 1999; Rothman 2001; Frangipane 2009; Pittman 2013; Butterlin 2003).

The most ubiquitous medium on which this newly invented imagery was carried, the cylinder seal, was, it seems, invented precisely for that purpose, namely, to carry a larger and more complex image repertory. As many have observed (Nissen 1977; Porada 1977; Brandes 1980a, 1980b; Amiet 1985; Le Brun and Vallat 1978), the cylinder seal provided a vastly larger surface on which to engrave imagery, and its shape allowed the engraved seal to be rolled across a pliable clay surface in a single motion rather than requiring multiple impressions with a stamp seal. This innovation provided a smoother motion through which the clay surfaces of various administrative devices were marked.

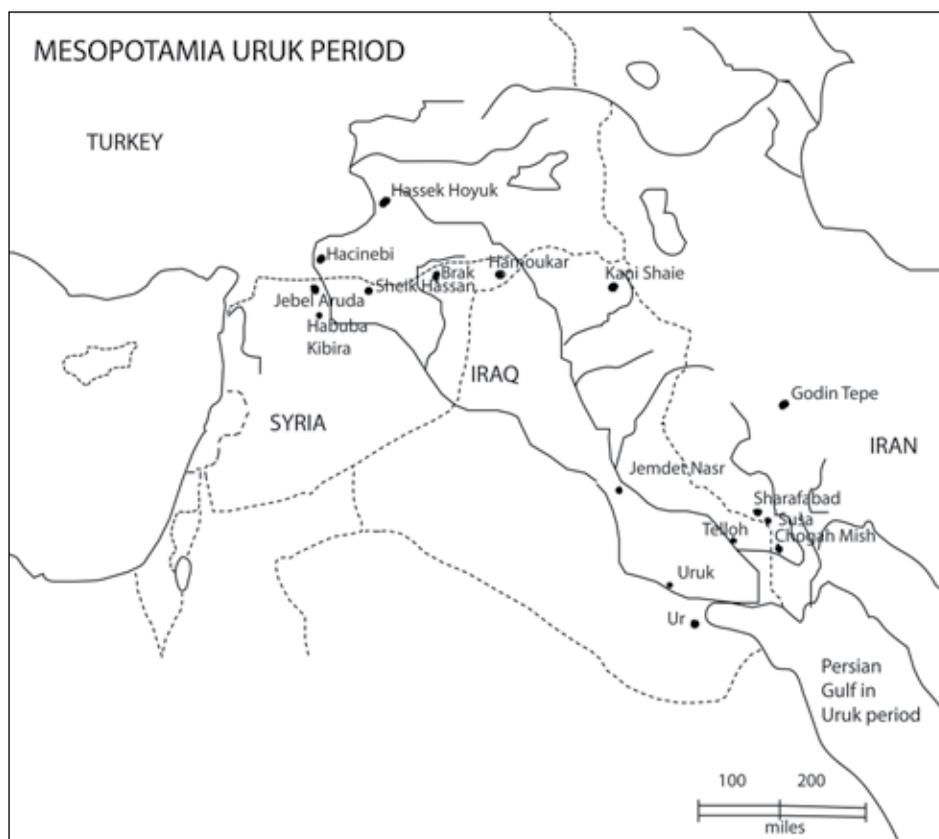


Figure 9.1. Map of sites with proto-cuneiform accounting systems.

As I have discussed elsewhere, the image repertoire carried on cylinder seals finds its origins in the stamp seals of the Late Chalcolithic 3 period (Pittman 2001, 2013) that are distributed at sites along the so-called “fertile crescent” zone surrounding the southern Mesopotamian alluvium.¹ While we are confident that the proto-cuneiform script was invented at the site of Uruk, we are far less certain of the location of the invention of the cylinder seal and, importantly, the location of the “invention” of the distinctive imagery carried on such seals. To judge from the evidence that is currently available, the earliest cylinder seals, large and carved in a distinctive “baggy style,” are documented “simultaneously” in Late Chalcolithic 4 (Middle Uruk period) contexts at Susa (fig. 9.2a) and Sharafabad (fig. 9.2b) in Khuzistan, and in colonial contexts at Tell Brak (fig. 9.2c) in northern Mesopotamia. Other examples of this style are known from southern Mesopotamia at Ur (fig. 9.2d), Uruk (fig. 9.2e), and Telloh, all in less well controlled contexts. What we can be confident of is that the cylinder seal and the expanded image repertoire it carried certainly preceded the appearance of the first proto-cuneiform signs at Uruk. What we can observe, in particular at Uruk, is that both the practice of impressing administrative documents and the imagery itself were directly affected by the invention of the script.

¹ Stamps seals of this period are notably absent from the Late Chalcolithic levels in the Mesopotamian alluvium while being very common and “advanced” in the closely proximate alluvium of Khuzistan.

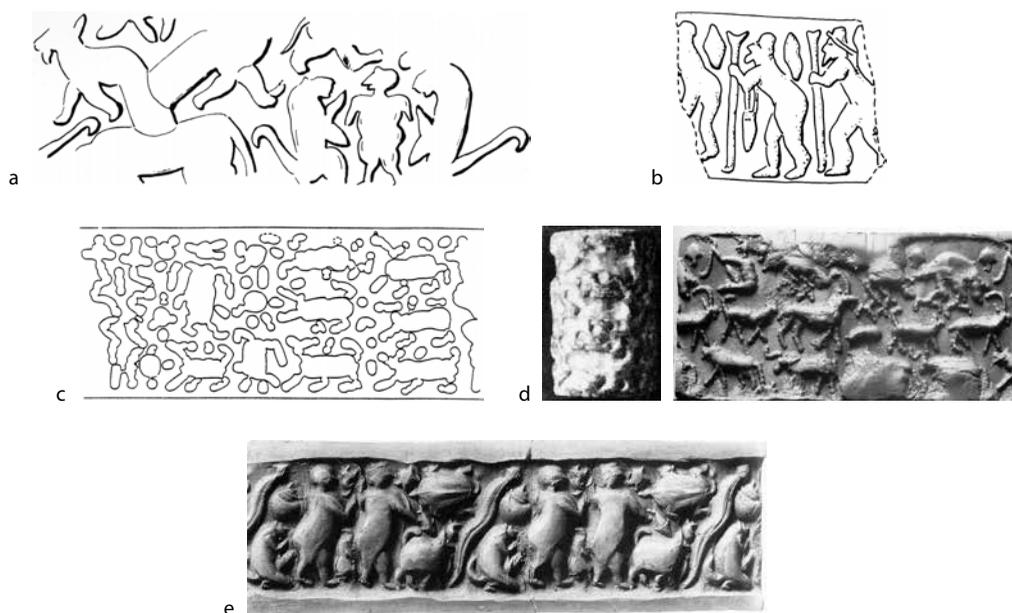


Figure 9.2. Early cylinder seals.

a. Drawing of seal impression carried on hollow clay ball. H 40 mm. Susa. After Amiet 1972, pl. 12:580; b. Drawing of seal impression carried on clay sealing. H 35 mm. Sharafabad.

After Wright, Miller, and Redding 1980, 279 fig. 6:8; c. Drawing of the imagery carved on a cylinder of white marble. H 46 mm. Tell Brak. Boehmer 1999, Abb. 113i; d. Photo of modern impression of a cylinder seal carved from white marble. H 88 mm. Uruk, White Temple, Anu Ziggurat. After Boehmer 1999, Tf. 104 Nr. 61c; e. Photo of modern impression of cylinder. H 48 mm. Uruk, White Temple, Anu Ziggurat. After Boehmer 1999, Abb. 76a.

Before the appearance of full-blown proto-cuneiform script,² the administrative system consisted of clay tokens, hollow clay balls, and tags, as well as container and door sealings, all impressed by the early cylinders. A short time later, small slabs of clay (tablets) were introduced that were impressed with numerical signs and sometimes with cylinder seals (Englund 1998). A final stage in this anepigraphic administration was the addition of one or two scratched graphs in combination with numbers and sometimes with seal impressions.³ This sequence of development is particularly well documented in the excavations of the Acropole I at Susa and within the poorly stratified material from that site (fig. 9.3a).⁴ The stage with the earliest graphs is also documented at Godin Tepe (fig. 9.3b).

2 The chronological relationship between the various *aides de mémoire* and the first script is still not clear because of the confounded stratigraphic situation at Uruk. Because Uruk is the only site at which the earliest phase of the script is documented, it is highly likely that the script was in use there at the same time as the hollow clay balls, and the numerical tablets were in use at other sites, including Habuba Kibira, Susa, and Chogah Mish (Englund 1998).

3 See Englund 1998 and Pittman 2013 for seals associated with those first signs.

4 It is uncertain whether or not these earliest scratches/graphs are part of the proto-cuneiform signary. Certainly in the case of the exemplars from Susa and Godin, it is unlikely that these scratches/graphs shared meaning with any proto-cuneiform signs known from Uruk, hence the term *graph* rather than *sign*.



← Figure 9.3. Numerical tablets with scratched signs.
a. Numerical tablet with scratched sign. H (tablet) 32 mm. Susa. After Amiet 1972, pl. 100:925;
b. Drawing of numerical tablet with scratched sign. H (tablet) 40 mm. Godin Tepe, Level VI. After Gopnik and Rothman 2011, fig. 4:43c, Gd 73-295.



Figure 9.4. Photo of numerical tablet impressed by cylinder seal on all sides and edges. H (tablet) 60 mm. Photo courtesy of Steve Renette (2016, 21).

Unfortunately, at Uruk—the only site where true proto-cuneiform script has been documented—the archaeological situation currently available does not allow us to control independently for the evolution of this administrative system. Therefore, we cannot yet know when, precisely, in that sequence the proto-cuneiform script appears (Amiet 1985; Le Brun and Vallat 1978; Schmandt-Besserat 1992).⁵ Apart from the proto-cuneiform script, all or parts of this administrative tool kit are documented beyond Uruk at Susa and Chogah Mish to the east; Godin Tepe in the Zagros mountains and Tell Asmar in the Diyala; Tell Brak and Hamoukar in the Jezira; and Habuba Kibira, Jebel Aruda, Sheik Hassan, Hacinebi Tepe, and Hassek Höyük on the Euphrates. In the east, new evidence has appeared at Kani Shaie (fig. 9.4) (Renette 2016) which complements that known from the Diyala and from Godin Tepe (Pittman 2013). On these anepigraphic documents, the images carved on the impressed seal carried the only information apart from quantity embedded in the

5 The sequence tokens–hollow clay balls–tags–square numerical tablets–rectangular numerical tablets–earliest graphs is clear in the Acropole 1 sounding at Susa. At Uruk it can only be inferred from the fact that all those stages are found in mixed and tertiary contexts at Uruk. See Boehmer 1999 and Englund 1998 for a detailed discussion of the evidence from Uruk.

documents themselves.⁶ An examination of the glyptic imagery used on these documents suggests that they must be essentially contemporary, so it seems the administrative system used in the Uruk diaspora did not need the additional level of recording provided by the nascent script that was necessary in the more complex bureaucracy of the Late Uruk period at Uruk (Sürenhagen 1993; Butterlin 2003).

The default interpretation assumed by many is that the seal imagery in the Late Uruk administrative system served as the functional equivalent of the signature of a sealing party in that person's role as administrator of the system. This interpretation was first promulgated by Hans Nissen at the "Seals and Sealings" conference held at the University of Chicago's Oriental Institute in 1975. Nissen (1977) asserted that the imagery carried on the more "expertly" carved seals must be understood in each case as uniquely recognizable and necessarily serving to denote individual actors for whom the image stood as official proxy in the administrative context. He believes that the community of users was small enough that everyone in the system could and would simply memorize the sometimes minute iconographic differences and be able immediately to recognize and distinguish each individual exemplar—even on clay impressions, which, notoriously, can often be difficult to read. The logic of Nissen's reconstruction requires that virtually identical seal images (having only minor differences) were meant solely to denote the controlling authority of two individuals. Good examples from Uruk are a half dozen seals with flying birds of prey separated by a twist pattern (fig. 9.5a–c). For Nissen, each of the images produced by the seals would be recognized as belonging to a distinct and identifiable individual; they would be accurately distinguished by an independent receiver of the visual image. In this reading, Nissen believes that the iconicity of the imagery, that is, the domain of reference indicated by the images themselves, played no necessary role in the primary message of the seal.

Nissen excluded the significant body of "schematic-style" seals, which include most prominently the so-called "pigtailed ladies" seals, from those he referred to as "naturalistic seals." He dismissed these seals as mass produced and apparently not having semiotic content capable of denoting individuals. At best he sees them as group identifiers. As will be developed below, these pigtailed ladies seals (as well as the other schematic seals) in fact belong squarely within the Late Uruk glyptic repertoire (see fig. 9.18 below), and their imagery obeys precisely the same iconographic rules as do the other more expertly carved naturalistic-style seals.

The earliest challenge to Nissen's proposal for interpreting the semantic domain of the Late Uruk glyptic imagery was made by Mark Brandes, who showed convincingly, in an analysis of designs he dubbed *Waffenkammer*, that it was most unlikely that different individuals would have been denoted by these almost-identical designs (Brandes 1979, 1980a, 1980b); rather, Brandes proposed, the Late Uruk seal imagery was intended to denote general categories of meaning immediately relevant to the administrative context—an economic or administrative sector or bureau, a relevant moment or activity in the cultic calendar, a marking of the origin or destination of administered goods—in the case of these virtually identical seal images impressed on tablets and sealings from Uruk. He interpreted

6 Given the nature of the numbering system, the domain of the commodity or item being counted was also included in the numerical mark (Englund 1998).

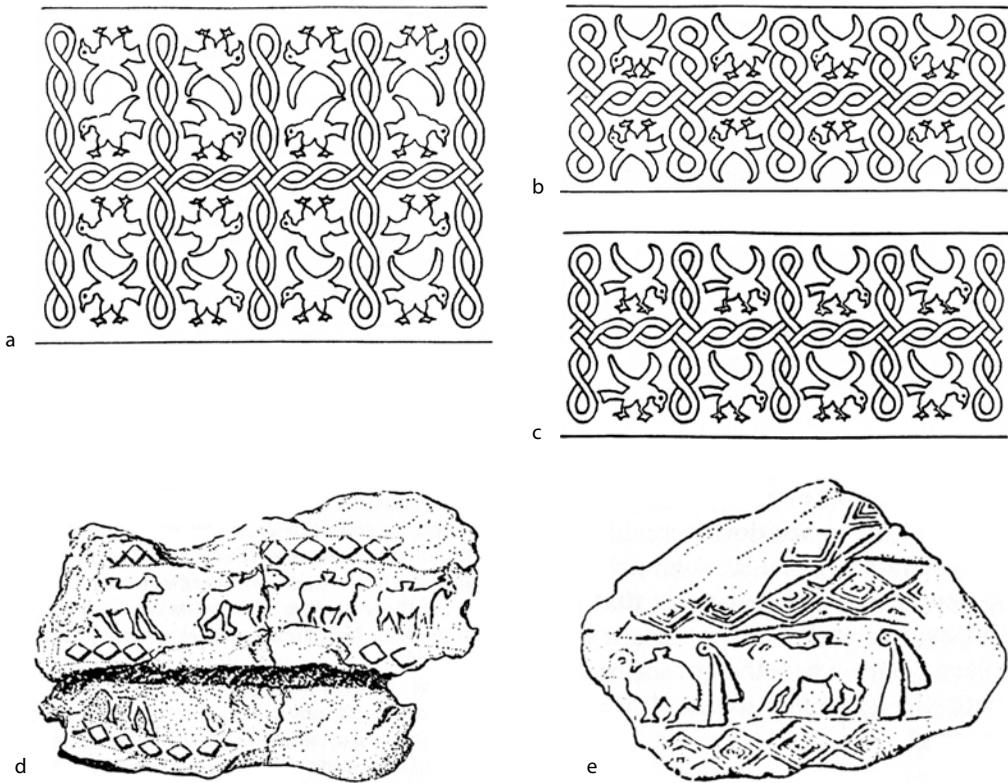


Figure 9.5. Late Uruk seal imagery.

a. Composite drawing of seal-impressed clay sealings. H 65 mm. Uruk. Eanna Va or Heidelberg collection. After Boehmer 1999, Abb. 68, 3–5 a–h; *b.* Composite drawing of seal-impressed clay sealings. H 40 mm. Uruk. After Boehmer 1999, Abb. 68, 3a–k; *c.* Composite drawing of seal-impressed clay sealings. H 40 mm. Uruk. After Boehmer 1999, Abb. 68, 2a–i; *d.* Drawing of seal-impressed clay sealing. H (sealing) 50 mm. Uruk. After Brandes 1986, 56 fig. 1; *e.* Drawing of seal-impressed clay sealing. H (sealing) 40 mm. Uruk. After Brandes 1986, 56 fig. 2.

another group of seal imagery as denoting particular commemorative events (fig. 9.5d–e) (Brandes 1986).

2. DITTMANN HIERARCHY CHARTS

In 1986, Reinhard Dittmann, following on Brandes's proposal for the meaning of the imagery, attempted to discern an administrative hierarchy in the Late Uruk glyptic repertoire based solely on seal iconography. Using impressions carried on hollow clay balls from Susa, he assigned images with depictions of the paramount ruler, temples, or heraldic composition to a high-status category, while he determined that other images referred to departments such as transportation, animal husbandry, manufacturing, and the like. His chart captures the range of themes in the repertoire: eight to ten major themes, most of them with dozens of variations (fig. 9.6a).

More recently, Dittmann (2012) expanded his investigation to include contemporary material from Chogah Mish, also in the alluvium of Khuzistan, producing administrative

documents precisely contemporary with those from Susa. With this added information, he now proposes to subdivide the Uruk administrative universe in Khuzistan into two large sectors (fig. 9.6b): *special* and *common*. In the glyptic imagery, he asserts that these sectors had identical hierarchical structure recorded in the seal imagery. He understands them to be differentiated by the presence or absence of a lion figure embedded within otherwise closely comparable or identical image compositions. While he offers no support for the denotative value of the lion as meaning “special” sector, he does observe the presence or absence of a lion in otherwise closely comparable compositions (fig. 9.6c). He assigns the semiotic value of that animal figure to the level of administrative sector (*special*) and allows the rest of the imagery to carry information relevant to the economic domain within each administrative sector. While such an interpretation remains hypothetical until we have independent evidence for the image of the lion as the marker for a particular sector, Dittmann’s observation and this line of inquiry does provide further insight into the rich visual imagery of the Late Uruk period.⁷ What is important in his contribution is the underlying assumption that the individual image elements in seal compositions carry information that was directly relevant to the administrative system.⁸ That meaning could be either symbolic or iconic/literal, but the presence or absence of a particular image was relevant to the message contained in the seal imagery. That is, lions were not sprinkled randomly into image compositions, nor were they added or excluded on purely aesthetic grounds. Their presence within the visual “text” carries a nonlinguistic, semantic value directly relevant to the individual administrative transaction. Further, the animal’s presence does not serve to identify any particular individual (as with Nissen’s notion that the naturalistic seals were personal signatures), but it provides a single element within the complex visual message—an element whose significance was understood through conventions shared by the users of the system, thus functioning in a role equivalent to a determinative in the cuneiform script. One question that needs further consideration is whether the lion, for example, carried the same semiotic value between individual administrative systems. Did the lion in the Chogah Mish seals have the same meaning at Susa or at Uruk? Is it possible that the administrations of both sites were coordinated and shared? This comparative analysis has yet to be done.⁹

Understanding the relationship between seal impressions and tablets impressed with proto-cuneiform signs also illuminates their vital function in storing and conveying information in the administrative system of the Late Uruk/Late Chalcolithic 5 period. The pattern that can be detected at all the sites where the glyptic and administrative material has been found is the frequent presence of seal impressions on numerical tablets as well as on the other administrative devices, including tags, hollow clay balls, and sealings used to secure containers as well as spaces. Only at the site of Uruk are seals impressed on tablets inscribed with proto-cuneiform script, and there only very rarely. At the same time, at Uruk seals continued to be impressed on noninscribed administrative tools, especially sealings

7 Most recently Dittmann (2018) has offered an analysis of the pigtailed ladies seal imagery within the economic administration of the Uruk period. This chapter addresses that analysis below.

8 I first made this argument in Pittman 1994b.

9 To judge from the comparative survey of seals, it seems that each system may have had its own internal logic.

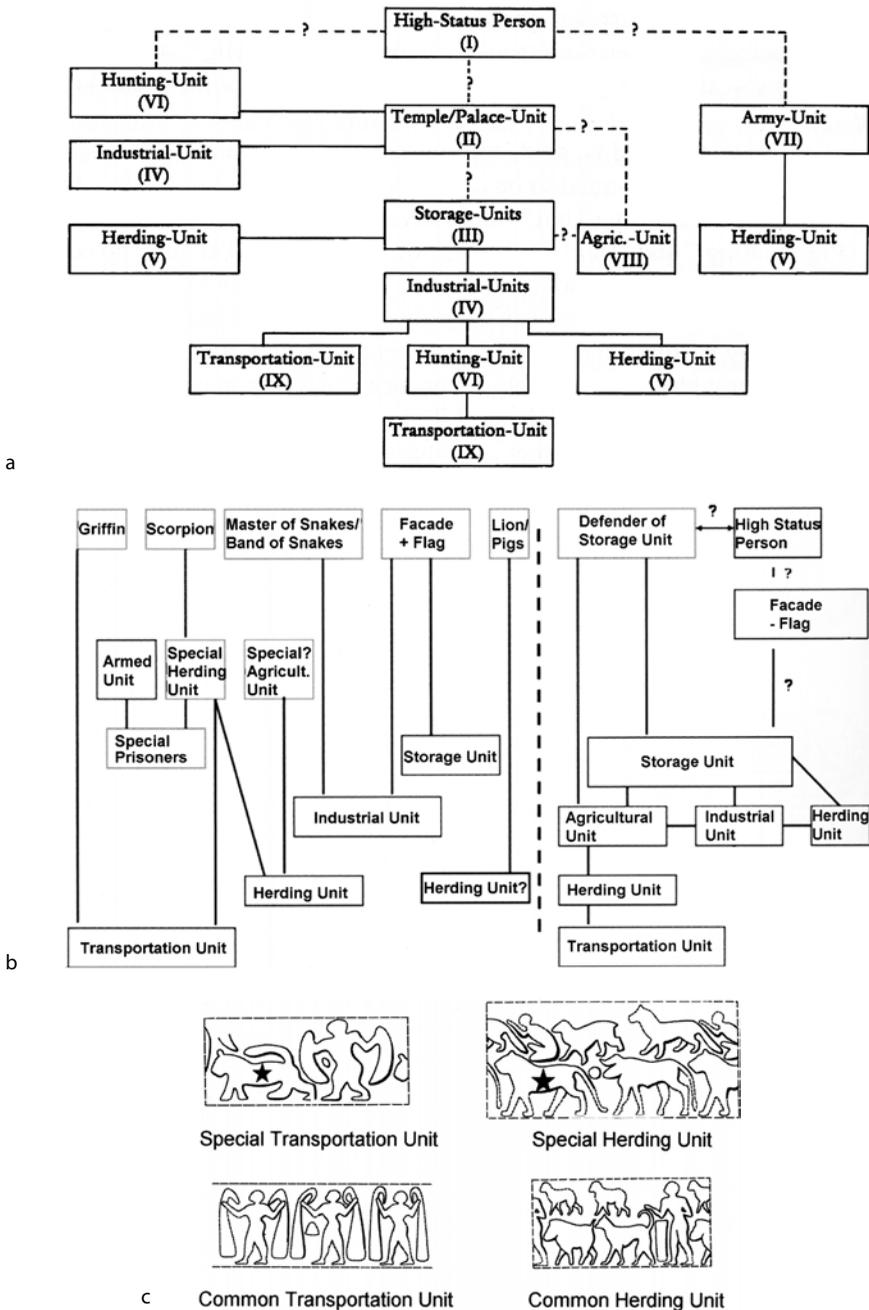


Figure 9.6. Late Uruk administrative hierarchy based on seal iconography. *a*. Chart reconstructing the administrative structure as seen through seal impressions from Susa. Dittmann 1986, 342 table 1. Reproduced with permission; *b*. Chart proposing the economic and administrative system at Susa in the Late Chalcolithic 3–4 period with division into Special and Common. Dittmann 2012, fig. 13. Reproduced with permission; *c*. Examples of drawings of seal impressions with and without lion figures. After Dittmann 2012, fig. 7. Reproduced with permission. Seal impressions from Chogah Mish. Delougaz and Kantor 1996, pls. 146C, 153D, 137C, 146A.

of a variety of containers as well as doors.¹⁰ This fundamental change in practice strongly suggests that the semiotic work being done by cylinder seal impressions on numerical tablets, and earlier on the hollow clay balls and fusiform tags, had shifted in response to the newly introduced semiotic technology of proto-cuneiform signs. Most commonly, the information carried by the inscriptions on the earliest economic tablets records commodity, quantity, and disposition.

The separation of cylinder seal impressions from inscribed documents remained the practice for more than a millennium. As with the Uruk examples, only very rarely are tablets of the Early Dynastic or Old Akkadian period seal impressed. Not until the Ur III period were cylinder seals again regularly impressed on economic documents (Steinkeller 1977; Hattori 2001). It is at *this* time that the impression of a cylinder seal can confidently be equated to the signature of an individual, usually the individual whose name and office was inscribed on the cylinder (Winter 1987). During the third millennium, the imagery carried by cylinder seals had been transformed multiple times in response to evolving needs and cultural preferences, as well as by advances in image-making technology.¹¹ The official seals of the Ur III period, issued by the royal court, all carried the name and title of the owner inscribed in cuneiform. In fact, when impressed on tablets, it was the inscription, not the imagery, that was given priority; it was the text on the seal that served to identify the owner in the capacity of a signature. Details of the imagery carved on those seals served to define the status of the official within the hierarchy of the royal court (Winter 1987; Mayr and Owen 2004). It is at this time that Nissen's notion that seals served to identify their owners is fully established.¹²

After their initial separation from the written economic documents with the appearance of the proto-cuneiform script, seals did not disappear; continuing to play an important role in the economic administration, they were impressed on clay locks on jars, baskets, and bags, as well as on door and wall sealings (Pittman 2013). Although we lack textual evidence, it is likely that beyond their administrative role, seals also served as markers of status or identity worn prominently by their owners. And the importance of material in ritual contexts would also suggest that they must have had symbolic and magical meaning associated with the material from which they were made. This role persisted through the Early Dynastic and Old Akkadian periods. By the second millennium, we have textual references to the amuletic and apotropaic meaning of seals (Collon 1987).

10 Only a small percentage of the Uruk IV/III tablets are impressed by cylinders.

11 I believe there is a close relationship between the development and uses of the cuneiform script and the development and uses of imagery during the long history of Mesopotamia down to the literary advances made by Assurbanipal, as shown through his annals and the imagistic advances made at the same time on the wall reliefs of his palaces at Nineveh.

12 It is necessary to appreciate that the ways in which images were stored and conveyed meaning changed over time. This feature is one that distinguishes images from signs in a written script. The meaning of the signs, whether logographic or phonetic, remained essentially stable throughout the life of the cuneiform script. It cannot be assumed that the meaning and the semiotic status of individual elements of imagery in the Late Uruk period were continuously maintained in an unbroken system of conventional understanding through millennia. Schools for iconography did not exist in the same way that scribal schools transmitted meaning and syntax.

3. HOW IMAGES CONVEYED MEANING DURING THE LATE URUK PERIOD: ICONICITY, COMPOSITION, SEMANTICS

Having long ago joined Brandes and Dittmann (Pittman 1994a, 1994b) in rejecting the argument that the imagery of the Late Uruk seals represented individuals *qua* individuals, and arguing instead that their imagery conveyed information about economic and administrative transactions (which could, of course, include the organizational domain of the user of the seal), I now turn to an examination of how images did that work, what the rules of composition were, and how the means of conveying meaning were different from or similar to signs used in the proto-cuneiform script.

Before engaging with details of Late Uruk seal imagery, it is useful to embed this discussion within the concept of “semasiographic notation” as developed by Margaret A. Jackson (2012) in her work on the visual cultures of the ancient Americas.¹³ Building on previous work that challenges the strong binary dichotomy between text and images, Jackson writes that semasiography “refers to those conventionalized systems of visual notation arranged primarily around nonphonetic principles of ordering whose overall meanings are derived from the spatial and/or performative relationship among the constituent elements” (Jackson 2012, 33). She goes on to say that the semasiographic “systems are distinguished from complex iconographies by their capacity to create and record new information” (Jackson 2012, 33). Important for her definition is that semasiographic systems are active participants, or “mediators,” within specific performative contexts. When applied to the Late Uruk period, that context can be understood as the administration of the economy centered on the distribution of goods and labor within a temple context. In such a context, it makes perfect sense that identical imagery could be used in more monumental contexts also embedded within the temple economy. As Jackson argues for the Moche images, imagery in the Uruk context could occupy “an intermediate place or position . . . that serves in some instances to mediate between parties to reconcile or bring about an accord or understanding” (Jackson 2012, 34).

Jackson identifies three distinct types of semasiographies within ancient American visual culture: *operational*, *narrative*, and *performance based*. The latter, exemplified by the Moche ritual culture, seems most similar to the case of Late Uruk glyptic imagery. As she describes, the “Moche visual culture is not composed of multiple unrelated motifs but instead its components are complementary parts of a system held together by ideologically informed agency(s). It combines multiple seemingly unrelated elements in ways that depend on broad cultural knowledge of participants for the construction of its deeper meanings” (Jackson 2012, 46). Moche imagery is primarily repeated in three interrelated venues: monuments, elite costume and performance arts, and liturgical arts. In the Uruk contexts, comparable venues would be commodity storage (sealings of commodities and storerooms), accounting activities (accounting on administrative devices such as numerical tablets and hollow clay balls and in other nonclosure contexts), and ritual paraphernalia (e.g., the Warka Vase) on which the motifs used in the seals were articulated into a full-blown iconic elaboration of the temple economy structure. Following Jackson’s model,

13 I thank Ilona Zsolnay for pointing me to this useful work relevant to our understanding of visual imagery of the seals under consideration here.

these three venues represent the “place, agency and vehicles associated with the broad cultural meta-narrative” (Jackson 2012, 47).

A first feature comparable to the Moche example is that the seal iconography of the Late Uruk period is restricted to a small number of themes that all refer somehow to the economy. Temple buildings, leaders, supervisors, workers, and the products of their labor dominate. Depictions show the commodities being produced (by pigtailed ladies, weavers, pot makers, etc.) or delivered; most distinctive are the scenes that show workers being controlled by a supervisor in front of a “scribe” (Pittman 1993). The messages communicated in the administrative record refer directly to those domains of production, distribution, and labor management, and they served to “mediate” within and between the various components of the administrative process. The ultimate end of that process is, of course, most completely rendered on the top register of the Warka Vase (see fig. 9.12 below), but the same event is denoted in shorthand icons on various seals known from Uruk (see fig. 9.11 below).

Another observable feature of the imagery invented in the Uruk period is the “uniformity” and “legibility” of the individual image elements. Shared with proto-cuneiform signs, this feature is consistent within the glyptic imagery while at the same time extending to comparable imagery carried across other media preserved to us.¹⁴ While there is no question that there is a range in the quality of the execution of an image, like signs in the proto-cuneiform script the fundamental elements of any image were consistently rendered according to established conventions. For example, when comparing the image of the paramount ruler (the so-called “priest-king,” most familiar from his depiction on the Warka stela of the hunt), all the fundamental features of hair, beard, and dress are present. When they are not, it is understood that a different individual or, as likely, a different role for the paramount ruler was being denoted, as is clearly illustrated on the Blau monuments, on the reverse of which the figure in the skirt is bald and beardless (fig. 9.7a–c). The same is true of other prominent image elements, including naked and bald men, pigtailed ladies wearing a knee-length tunic, working figures crouched with one knee raised, cattle, sheep, goats, temple structures, vessel types, and the like. While we may have trouble deciphering the original meaning of different image elements, it is not because they cannot be distinguished; rather, it is because they are not yet recognizable to us. Frequently, other images provide the key for our understanding. As will be obvious in our discussion of the pigtailed-lady imagery below, scholars do not disagree on discerning various image elements, but they do disagree on the individual interpretation of those elements. The reason for this disagreement lies in the definition of the “universe of meaning” carried by each seal type. Additionally, different scholars recognize individual image elements to be different things. But, as I argue below, these images should not be understood as “polyvalent” but instead, *in the context of their administrative use*, as denoting a certain object or idea/category that was used in the world of the Late Uruk universe.¹⁵ The key to resolving these problems of

14 Imagery on cylinder seals is found on much rarer objects, such as stone bowls, wall reliefs, wall paintings, and three-dimensional sculpture.

15 Of course there are “fantastic” depictions, such as the Anzu bird or the snake-headed lion. But even those images represented something specific to the Late Uruk community and therefore can be understood as “real.” There was a conventional understanding, which we have lost, that was shared among the



Figure 9.7. Blau Monuments.

- a.* Drawing of obverse of scraper. Green stone. H 76 mm. After Amiet 1980, pl. 48bisB;
b. Drawing of reverse of scraper. Green stone. H 76 mm. After Amiet 1980, pl. 48bisC;
c. Drawing of obverse of chisel. Green stone. H 180 mm. After Amiet 1980, pl. 48bisD.

meaning lies in the assumptions about the logic of the image composition as well as the parameters of the semiotic domain of the particular image repertoire.

Not only are the individual image elements legible, but they are also combined in a “legible” manner. By this statement I mean that there is very little overlapping of image elements or confounding of the elements in a manner that would make them visually ambiguous. For example, processions of animals or humans are shown with one figure clearly separated from the others, unless in rare instances overlapping bodies were meant to denote depth or density. Similarly, confrontations are clearly composed so that the engaged relationship between the figures can be clearly discerned. What we do not see is the kind of pictorial techniques introduced by the middle of the third millennium that serve to provide context or setting, evoke time, or mimic a visual field through perspective, foreshortening, overlapping, height in the image field, and the like.

Another feature of visual construction is that some images are a combination of two otherwise discrete images that creates a new image. This strategy can be compared to the way in which some proto-cuneiform signs were, at the same time, combined to generate new meanings (e.g., head + bowl = eat). The new meaning of the image can either reflect the combination or can be entirely new and unrelated to the original meaning of either image element. This feature of images is restricted to the Late Uruk/Jemdet Nasr period and is most commonly seen in the combination of commodities that are joined with vessels or animals. For example, the narrow-necked vessel is frequently shown with textiles

users. Further, this argument does not dismiss the possibility of a further connotation of any particular image that might be added to the primary denotative meaning of the image itself.

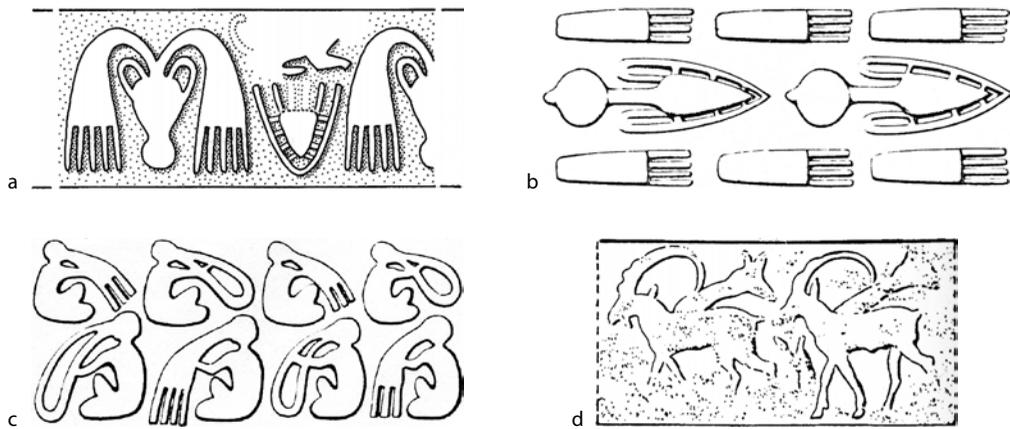


Figure 9.8. Combination of two images to create a new image.

- a. Reconstructed drawing of seal impression carried on clay sealings. H 28 mm. Eanna V, Uruk. Boehmer 1999, Tf. 77 Nr. 25A–C; b. Drawing of seal impression carried on a clay sealing. H 26 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 7:2; c. Drawing of seal impression carried on clay sealing. H 30 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 6:13; d. Drawing of reverse of proto-cuneiform tablet. H (tablet) 45 mm. Uruk W 20274, 36. After Nissen, Damerow, and Englund 1993, 23 fig. 25.

emerging from the mouth (fig. 9.8a); a bulb emerges from the mouth of a vessel in a net (fig. 9.8b); textiles or skeins emerge from the mouth of a worker (fig. 9.8c); and goats are shown with textiles emerging from their backs (fig. 9.8d). All these image elements also appear frequently alone as vessel, textile, or goat. When they are combined, their meaning, while unknown, certainly must have changed and probably become additive. With the exception of combating heroes on Fara-style seals of the Early Dynastic period (Martin 1988), the practice of combining image elements falls into disuse on seals by the time of the Archaic Texts at Ur.¹⁶

Another feature typical of the Late Uruk image system is the frequent use of individual elements to stand for an entire domain of reference. Similarly, individual elements can be “slotted” into compositions having apparently unrelated subject matter. If Dittmann is correct, this technique is clearly exemplified by his observation of the insertion of a walking lion into various themes where its presence seems to make no “narrative” sense. Analogous in the proto-cuneiform system is the use of determinatives or classifiers denoting the semantic domain but not the specific meaning of a sign. There are many examples of slotting in Late Uruk imagery, the most extreme example being the “lists” of commodities that have no imagistic depiction of their production, origin, or destination. We can understand these lists through comparison with more expanded imagery that does give structured

16 The same formal practice can be observed in the fantastic creatures of the Fara-style seals (Martin 1988); however, it seems obvious that this practice of combining different animal and human parts produces a fabulous demon, not a compound meaning of an economic transaction. The only image in the Late Uruk period comparable to the Fara-period creatures is the Anzu bird, which has the head of a lion and the body of a bird of prey. Certainly in the Late Uruk period, this fantastic demon should be considered an avatar of a divine being comparable to the gatepost of Inana. The semiotic practice is therefore entirely different from the combination of the vessel and textile to denote some aspect of the textile industry.

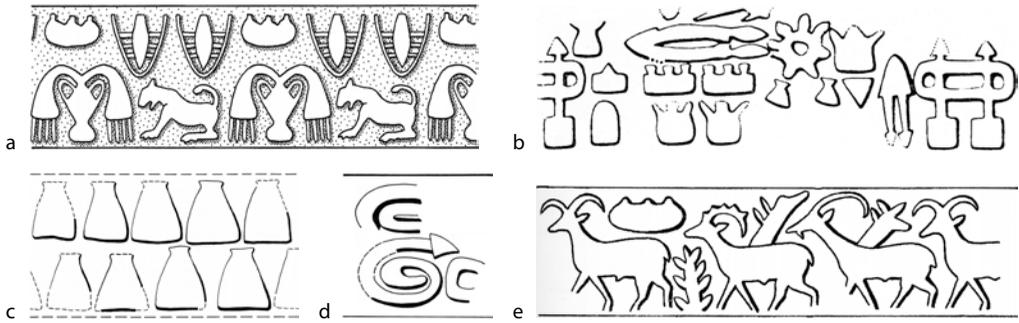


Figure 9.9. “Slotting” in Late Uruk imagery.

- a.* Composite drawing of seal impression carried on clay sealings. H 27 mm. Eanna IVB, Uruk. After Boehmer 1999, Abb. 33a–b; *b.* Drawing of seal impression carried on clay sealing. H 25 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 7:1; *c.* Composite drawing of seal impression carried on clay sealings. H 30 mm. Chogah Mish. Delougaz and Kantor 1996, pl. 149C; *d.* Drawing of seal impression carried on clay sealing. H 43 mm. Chogah Mish. Delougaz and Kantor 1996, pl. 155C; *e.* Drawing of seal impression carried on clay sealing. H 23 mm. Chogah Mish. Delougaz and Kantor 1996, pl. 142C; *f.* Drawing of seal impression carried on clay sealing. H 20 mm. Eanna IVB, Uruk. After Boehmer 1999, Abb. 38A–C.

associations between individual types of commodities and their manufacture, or their distribution or transport (fig. 9.9a–e). This method of interpretation is elaborated more fully below. These lists comprise a feature that gradually disappears from the imagery of Mesopotamia at the end of the Uruk period. I believe that their presence in the Late Uruk repertoire is a reflection of the close structural association of imagery and proto-cuneiform writing systems during the early centuries preceding and following the initial invention of writing with the explicit link of sign to spoken utterance.

Within the iconography of the Late Uruk cylinder seals are basically two types of image compositions: The most common are descriptive “narrative” presentations that depict animal or human actors engaged in the production or distribution of commodities or relations between individual actors—that is, the priest-king and the defeated enemy (fig. 9.10a)—or the priest-king processing to the temple with goods for the goddess Inana. The other common composition is a heraldic organization without any apparent “narrative” content. These image compositions are more formal and hierarchic, and their meaning is apparently more symbolic (fig. 9.10b). Dittmann has, again without any external evidence, assigned the heraldic scenes to the upper levels of the administration hierarchy. It is also possible that they served as emblems to denote various organizations or units relevant to administration. Such heraldic compositions occur more frequently at Uruk than at other sites—but interesting and unique examples are known from both Habuba Kibira and Tell Brak (Pittman 2013).

Narrative presentations can consist of several elements arranged in relation to one another to convey a coherent theme. While it is not always possible to interpret all the details presented in a narrative composition completely, each of the individual design elements contributes to its meaning. Take, for example, scenes rendered on cylinder seals that draw on the elements seen in the upper register of the Warka Vase (fig. 9.11a–k). Each of the figural elements in that scene carries meaning that contributes to our understanding. Did the meaning of the scene as carried on the vase have the same meaning when it was carved

on the side of a cylinder seal that was used in the administration at Uruk? While it is obviously impossible for us to be certain, given the consistency of the imagery across media this assumption seems plausible. Very likely the reference is to a ritual event during which goods were transferred to the temple. What is significant for identifying the Uruk imagery as a system of semasiographic notation of the performative type is that all the images participate in the larger metacontext of the temple economy.

In thinking about how images carried meaning in the Late Uruk period, it is useful to consider how pictorial images and proto-cuneiform signs interacted during the Late Uruk period. The most famous and most frequently discussed example of this phenomenon is summarized in the annotated drawing of the Uruk Vase in Jerrold Cooper's useful article "Incongruent Corpora" (Cooper 2008) (fig. 9.12). Emblems such as Inana's gatepost are visually identical to the proto-cuneiform MUŠ3, which it is widely assumed was used to signify the name of the goddess. The depictions of objects carried by the figures on the backs of the rams have also been interpreted as proto-cuneiform signs signifying the title EN and city names (Hockman 2008). The animal heads shown floating near the overflowing baskets are identical to signs in the proto-cuneiform script.¹⁷ In the bottom register, the wavy lines representing water are identical to the proto-cuneiform sign for "water." The two plants depicted as emerging from the water have been identified most recently as the date palm sapling and flax.¹⁸ As Cooper points out, the sign for "person" is more schematic than the male figures on the second register of the vase, while the proto-cuneiform signs for sheep and goat are symbolic signs, with their depictions in intaglio on seals, in relief, or in the round being based on close observation of the animals in nature. The fact that they are identical in both cases, however, parallels the appearance of the sign. In other words, there was no interest in differentiating either the male figures or the animals beyond their status as such.

Another monumental work of art of the Late Uruk period, far less known but also extremely important, is the fragment of a stela said to be from Umma now in the Iraq

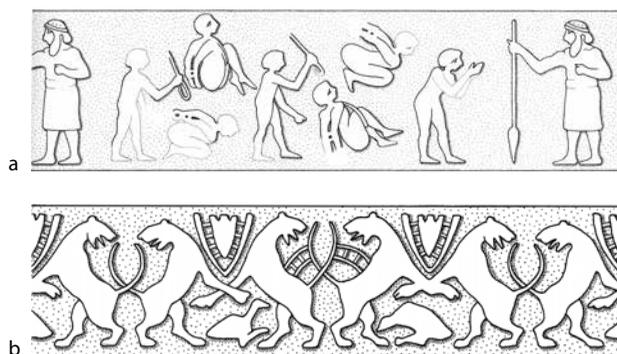


Figure 9.10. Narrative and heraldic

Late Uruk image compositions.

a. Composite drawing of seal impression carried on clay sealing. H 55 mm. Eanna V, Uruk. After Boehmer 1999, Tf. 17 Nr. 4 I–L;

b. Composite drawing of seal impression carried on clay sealings. H 30 mm.

Uruk. After Boehmer 1999, Tf. 46 Nr. 17 A–N.

17 There is no question that the animal heads on the Warka Vase are far more naturalistic and pictorial than the proto-cuneiform script contemporary with the vase. This fact does not, however, negate their semiotic status as related to the signs. There are no pressures on images carved on seals or in relief to schematize and economize in response to the introduction of a wedge-shaped stylus.

18 Miller, Jones, and Pittman (2016) disagree with others, who have identified the first plant as wheat. The similarity to the GIBIL sign, in addition to the evocation of a bustani orchard in which the date palm provided the shade for the flax plants, makes this identification a far more compelling one.



Figure 9.11. Cylinder seals that use elements from upper register of Warka Vase.

- a.* Drawing of image carved on cylinder seal. Lapis lazuli. H 38 mm. Uruk, Sammelfund. After Amiet 1980, pl. 46:655; *b.* Drawing of image carved on cylinder seal. H 40 mm. After Amiet 1980, pl. 46:645; *c.* Drawing of image carved on cylinder seal. H 55 mm. After Amiet 1980, pl. 46:653; *d.* Drawing of image carved on cylinder seal. H 40 mm. Uruk. After Amiet 1980, pl. 46:652; *e.* Drawing of image carved on cylinder seal. H 35 mm. Uruk. After Amiet 1980, pl. 45:650; *f.* Drawing of image carved on cylinder seal. H 50 mm. After Amiet 1980, pl. 45:645; *g.* Drawing of image carved on cylinder seal. White limestone. H 42 mm. Uruk, Sammelfund. After Amiet 1980, pl. 45:646; *h.* Drawing of image carved on cylinder seal. Yellow gypsum. H 51 mm. After Amiet 1980, pl. 45:647; *i.* Drawing of image carved on cylinder seal. Fired steatite. H 55 mm. Uruk, Sammelfund. After Amiet 1980, pl. 45:648; *j.* Drawing of image carved on cylinder seal. White gypsum. H 48 mm. Uruk, Sammelfund. After Amiet 1980, pl. 45:651; *k.* Drawing of image carved on cylinder seal. White gypsum. H 25 mm. After Amiet 1980, pl. 45:649.

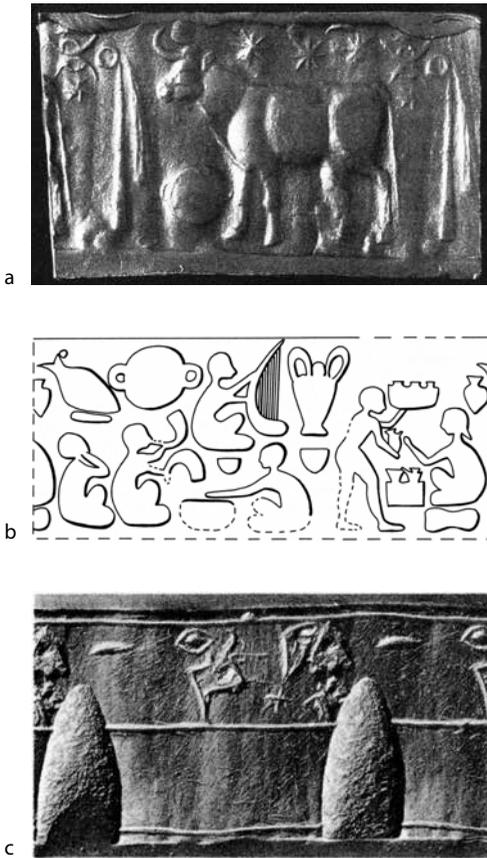


Figure 9.14. Seals with proto-cuneiform signs.
a. Modern impression of cylinder seal. Previously in the Erlenmeyer collection. H 34 mm. After Nissen, Damerow, and Englund 1993, fig. 18;
b. Composite drawing of seal impression on clay sealings. H 29 mm. Chogah Mish. After Delougaz and Kantor 1996, no. 155A; *c.* Photo of modern impression of cylinder seal. Gray limestone. H 30 mm. Uruk. Moortgat 1940, 85 Tf. 1.

National Museum (fig. 9.13a–c). As on the Warka Vase, the imagery on the stela is organized in registers—a compositional strategy that refers directly to the horizontal bands made by cylinder seal impressions. As Al-Gailani-Werr (2017) argues, the imagery is a representation of a festival taking place at the bank of a river. Indeed, two rivers—perhaps major canals in an urban center—are represented. Beneath a central row of seated male workers appear four rows of identical open-mouthed vessels similar to vessel-shapes known among the proto-cuneiform signs and on cylinder seals. In a central register, two musicians are separated by the river, and each one stands and strikes a large drum with two small handles. This form is identical to the proto-cuneiform sign EZEN, understood to mean “festival.” Closer to the topic at hand, this sign (EZEN) is part of a multisign inscription carried on a cylinder seal from the Erlenmeyer collection—artifacts probably originally found in the vicinity of Uruk (fig. 9.14a). As Nissen, Damerow, and Englund (1993) have argued, the combination of the imagery and the signs on this seal suggests a translation of the seal imagery as “festival of the evening/morning Inana” in the presence of an image of a large, domesticated bovid. This most interesting inscription confirms that the meaning of its imagery is not meant in any way to denote a personal name or individual seal owner.

Instead, anything sealed by this cylinder would, as such, have been labeled “allocated to the festival of the evening/morning Inana.” The presence of the bovid, likely for sacrifice, may indeed contribute to the specificity of this meaning by denoting the precise commodity for sacrifice. At Uruk, one could imagine, door sealings impressed with this seal secured spaces where prepared meats, in addition to fruits or grains, would be stored for that festival—surely an event that occurred with regularity. The message of the sealing was, “These commodities have been controlled for the festival.” Alternatively, the semiotic status of the bull might parallel that proposed by Dittmann for the lion on the seal imagery from Khuzistan, whereby the bull would denote a sector of the administrative universe. If so, the meaning would read, “The commodities from the bull sector have been controlled for the festival.”

In perusing the Uruk corpus, a seal impression from Chogah Mish stands out for its depiction of a celebration with musicians. One plays a lyre, another has clappers, and third is singing. In the field above is a drum of identical shape as the proto-cuneiform EZEN sign (fig. 9.14b).¹⁹ Like the sign in the seal discussed above, the drum here is not associated with a human actor and therefore stands more as a sign than as a tool with which to generate music. Commodities provided for the festival are shown in a second vignette on the seal, in which a supervisor gestures to a worker associated with vessels with three mouths.²⁰ Not necessarily to Inana, the message of this seal served also to mark commodities, perhaps the specific commodities indicated by the vessels that were to be allocated for a festival. The EZEN sign, a pictogram of a drum or a vessel, is identical to those on the Erlenmeyer seal and the Umma stela. The sign is here combined with musicians and servants with liquid-filled vessels. Because proto-writing was not used at Susa, this seal impressed on a numerical tablet would have conveyed both the purpose and destination of the delivery recorded on the tablet. Another example of proto-cuneiform signs carried on a cylinder seal is an unfinished seal said to be from Uruk (fig. 9.14c).

3.1. INTERPRETING GLYPTIC ART IN THE PROTO-CUNEIFORM ENVIRONMENT

Unlike major monuments whose iconography is “complete,” thus allowing for direct interpretation without reference to other sources or previous knowledge, glyptic imagery of the Late Uruk period is usually far more telegraphic—it employs individual image elements to stand for entire concepts or scenes. To attempt to understand glyptic imagery, then, it is necessary to engage in a dialectic interpretive process that requires first identifying comprehensible elements within elaborated compositions, then isolating the salient image elements in the composition, and finally observing them in other compositions where they may be reduced to a single element meant to refer to a concept more fully elaborated in other exemplars. This interpretive process is best understood by walking through the analysis of several examples.

One of the most legible of the scenes in the Late Uruk glyptic repertoire is the “granary scene.” It is present in large numbers at Susa and Chogah Mish, with another from Hacinebi (fig. 9.15a–t). Essential elements are granary silos and bags with flat bottoms and opening flaps. Other elements frequently present are an architectural structure associated with the silos; workers climbing ladders to deposit grain into the silo; and workers bagging grain into distinctively shaped bags. Frequently, in the field there is a circular disk, which must be a tool associated with grain processing.²¹ The granary theme often includes a second theme that I have interpreted as a scribal scene in which a scribe wields his styli above or below tablets (Pittman 1993). The fundamental meaning of the scene clearly refers to the receipt and storage of grain. The presence of the scribal scene may indicate that the grain under seal had already undergone a certain level of inspection, accounting, and control. Alternatively, the scribal scene could indicate that the grain was allocated as rations for a certain category of workers. Could the presence of the public building facade and the

19 Al-Gailani-Werr (2017) also points out this similarity to the instrument on the stela.

20 The three-mouth vessel is identical to a sign in the proto-cuneiform signary.

21 I am aware of only one scene that clearly shows grain being ground by a worker (Amiet 1972, 670).

paramount figure appearing together with filling of the silos denote “grain allocated to the ruler’s household”? Does the dotted circle denote a grinding stone indicating that we are dealing with flour and not seed?

Within this granary theme are seal images that carry only a single element—for example, a row of bags, or a row of silos, or silos together with a niched structure. How are these elements different from those with the full scene? Do they transmit the same message? One strategy for interpretation is to consider that the images with workers referred to administrative actions relevant to workers, while those images without workers referred to a process or a destination for a particular delivery of grain. In such a case, the figure of the worker would have a similar (but more iconic/less symbolic) semiotic status to Dittmann’s lion. While speculative, such a detailed analysis brings more specificity to the complex process of grain storage than does Dittmann’s inclusion of all such scenes under the single rubric *agriculture* (Dittmann 1986). Could a comparative consideration of the seal imagery with proto-cuneiform inscriptions that record grain transactions shed any further light? With the potential offered by proto-cuneiform, perhaps such visual elaboration of the administrative act was no longer necessary in that context.²² The themes that are prevalent in the Uruk material refer most frequently to the ritual domain of the delivery of goods to the temple, the subjection of prisoners by the paramount ruler, heraldic compositions with commodities and felines, and caprids associated with textiles (Pittman 2013). These themes are impressed on all manner of closing devices, both mobile and immobile, and not on the tablets inscribed with proto-cuneiform signs. Therefore, it seems likely that the imagery’s message in the administration referred to the receipt of storage commodities destined to be distributed under the control of the administrative system.

Another composition that has great potential for analysis is the depiction of various aspects of the production of textiles. In the Uruk period, apart from agricultural production, the production of textiles was probably the most important economic activity that was closely administered. Visual references to textiles are found at virtually every site that has produced Uruk glyptic imagery. All aspects of the industry are referenced, from the collection of the raw material through the distribution of the finished product. Deconstructing this imagery as it is known to us from Susa and Chogah Mish provides the vocabulary of visual elements through which to understand more cryptic images.²³

The glyptic imagery concerning the production of textiles is complex and frequently telegraphic in its presentation. The clearest way to unpack it is to begin with the most legible images referring to textile production. One outstanding example shows the act of weaving, impressed on a numerical clay tablet from Susa (fig. 9.16a). This image allows us to identify the meaning of several of the key visual elements relevant to textile production. The image can be easily read as the depiction of a half-finished textile in the process of

22 Alternatively, we are missing granary scenes at Uruk because of accident of discovery.

23 Dittmann’s (2018) analysis of the pigtailed-ladies seals touches on textile production. The analysis presented here disagrees with his distribution of those scenes across all the economic domains of his hierarchal structure. I understand them to be far more concentrated in the multifaceted domain of textile production. In the preparation of this essay, I drew extensively on the work of Breniquet (2008, 2016), who has studied the stages of textile production in Mesopotamia. Much of my analysis was done before I encountered her expert study, and I am gratified that we have come to similar conclusions in the interpretation of the iconography, though we disagree on the interpretation of several of the image elements.



← Figure 9.15. Seals with granary scene.

- a.* Drawing of impression of cylinder seal on hollow clay ball. H 25 mm. Susa. After Amiet 1972, pl. 16:660; *b.* Drawing of impression of cylinder seal on hollow clay ball. H 22 mm. Susa. After Amiet 1972, pl. 16:659; *c.* Drawing of impression of cylinder seal on numerical tablet. H 20 mm. Susa. After Amiet 1972, pl. 16:657; *d.* Drawing of impression of cylinder seal on hollow clay ball. H 28 mm. Susa, Acropole south, depth 17.50 m. After Amiet 1972, pl. 16:661; *e.* Composite drawing of impression of cylinder seal on clay sealings. H 33 mm. Susa. After Amiet 1972, pl. 16:663; *f.* Drawing of impression of cylinder seal on clay sealing. H 22 mm. Susa. After Amiet 1972, pl. 17:669; *g.* Drawing of impression of cylinder seal on clay sealing. H 33 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 149A; *h.* Composite drawing of impression of cylinder seal on tablets and sealings. H 35 mm. Susa. After Amiet 1972, pl. 21:930; *i.* Drawing of impression of cylinder seal on hollow clay ball. H 28 mm. Susa. After Amiet 1972, pl. 16:662; *j.* Drawing of impression of cylinder seal on hollow clay ball. H 32 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 148B; *k.* Drawing of impression of cylinder seal on hollow clay ball. H 28 mm. Susa. After Amiet 1972, pl. 16:655; *l.* Drawing of impression of cylinder seal on jar stopper. H 30 mm. Hacinebi. After Pittman 2000, fig. 3:7; *m.* Drawing of impression of cylinder seal on jar stopper. H 34 mm. Hacinebi. After Pittman 2000, fig. 3:7; *n.* Drawing of impression of cylinder seal on hollow clay ball. H 28 mm. Susa. After Amiet 1972, pl. 16:653; *o.* Drawing of impression of cylinder seal on hollow clay ball. H c. 20 mm. Susa, Acropole I, level 17b. After Le Brun 1978, fig. 10:2; *p.* Drawing of impression of cylinder seal on hollow clay ball. H 15 mm. Susa. After Amiet 1972, pl. 16:656; *q.* Drawing of impression of cylinder seal on numerical tablet. H 24 mm. Susa. After Amiet 1972, pl. 16:652; *r.* Drawing of impression of cylinder seal on hollow clay ball. H 27 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 148D; *s.* Drawing of impression of cylinder seal on clay sealing. H 32 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 149B; *t.* Drawing of impression of cylinder seal on clay sealing. H 22 mm. Susa, Acropole I. After Le Brun and Vallat 1978, fig. 6:6.

production on a horizontal loom.²⁴ The warp threads extend beyond the solid mass of the woven textile. To each side of the textile with their hands at the top of the completed cloth, male weavers are placed. They are shown in typical profile and are logically rotated to be parallel to the length of the textile. If the image is rotated 90 degrees to the right, they are clearly rendered in bird's-eye view. They are shown in the universal worker posture, with one knee bent and one leg folded under the body. As with the expanded granary scene discussed above, there are modifying scenes on both sides of the textile. To the right, a male stands facing the textile with his arms gesturing up and down. From this distinctive gesture, this figure can be confidently identified as a supervisor, as this figure is known precisely in this posture in many other compositions, all referring to workers and production and supervision. Between the supervisor and the loom is an enigmatic form that I interpret as the two poles, each in a square support that keeps the skein of thread, which is depicted by an oval overlapping the middle of each pole. This configuration is known from other seal images, rendered in a vertical position (fig. 9.16d). The bird's-eye view of the skein support in this particular image indicates its proximity and engagement with

24 Breniquet (2008, 2016) has written a very important and thorough study on textile production in the Early Bronze Age in Mesopotamia. I agree with her on many points but find disagreement in the interpretation of some details. Until we have more evidence, most of these disagreements cannot be resolved. Regardless of the details of interpretation, Breniquet has applied the same principles of analysis that I have articulated in this and other discussions. One point of disagreement lies in her seeing this loom as a vertical loom rendered in a horizontal position for legibility. I do not agree but instead prefer the more straightforward description of the loom as horizontal.

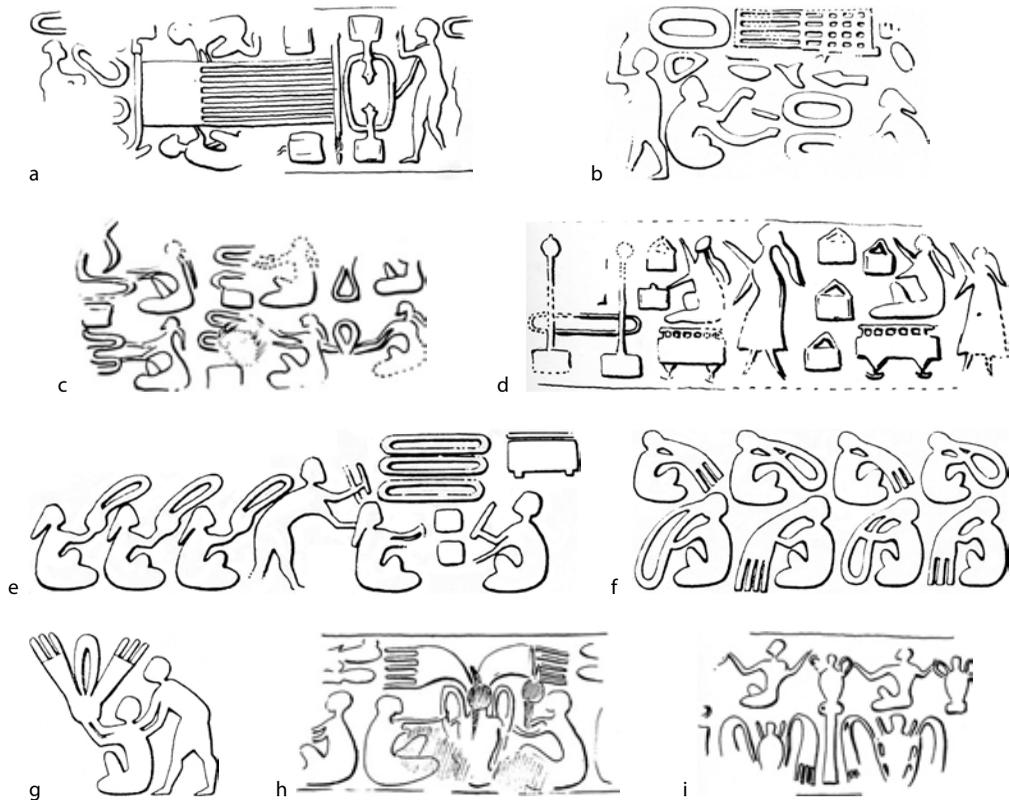


Figure 9.16. Seals depicting the production of textiles.

- a.* Composite drawing of impression of cylinder seal on two numerical tablets. H 30 mm. Susa, Acropole south, depth 16 m(?). After Amiet 1972, pl. 16:673; *b.* Drawing of impression of cylinder seal on hollow clay ball and numerical tablet. H 29 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 6:7; *c.* Drawing of impression of cylinder seal on oblong numerical tablet. H 25 mm. After Amiet 1972, pl. 16:666; *d.* Drawing of impression of cylinder seal on clay sealing. H 23 mm. Susa, Fouilles de Morgan. After Amiet 1972, pl. 17:674; *e.* Composite drawing of impression of cylinder seal on three hollow clay balls. H 25 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 6:11; *f.* Composite drawing of impression of cylinder seal on two hollow clay balls. H 30 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 6:13; *g.* Composite drawing of impression of cylinder seal on hollow clay ball and sealing. H 30 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 7:3; *h.* Drawing of impression of cylinder seal on round numerical tablet. H 30 mm. Susa, Acropole south, depth 17.50 m. After Amiet 1972, pl. 16:641; *i.* Drawing of impression of cylinder seal on clay sealing. H 30 mm. Susa, Acropole southeast, depth 17 m. After Amiet 1972, pl. 16:651.

the active process of weaving. Behind the supervisor is another standing figure (only partially preserved) surrounded by three (or four) skeins “floating” in the field. Only because of their contextual association are we able to understand the individual elements in this image. But with that understanding, we can take the individual elements and use them to interpret other seal images. In this way, the individual design elements work as signs do in the proto-cuneiform script, with the exception, of course, that they are images in no way linked to spoken utterance. They are entirely conventional, however, and are not

depicted variously with reference to their context as one would expect in a “picture.” The interpretation of these image elements as signs in a semasiographic notation system serves to distinguish the Late Uruk imagery from the pictorial works that begin to appear around 2500 BCE. It also serves to bring the glyptic imagery into close and proper relation both semantically and structurally to the earliest proto-cuneiform script.

3.2. FEMALE TEXTILE WORKERS

A second seal image, also from Susa, can help us understand another step in the production of textiles (fig. 9.16d). This image shows the preparation of the thread used by the weavers. Here we see a process that, from the evidence available to date, engages only female workers. We identify these human figures as females on the basis of the fact that they are clothed in a long tunic and have long hair drawn back in a pigtail.²⁵ In this scene we see two female workers in the same worker posture, squatting on a platform with a fenestrated top and animal(?) feet. Their open arms gesture toward boxes having either a handle or a knobbed lid. Behind each of the workers is a female supervisor with arms spread in a gesture identical to the male supervisor in the earlier seal. To the far left is the poles-on-stands assemblage supporting a skein rendered as an elongated oval. This time the apparatus is seen in profile, which makes it more comprehensible. I would further suggest that it is from these two seals, and others like them, that we can clearly detect the gendered differentiation of the roles associated with the multiple stages of weaving. In none of the known depictions of textile production scenes are women in the Uruk period ever shown weaving. Their responsibilities involve gathering plant fibers, harvesting animal hair, spinning and twisting thread, and rendering it into skeins.

While the scribal scene is most frequently associated with granary activity, one example from Susa shows female laborers associated with skeins receiving an accounting for their labor (fig. 9.16e), while in another impression two registers of female workers engage with skeins (fig. 9.16c). Male weavers can be marked with completed textiles emerging from their mouths (fig. 9.16f), as we saw earlier with textiles emerging from the mouths of vases, or holding a composite image of two textiles with a central skein (fig. 9.16g). Surely this is a compound image associating a worker with the product of his labor in the context of supervision/accounting. Seals such as these could be used to mark documents or commodities meant to be allocated to workers in those sectors of the weaving industry. In a certain scenario, one could deduce that seals carrying this imagery marked grain allocated to the weaving industry to be distributed by supervisors to gangs of workers. Another frequently occurring design element on seals is a fringed textile emerging from a pointed-bottom vessel suspended in a net and sometimes carried between two poles (fig. 9.16h–i). Does this imagery denote a type of ration, or perhaps a type of commodity, associated with textile production? Does it denote types of rations, dry or liquid? Another type of manufactured product is frequently associated with fringed textiles (fig. 9.17a–j)—a

²⁵ Others have challenged the identification of these figures as necessarily female because men also could have long hair and wear tunics. But small sculptures of these figures found at Susa in the same context as the sealings make clear through the prominent articulation of breasts that these figures are indeed biological females (Breniquet 2016; Amiet 1966, 91, 92).

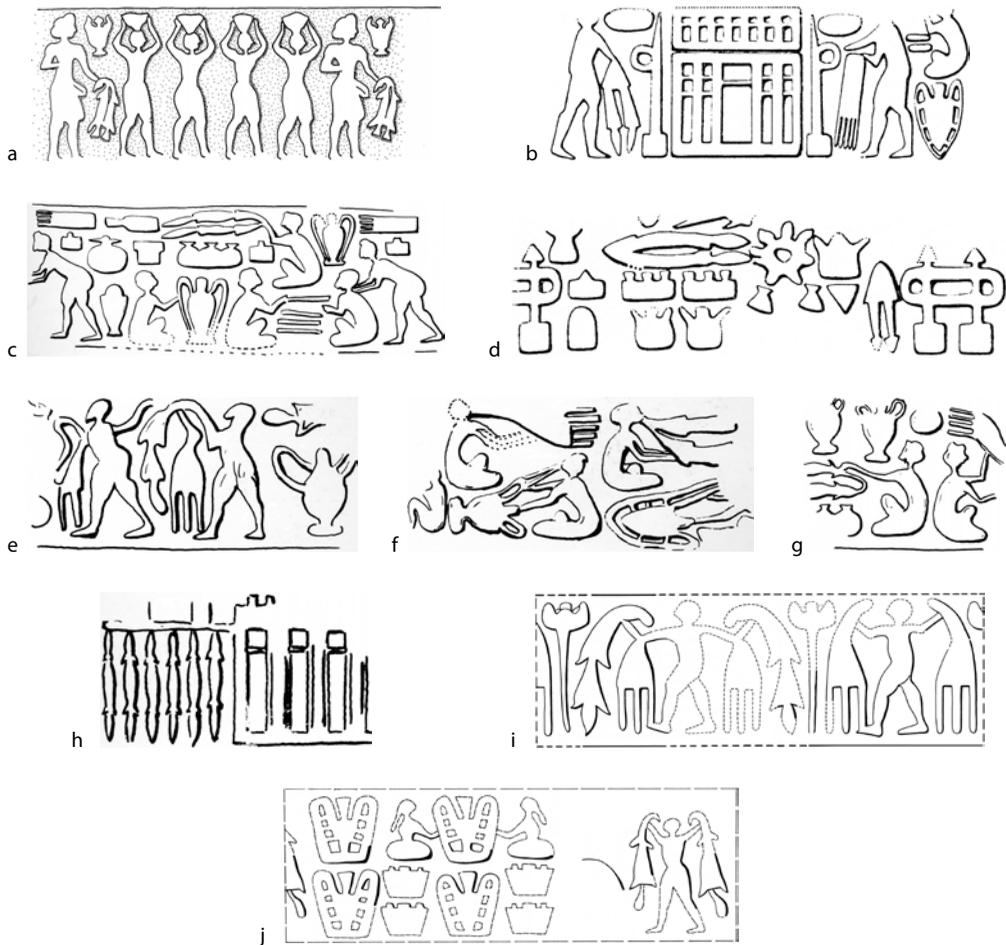


Figure 9.17. Seals depicting a product associated with fringed textiles.

- a.* Composite drawing of impression of cylinder seal on hollow clay ball. H 39 mm. Uruk. W 20987, 1. After Boehmer 1999, Tf. 99 Nr. 50a–m; *b.* Composite drawing of impression of cylinder seal on hollow clay ball and tablet. H 32 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 7:8; *c.* Drawing of impression of cylinder seal on fusiform bulla. H 32 mm. Susa, Acropole south, depth 17.50 m. After Amiet 1972, pl. 15:646; *d.* Drawing of impression of cylinder seal on fusiform tag. H 22 mm. Susa, Acropole I, level 18. After Le Brun and Vallat 1978, fig. 7:1; *e.* Drawing of impression of cylinder seal on clay sealing. H 25 mm. Susa. After Amiet 1972, pl. 15:635; *f.* Drawing of impression of cylinder seal on oval tablet. H 25 mm. Susa. After Amiet 1972, pl. 15:642; *g.* Drawing of impression of cylinder seal on clay sealing. H 28 mm. Susa, Acropole south, depth 17.50 m. After Amiet 1972, pl. 15:640; *h.* Drawing of impression of cylinder seal on small hollow clay ball. H 18 mm. Susa. After Amiet 1972, pl. 14:624; *i.* Composite drawing of impressions of cylinder seal on door sealing fragments. H 30 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 153B; *j.* Drawing of impression of cylinder seal on hollow clay ball. H 30 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 153C.

product that has two long sections with short flanges emerging from each side. It can be carried by a male worker who also carries a fringed cloth, appears twice at Susa in a list of symbols (fig. 9.17d), or is carried toward a temple and appears together with a male figure

carrying a fringed textile (fig. 9.17b). The identification of this object is uncertain, but in almost all cases it is closely associated with a finished, fringed textile.²⁶

3.3. THE SCHEMATIC PIGTAILED-LADIES SEALS

To conclude, I shall take a brief but closer look at the one category of seal that, Nissen believed, referred not to individuals but to a class of workers: the schematic versions of the pigtailed-ladies seals, preserved in large numbers both through impressions and, unlike other seals of the Uruk period, as actual seal stones.²⁷ We have already considered four of these seals in the discussion about weaving. The imagery on these seals has long been understood to refer to women's work, and in particular to spinning wool, used in the production of textiles (Asher-Greve 1985; Breniquet 2008, 2016). Women are often shown walking in files while spinning with high whorls, middle whorls, and low whorls (fig. 9.18a–c). They are also shown with plant-like forms that may denote flax or another type of plant fiber used to make thread (fig. 9.18d–g). At times they appear seated on platforms that have vertical spindle supports (fig. 9.18h); walking with twisted skeins ready for transport (fig. 9.18i); or associated with a variety of objects, certainly tools vital to the processing of fiber, which are rendered in a schematic way.

One of the objects associated with the production of thread has been convincingly identified by Breniquet (1996, 2008) as a tool used to twist two threads together (fig. 9.19a). This operation of twining the thread by twisting two single threads together is a vital step in stabilizing the thread for weaving. A number of such objects are known in the archaeological record. Although some scholars continue to interpret these objects as “eye idols,” Breniquet's analysis of their wear patterns and context makes their identification as fiber-processing tools very convincing. A number of seals show this item as a triangular form with two ears (fig. 9.19b). Sometimes associated with the twining tool in the seals is an object shaped like an ear (fig. 9.19c–d).

Another enigmatic object associated with these schematic scenes is always identified in discussion as a “spider,”²⁸ though it is difficult to understand this image as such. It consistently has double drill holes for the body, from which four or sometimes eight legs emerge

26 Some scholars have identified the object as an animal skin or a leather product of some kind. On the other hand, Breniquet (2008) identifies it as part of the weaving apparatus and not as a freestanding product. Judging simply from the way in which the object is treated in the semiotic structure of these seals, it seems to be equated and closely associated with the finished textile product and therefore equal in kind and not a tool or part of the machinery of the loom.

27 Dittmann (2018) has concluded that this group can be fit into the structure he first proposed in Dittmann 1986 and further refined with the insertion of the “lion” sector in Dittmann 2012. As I hope to demonstrate in a more detailed presentation of these seals in a forthcoming article, I believe all of them should be understood as restricted to the production of fibers for textile production and do not refer to other zones of production.

28 The association of a spider with weaving is an obvious one that is most clearly articulated in Greek mythology. Among the Mesopotamian deities, the goddess of weaving is Uttu, which is also the word used for “spider.” As far as I have been able to determine, however, this goddess is attested only in the late periods, and there is very little textual evidence on which to build an image. This distinctive depiction disappears from the image repertory of Mesopotamia when the schematic pigtailed-ladies seals fall out of use by the end of the Jemdet Nasr period.

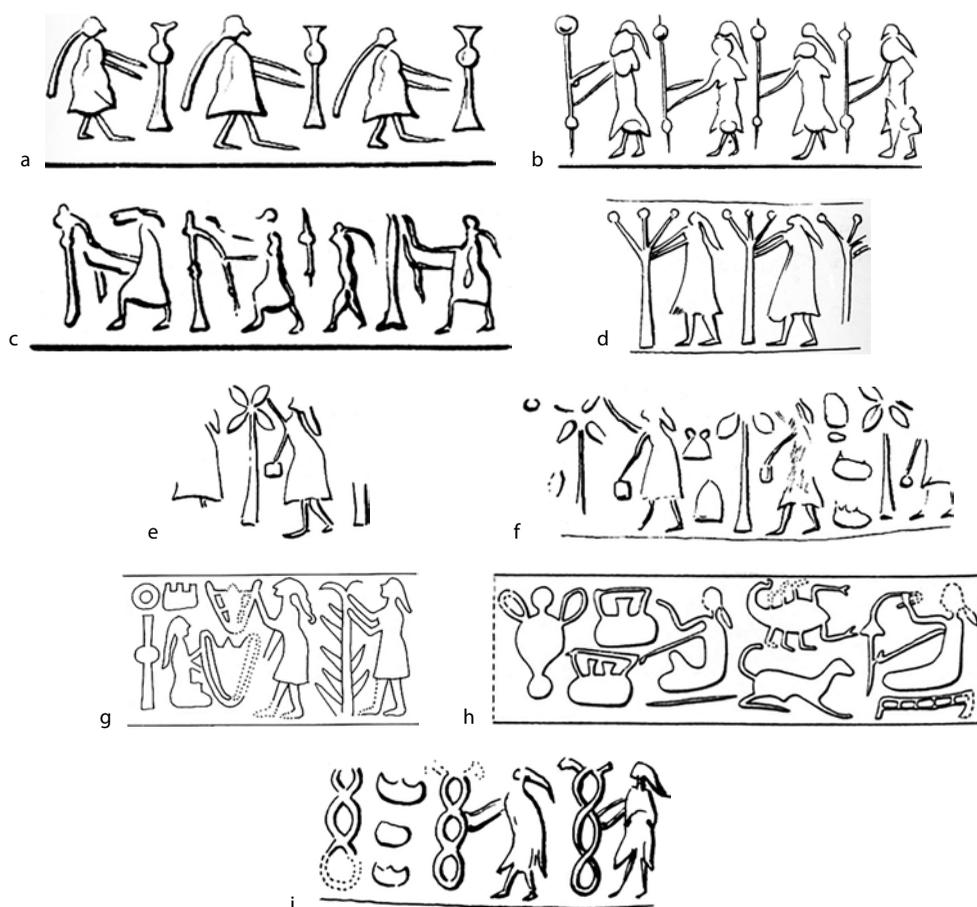


Figure 9.18. Seals depicting pigtailed ladies.

- a.* Drawing of modern impression of cylinder seal. H 18 mm. Khafajeh, Sin Temple IV. After Amiet 1980, 302; *b.* Drawing of modern impression of cylinder seal. H 23 mm. Jemdet Nasr. After Amiet 1980, 306. *c.* Drawing of modern impression of cylinder seal. H 14 mm. Uruk. After Amiet 1980, 304; *d.* Composite drawing of impressions of cylinder seal on clay sealing. Susa. H 22 mm. After Amiet 1972, pl. 18:708; *e.* Drawing of impression of cylinder seal on clay sealing. H 22 mm. Susa, Acropole south, depth 17.50 m. After Amiet 1972, pl. 19:711; *f.* Drawing of impression of cylinder seal on clay sealing. H 21 mm. Susa, Acropole south, depth 17.20 m. After Amiet 1972, pl. 19:710; *g.* Drawing of impression of cylinder seal on clay sealing. H 25 mm. Habuba Kabira Sud. After Strommenger, Sürenhagen, and Rittig 2014, Tf. 194:6 (S42); *h.* Composite drawing of impression of cylinder seal on clay bale sealing. H 19 mm. Chogah Mish. After Delougaz and Kantor 1996, pl. 146E; *i.* Drawing of modern impression of cylinder seal. Rose calcite. H 22 mm. Susa. After Amiet 1972, pl. 19:718.

from the sides (fig. 9.20a–c). On the basis of a cylinder seal from Ur in the Penn Museum collection (fig. 9.20d–e), I propose another, more concrete and mundane meaning for this form: I see it as another tool, perhaps a basket or a vessel on legs, used in the process of storing the spun thread before it was twined and formed into skeins. On the Penn seal from Ur, we see the container in profile, rather than a bird’s-eye view of the “spider,” with

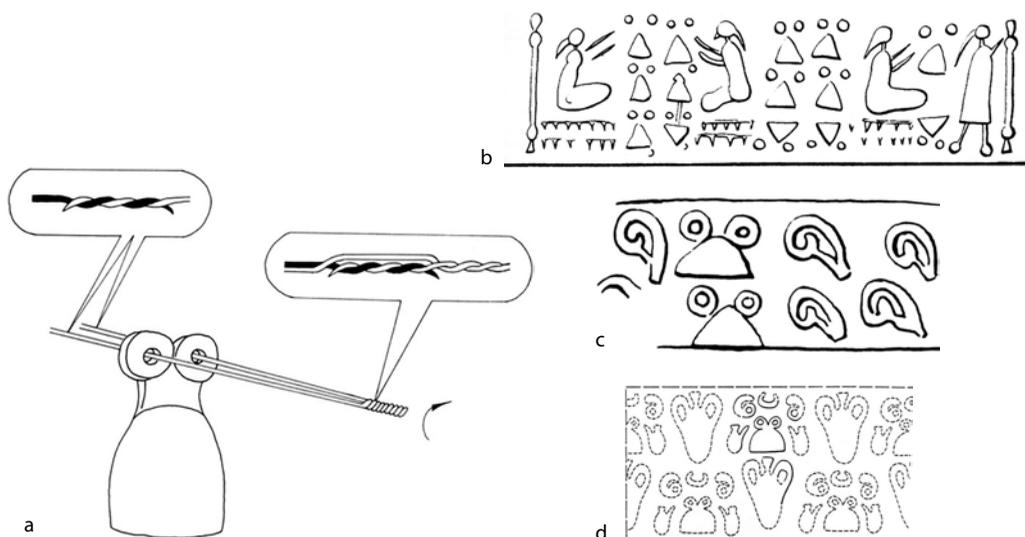


Figure 9.19. Fiber-processing tools.

a. Drawing of twining device. After Breniquet 1996, 51, fig. 7; *b.* Drawing of modern impression of cylinder seal. Grey calcite. H 28 mm. Susa, Acropole south. After Amiet 1980, 330; *c.* Drawing of impression of cylinder seal on clay sealing. H 18 mm. Susa. After Amiet 1972, pl. 19:713; *d.* Reconstructed drawing of impression of cylinder seal on clay sealing. H 43 mm. Chogah Mish. Delougaz and Kantor 1996, pl. 155C.

the thread rising above it coiled in a spiral ready to be stored. Confirming this interpretation will require another look at the archaeological record and working with experts in textile manufacturing.²⁹

4. CONCLUSION

In this discussion I have sought to establish two assertions. First, the imagery of the Late Uruk seals is best understood as a semasiographic notation system developed before the appearance of writing to mediate in the complex economic administration that had emerged in the context of growing urban centers. This designation allows the imagery of the seals to be understood as an intentionally structured and closed system of images/signs, not as random pictures that through some incomprehensible feat of cognition would serve to identify individuals. This analysis has further attempted to articulate the principles according to which the seal imagery was constructed and, when appropriate, to set these principles side by side with those characteristic of the earliest proto-cuneiform inscriptions. The primary difference between the two is that seal imagery never attempted to link meaning with spoken utterance. While it is not certain that linking meaning with spoken utterance was a feature of the earliest inscriptions, through the rebus principle a link to language was quickly established. Further, I have sought to contribute to the strategies we must use

²⁹ Working out the details of the stages of the thread preparation depicted on this group of seals is the subject of a separate study in preparation.

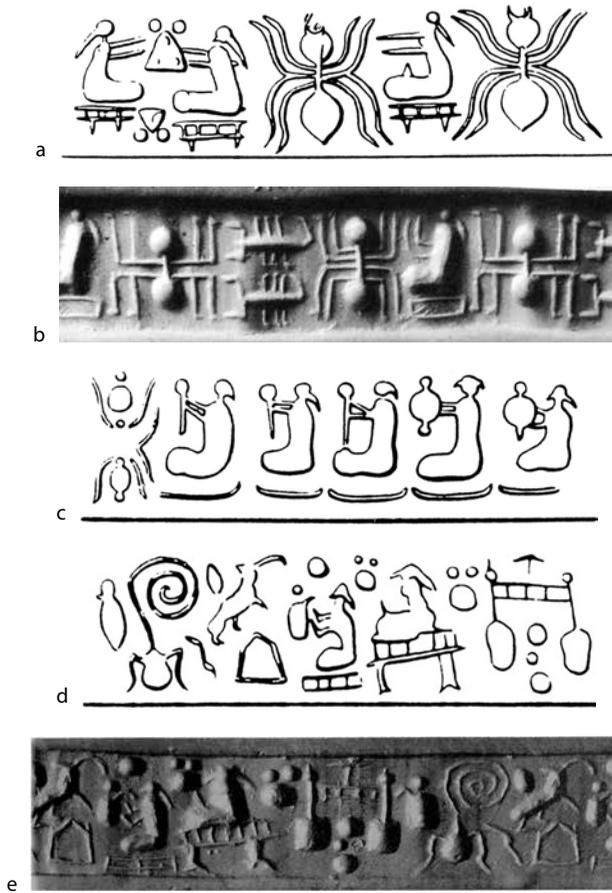


Figure 9.20. Seals depicting “spider” (possibly a basket or vessel for storing spun thread). *a.* Drawing of modern impression of cylinder seal. H 23 mm. After Amiet 1980, 338; *b.* Photo of modern impression of cylinder seal. Light-green marble. H 20 mm. Susa. After Amiet 1972, pl. 90:743; *c.* Drawing of modern impression of cylinder seal. Aragonite. H 23 mm. Susa. After Amiet 1980, 332; *d.* Drawing of modern impression of cylinder seal. Dark stone. H 24mm. Ur. After Amiet 1980, 320; *e.* Photo of modern impression of cylinder seal. Dark stone. H 24 mm. Courtesy Penn Museum 31-17-16.

to understand the unique imagery carried on the Late Uruk seals. Its distinctive semiotic character is, I believe, emphasized when we look at the rapid change that seal imagery underwent during the centuries immediately following the stabilization and promulgation of the cuneiform script. Seal imagery of the Early Dynastic I period, characterized most clearly by examples from the Seal Impression Strata at Ur, is already diminished in the variety of its subject matter. And the signary of the City Seals provides an imagistic link to the Archaic script of the contemporary tablets. By the so-called “Fara-Zeit” at the end of the Early Dynastic I period, seal imagery had essentially abandoned a legible iconography depicting a variety of recognizable themes. Now the animal combat scene, with its densely overlapping animal and composite heroic figures, dominates. It is obvious that these images were no longer meant to convey any specific information beyond membership in a group identified through combat iconography. By this time, the cuneiform script, while still not fully capable of rendering all details of spoken utterance, had a far greater ability to articulate desired communications. The imagery of seals had been completely liberated from the burden of precise messaging. Impressions served to secure mobile and immobile storage according to a system of recognition inaccessible through semiotic analysis. It is during that period that the first inscriptions appear on seals, as names, and slightly later with either patronymics or office, and it is at this moment that the imagery of seals could/

would become entirely pictorial. Without the burden of signing a complex and mediating message, seal imagery could explore depictions of chaos or motion, of rituals, and of myths as determined both by artistic agency and by social and political demands. Indeed, it is in this period that the first identifiable images of gods can be recognized.

In the context of “seen not heard,” the imagery of the seals used in the environment leading up to and immediately following the invention of proto-cuneiform script can, I believe, help enrich our appreciation of the intense semiotic creativity during that remarkable period. We should not imagine some small cadre of scribes hidden away in the *edubba* hatching the idea of “writing” without reference to their outside world. In fact, this innovation occurred in the company of the seal cutters, who had already developed a necessary repertoire of images to convey parts of the messages required in the communities of the Late Uruk horizon and who were engaged in production at a scale beyond anything yet experienced. No longer could the accounting necessary to feed the laborers, as well as to account for their products and their distribution, be accomplished by word of mouth or memory alone. Signposts were needed when the distance was too great, either in space or in time, to keep what seems to have been a well-oiled machine running smoothly. With the Late Uruk seal imagery, a picture was indeed worth a considerable number of words. When the first writing appeared, this imagery continued in use parallel to the inscribed tablets. It is only with the “collapse” of the Uruk system that the imagery was no longer needed within the administrative tool kit. Imagery now evolved into a truly pictorial stage that would culminate twenty-five hundred years later in the “cinematic” programs lining the walls of the Neo-Assyrian kings.

ABBREVIATIONS

Abb.	<i>Abbildung</i> , figure
H	height
Nr.	<i>Nummer</i> , number
Tf.	<i>Tafel</i> , plate
W	field numbers of tablets excavated at Warka

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268 HOLLY PITTMAN

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10

ABa and ABb, a Memoir—
or, The Curious Case of Niĝin/Našše SignificationIlona Zsolnay, *University of Pennsylvania*

1. INTRODUCTION

AS MARGARET GREEN and others have noted,¹ in the Archaic proto-cuneiform corpus² the four illustrious Sumerian cities, Uruk, Ur, Zabala, and Larsa, are all signified by the combination graph AB+indicator,³ a scheme that carries into the following millennia, but for minimal modifications.⁴ In the case of Uruk, AB+indicator is simply the gunification of the ABa variant of the AB graph.⁵ In the cases of Ur, Zabala, and Larsa, AB+indicator is the combination of ABa with a graph representing the standard or symbol of the patron god of the city meant to be signified:⁶ URI3 for Nana of

1 Specifically, in Green 1991, 47; Szarzyńska 1992, 39–40. For the most extensive treatments of the graph AB and its relation to the graphs KI and URU, see Michalowski 1993a. For additional studies on the graphic signification of cities in the Archaic corpus, see Green 1977, 1986b; Pettinato 1978; Steinkeller 1980, 1995; Nissen 1985; Frayne 1992; Matthews 1993; Englund 1998, 90–94.

2 Approximately seven thousand tablets dating to the Uruk IV (c. 3350–3200 BCE) and Uruk III (c. 3100–3000 BCE) periods comprise the Archaic proto-cuneiform corpus (also known as the Uruk corpus). The majority of these tablets originate from the southern Mesopotamian city Uruk and from towns within the middle Mesopotamian Kiš region. Tablets from Uruk were discovered primarily in secondary contexts (e.g., ancient trash heaps); those from the Kiš region may have come from any of three different sites: Jemdet Našr, Uqair, or Kiš. It is also likely that sets of proto-cuneiform tablets originated from the southern cities Larsa and Umma (see MSVO 4, 14–19; Englund 1998, 29–31, 32 n. 53). Major published volumes of the tablets include Green and Nissen 1987; Englund and Grégoire 1991; Englund and Nissen 1993, 2001; Englund 1994, 1996; Monaco 2007, 2014, 2016 (= CUSAS 1, 21, and 31, respectively). Unless otherwise indicated, all tablet images in this article may be accessed at <https://cdli.ucla.edu/>.

3 For the sake of simplicity, for this investigation the terms *graph* and *sign* are used somewhat interchangeably, though attempts are made to employ the term *graph* when referring to proto-cuneiform for which sign-values remain tentative.

4 The singular, highly tendentious example of the writing KIŠ+ABa (W 24222), possibly signifying the city Kiš or Kutha, is not included in this discussion.

5 To gunify a graph is to add striations to a particular section of it. In the case of Uruk, these striations were added to the body of the ABa graph.

6 For seminal investigations into cultic standards and emblems, see Szarzyńska 1987–88, 1996. See also Beaulieu 1998; Steinkeller 1998.

Ur,⁷ MUŠ3 for Inana of Zabala,⁸ and UD for Utu of Larsa. A fifth city, Niġin, is also signified by the combination graph AB+indicator; however, in this case, city and patron deity Našše are both represented by the same composite graph and in a manner slightly different from that by which the other four cities are signified. To signify Niġin/Našše, the basic graph for a fish, KU6, was inscribed either within, or possibly above, the ABb or, occasionally, the ABa variant of the AB graph.⁹

Although the commonality of the AB graph to each of these city names strongly suggests that it is a fundamental feature of the writing system for signifying a city, other well-known towns are not written in the format AB+indicator in the Archaic corpus.¹⁰ This difference appears even in cases where the city is traditionally signified by a standard—for example, Adab (see Szarzyńska 1996; cf. Jacobsen 1967)—or where city and god share the same graphic signification—for example, the deity Sud and her city Šuruppak. Indeed, as the writing system developed and classifying agents were added to city names to mark them graphically as cities,¹¹ it was not AB that was appended but the graph KI. KI is a graph abundantly attested in the Archaic corpus with a meaning “place,”¹² likely in the sense of land (physical, rather than state).¹³ Yet, although changes to the writing system allowed for this addition of the classifier KI to the names of cities, so integral was AB to the signification of Uruk, Ur, Zabala, Larsa, and Niġin/Našše that it was never dropped.¹⁴

7 This investigation will, in the main, follow sign designations in Green and Nissen 1987—for example, LAK 31 is read ZATU URI3 and LAK 32, ZATU ŠEŠ. See also n. 25 below. A note on transliteration: For those discussions specifically referencing graphs attested in the Archaic corpus, the most basic value for the sign is given and presented in capital letters (as is the tradition). In transliterations, the # symbol is used in lieu of half-brackets to notify that the sign is broken. Unless otherwise noted, transliterations are presented in their published formats, with occasional rearrangement of graph order and case assignment. For abbreviations consult http://cdli.ox.ac.uk/wiki/abbreviations_for_assyriology.

8 Compare Szarzyńska 1992, 271, where Szarzyńska expresses reservations that MUŠ3+ABa always signifies Zabala. See n. 76 below.

9 This difference in variant is already noted by Heimpel (1999, 152).

10 See Green 1991, 47.

11 For the function of classifiers in logographic writing systems, see the introduction to this volume.

12 For KIa BUa as “measured arable land,” see Englund 1998, 208 and n. 467 for GIŠ KIa BAR, “wooded border.” Compare the Archaic Geographical lexical list, where the graph seems to function as a signifier for various types of land (KI).

13 The divine classifier AN was also added periodically when a deity’s name was graphically present in the writing (e.g., Nippur, the name of whose patron deity, Enlil, also serves to signify the city: ^{AN}EN.LIL^{AN}). Phonetic indicators, too, could be added—for example, Zabala, written ^ZAMUŠ3.AB^{KI}, where ZA is an indicator.

14 In his analysis of AB, Michalowski (1993a) argues that this fact may be the result of repurposing in the writing system. He proposes a situation in which proto-cuneiform originated as an ideographic script, one tied to no spoken language. In this scenario, the AB graph could have had the semantic value as city. Having then no intrinsic phonetic value, AB could be “read” by Sumerian scribes as *ki*, “place,” and by Akkadian scribes as *ir/uru*, “city.” In later periods, the values KI and URU would then have been assigned to different graphs, KI and URU, respectively. (Michalowski does not posit why neither value was anchored to AB, even if, as he suggests, Uruk was considered “the” city.) Evidence for this hypothesis is provided by the later alternative, the short-lived Sumerian writing system UD.GAL.NUN (UGN). In texts written in UGN, the graph UNUG (gunified AB) has the value KI (e.g., the god Enki’s name, written in the conventional Sumerian writing system as AN.EN.KI, is written in UGN UD.GAL.UNUG). Michalowski further points to the writing of the name Nergal, which, though seeming to be written wholly in the conventional

Instead, these cities came to be signified by AB+indicator+KI. Furthermore, the tradition of distinguishing the variant of the AB graph used to signify the cities Uruk, Ur, Zabala, and Larsa from that used to signify Niġin/Našše continued at least into the Early Dynastic period—in spite of the fact that, in addition to the introduction of classifying agents to the script system, manifold streamlining modifications were also made to the writing system as a whole.¹⁵ One of these modifications involved collapsing graph variants into one simple form, for example, ABa and ABb collapsed into simple AB. The preservation of the variants ABa and ABb in these city names suggests, then, that they were not simply allomorphs in the Archaic texts but had visual meaning.¹⁶ The purpose of this chapter, therefore, is not to revisit the Archaic AB as a lexeme as such—it does not seek to assign a word to the graph; rather, it will investigate manifestations of this visual phenomenon for usage and denotation.

2. ESTABLISHING CITY NAMES

Written in proto-cuneiform, the Archaic texts continue to comprise one of the most impenetrable sets of Mesopotamian corpora. Visually, the graphs that are core to any logographic script are in their early pictographic form, not yet developed into the abstract wedge style easily recognizable to the trained Assyriologist.¹⁷ Even more challenging is the fact that the texts are, in the main, administrative in nature, written in a bureaucratic shorthand. Meant to be understood by officials only, the texts have an ephemeral quality suggesting that they were not intended to be living archives.¹⁸ Furthermore, where in later periods the cuneiform writing system more consistently makes use of the rebus principle, grammatical markers, and phonetic and classifying agents, all of which aid in the identification of a graph and its syntactical function, the proto-system only hints at these

Sumerian writing system as AN.KIŠ.UNUG and AN.AB×GAL, contains a fragment of the UGN system, where UNUG and AB are phonetic indicators having the value ‘*ir* (uru). Michalowski himself recognizes that this hypothesis is delicate and dependent on numerous factors. And though it is attractive and may very well prove to be correct, AB notably does not occur in the writings of most city names—a point that Michalowski raises.

15 These modifications eventually whittled down the extensive sign list from about twelve hundred to about six hundred signs by the second and first millennia (Cooper 1996, 40).

16 The Archaic corpus is riddled with such seemingly minor graphic differentiations, that is, variations in basic graph shape, used to convey related yet distinct meanings. Perhaps the best example of these phenomena is KAŠa, b, and c. As demonstrated by Englund, KAŠa (itself a gunified form of the graph DUG) signifies “beer,” while the variant-form graphs KAŠb and KAŠc signify a likely fermented beverage of dairy fat with crushed barley (Englund 1998, 168 fig. 160). As will be shown, the corpus also demonstrates the reverse phenomenon, in which variations in graph form are used interchangeably, seemingly without a change in signification.

17 For treatments on the development of the proto-writing system, see Falkenstein 1936, 1–66; Vaiman 1974; Green 1981; Powell 1981. See also Schmandt-Besserat 1992 (with review by Michalowski 1993b); Nissen, Damerow, and Englund 1993; Krebernik and Nissen 1994; Bauer, Englund, and Krebernik 1998, with a review by Powell (2000); Cooper 1996, 2000; Glassner 2003 (a translation of *Ecrire à Sumer: l’invention du cunéiforme*), with a review by Englund (2005); Woods 2010; Veldhuis 2012.

18 See Powell (1981, 431), who finds the texts to be written in such shorthand that one needs, in fact, to know the language to understand the texts.

features.¹⁹ Therefore, even what would appear to be the simplest of tasks—namely, identifying the names of cities—can be a fraught enterprise.

As observed by Green more than forty years ago, still very much in the early days of decipherment, “decipherment of [proto-cuneiform] texts is a process of pattern recognition, diachronic comparison, and conjecture” (Green 1981, 353). Employing the hypothesis that the earliest tablets must be read spatially—for even semantics are incorporated into the layout of information (as similarly in a modern receipt)—Green sees the principles of sign-clustering and “one conceptual unit per spatial unit” to be paramount to understanding the relationship of signs to one another. This is to say that when graphs are inscribed in close proximity within an allocated area, they share a relational quality. Once clusters are determined, it is then, with some hazard, possible to locate subject-heads and modifiers within a cluster. As the writing system developed from the Uruk IV to the Uruk III period, allocated areas were more clearly delineated into cases, which were in turn assigned certain semantic qualities. As a general rule, subdivisions within a case are subject to the agent (clustered graph set) in the more general area of the case (e.g., disbursements > persons or offices), while totals for accountable commodities and responsible officials are recorded in an even more pronounced and segregated subscript.²⁰

In his investigation of place names, Hans Nissen is wary of using the syntax of layout as a method for determining city status; therefore, for Nissen, the only true way of identifying a city’s signification format is to search backward, using later writing conventions as guides. Recognizing that this method is itself limited because of later graphemic changes in signification and that abandoned or forgotten cities would likely be textually absent from later texts, he contends that the Early Dynastic exemplars of the archaic Cities lexical list discovered during excavations at Fara and Abū Ṣalābikh²¹ truly serve as the most useful templates for identifying the writing conventions of various well-known locations in the

19 See Green (1981, 359–60), who suggests that certain classifying determinatives (GIŠ, KU6, MUŠEN, and DUG) were employed regularly in lexical and sometimes administrative texts. Green also contends that the grammatical markers -ka and -ra appear, while elsewhere Green (1991, 48–49) sees AN as a classifier for god(dess) and KI for place. It must be noted, however, that in her chart for this discussion, Green depicts ABA×KU6 classified by KI seemingly as a proto-cuneiform combination. To my knowledge this graph cluster is not attested in the Archaic corpus. See also Krispijn (1993), who argues that there is significant evidence for the rebus principle within the Archaic corpus. A prime example for this argument is the use of the graph for a reed (Sumerian gi) being used to signify the homophonic Sumerian word for “to return or send”: gi. Krispijn also finds evidence of aurality in the writings of certain city names; for example, Gaburra is written GA2 BUR ME, where GA2 functions as a phonetic complement, and the city Isin is signified by a stalk of grain with an ear (IN), as is also the city’s patron goddess, Ašnan, signified by IN (Isin)+AN. In this latter case, AN functions not as a classifying agent for divinity but as a phonetic indicator. See also n. 32 below. See further Steinkeller 1995, 694–95 et passim. For IN as a reading of Isin, see Steinkeller 1978.

20 For further mappings of layout, see Powell 1981; Friberg 1997; Nissen, Damerow, and Englund 1993; Krebernik and Nissen 1994; Englund 1998, 56–64; 2004.

21 The Early Dynastic period is subdivided into ED I–II (c. 2900–2700 BCE), ED IIIa (c. 2600–2500 BCE), and ED IIIb (c. 2500–2340 BCE). The texts from ED I–II are *primarily* known from the city of Ur (modern Tell Muqayyar); those from ED IIIa are *primarily* known from Ṣuruppak (modern Fara); and those from ED IIIb are from Abū Ṣalābikh (ancient name unknown), Adab (modern Bismaya), Girsu (modern Tello), Lagash (modern al-Hiba), Nippur (modern Nuffar), and Ur.

Archaic corpus.²² And, indeed, thanks to these Early Dynastic copies of this list, sixteen Uruk III witnesses have been identified. From them, together with the sign-clustering and case-arrangement deductive methods, the graphemic signification for Uruk, Ur, Zabala, and Larsa are established, as well as several cities signified by single graphs that index divine standards—for example, Adab—or clusters of graphs that do not incorporate the AB graph—for example, Šuruppak, Dilmun, and Urum (Uqair).²³

3. CITIES SIGNIFIED BY ABA+INDICATOR: URUK, UR, ZABALA, AND LARSA

As stated above and as illustrated in figure 10.1a, the city Uruk is signified in the Archaic corpus by a striated version of the ABa graph ²⁴ In the cases of Ur and Zabala, URI3, ²⁵ the standard of Nana (fig. 10.1b), and MUŠ3, , the standard of Inana (fig. 10.1c), are

22 The lexical-list tradition is the foundation of the cuneiform scribal education. Appearing to the modern reader as sort of subject indices, lexical lists begin as series of entries whose subjects, arrangements, and graphs were already known to the scribe (writer or consultant). Originally, such lists consisted of single-column entries written only with proto-cuneiform writing conventions. As the lists were recopied over millennia, these conventions were periodically modified, with the contents of the lists eventually being wholly reconfigured. Changes to the lists began at a relatively early stage, when they start to be written with additional columns containing parallel syllabic renderings of the entries and, still later, Akkadian and other language-equivalency columns. Not glossaries as such, lexical lists constitute our foremost tool for understanding the Sumerian language and writing system. For a study of the Cities lexical list in its relation to the “City Seal,” see Matthews 1993. For an extensive treatment of the cuneiform lexical tradition, see Veldhuis 1995, 2004, 2014. See also Cavigneaux 1980–83; Steinkeller 1995–96; Taylor 2007; Civil 1975, 1976, 1982, 1995, 2010; and Wagensonner 2010, 2012.

23 Nissen also identifies the cities Kiš, Ešnuna, and Umma. Ešnuna is difficult to confirm, as it would be represented by the compound graph AB+NUN, where AB would function as a phonetic indicator (eš). The writing (GIŠ+UH3, which Nissen proposes for Umma based on later writings, is still debated (cf. Bartash 2015, 2). For Dilmun, see Englund 1983. For Urum, see Steinkeller 1980; Green 1986b. The writing for the illustrious religious capital of later periods, Nippur, is also still debated, but if it is in fact the second entry in the Cities lexical list, it would be signified by the combination graph ENa+ZATU 291. There are several attestations for this combination in the Archaic corpus, all of which suggest that ENa+ZATU 291 is at the very least an official, geographical entity, or god. Most convincing are MSVO 1, 94+124, where ENa+ZATU 291 is listed with the official PA KALAM (see Monaco 2007, 11 n. 66, for this official) as receiving barley; and MSVO 1, 107, where ENa KIDa may represent a god, since the colophon, rev. col. 1 1.a.ENa ENa+ZATU 291 1.b.ENGIZ ŠAGAN#, could be read ENGIZ ŠAGAN (cultic chef?), the En of ENa+ZATU 291. This title may again be meant in MSVO 1, 95 A, where ENGIZ ŠAGAN ENa+ZATU 291 is listed with the officials PAa GIR3gb, “equid handler,” and GALa ŠABa, “seller.” The broken colophon of MSVO 1, 185 may record a SANGA of ENa+ZATU 291 in charge of rations. Finally, the unidentified lexical list W 20921 records an ENa+ZATU 291 just before an ENa ŠURUPPAKa. For the rather intense debate concerning a reading of ZATU 291 as KID(a) or E2, see Steinkeller 2010; Englund 2011; cf. Wang’s study (Wang 2011).

24 For TE+AB as an alternative rendering for Uruk, see Michalowski 1993a, 122.

25 A note on URI3 vs ŠEŠ: The graphs ŠEŠa and URI3a are both attested on tablets dating to the Uruk IV period, with ŠEŠa being more common. Discrete ŠEŠa and discrete URI3a are far less common on tablets dating to the Uruk III period, all examples being in damaged sections and/or on tablets of uncertain provenience. To my knowledge, there are only four possible attestations for the combination ŠEŠa+NA (with a strong possibility that KI is meant): W 17729,bq, a list of fields, MSVO 1, 71, and the almost obliterated W 24011,1, and W 23992. On both W 17729,bq and MSVO 1, 71, NA (KI?) is in ligature with ŠEŠa, written just below it. There are eleven URI3a+NA attestations. Four of them (W 15785,a7; W 20274,119; W 20274,50; and CUSAS 1, 217) record an official titled PAP URI3a+NA. Another four, all from Uruk, record an EN URI3+NA (W 20274,37; W 20327,1; W 20274,80+; and W 20274,86). One additional Uruk tablet,

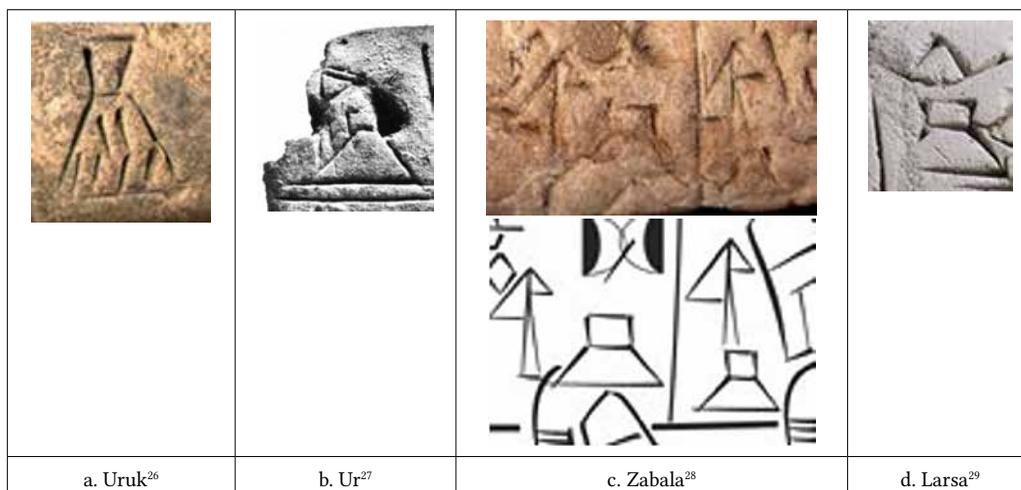


Figure 10.1. Cities signified by ABa+indicator: Uruk, Ur, Zabala, and Larsa.

customarily either inscribed to the left of unmodified ABa , towering over the graph, or are, more rarely, inscribed directly above it (fig. 10.1c). While the positioning of the standards for Nana and Inana next to the ABa graph gives a protective impression, in the case of Larsa, the symbol of Utu, the rising (and perhaps setting) Sun, UD,  (fig. 10.1d), hovers just above the ABa graph.³⁰

W 21671, records an EN NAGAR URI3+NA. Also interesting is W 21671 because the title is attested on the tablet in two manners: one in full with NA, and one, in a later case, in shorthand, absent the NA (cf. MSVO 1, 82). Additionally, MSVO 3, 45 lists a 3(N57) URI3a+NA BULUG3, perhaps referencing a full(?) moon Nana, while W 17729,bv simply attests to URI3a+NA. In all but one attestation of URI3a+NA, the NA is inscribed either to the right or left of the URI3. On W 20274,50, PAP URI3a+NA is inscribed such that the PA is to the left, while the URI3a is over the NA—as is typical in signifying tripartite proper nouns. For the writing of the name Nana as URI3+KI, see Szarzyńska 1987–88, 8–9; cf. Krebernik 1994a, 383–84; Steinkeller 1995, 706. I have located no examples of ŠEŠ+AB.

²⁶ For Uruk, there are too many attestations to list here. The image is from W 9123,c, Uruk IV, Uruk.

²⁷ Regarding Ur, there are relatively few attestations for Ur as written URI3+ABa: Uruk III, Uruk: W 21126; W 24004,3b; W 18247,5; W 19948,11; W 21115,4; W 20274,16; W 20511,2. The image is from W 19948,11, Uruk III, Uruk.

²⁸ The attestations for Zabala are: Uruk III, Uruk: W 20274,33; W 20274,6; W 20274,78; W 20274,89; W 20493,2; W 20493,16; W 20274,100; W 20367,3; W 20274,16; W 20274,35; W 20494,1; W 20494,9; W 21045,1; W 20493,5; W 20493,15; W 20274,39; W 20274,76; W 17729,gc; W 21253,10; W 21253,2; W 20327,12; W 20573,1; W 18247,4; W 20593,17a; W 15771,w (see Englund 2011 for the reading of this image); W 15776,f; W 15773,f + W 15776,k; W 20266,148; W 14731,i; W 15897,c12; W 21733,1; W 21500 + W 21555?; W 17729,gc; W 20274,26; W 21662,2; W 21733,7; W 20274,53; MSVO 3, 5; and Uruk III, Umma(?): CUSAS 31, 118. The image is from MSVO 3, 18, Uruk III, Umma(?). For a discussion of Szarzyńska's alternative reading for MUŠ+AB, see n. 76 below.

²⁹ As in the case of Ur, Larsa, too, has few attestations: Uruk IV, Uruk: W 6705,g; Uruk III, Uruk: W 21126; W 17729,o; W 20327,5; W 24004,3b; W 24033,1; W 17729,g; W 20511,2; Uruk III, Umma(?): CUSAS 31, 121; and MS 4540. The image is from CUSAS 1, 98, Uruk III, Uruk.

³⁰ On the very fragmentary Uruk IV tablet W 6705,g, the UD emblem, if that is what it is, is rendered without the globe, which normally sits in the center of the bowed horizon. On W 6705,g, this empty bow rests on a clearly expressed ABa.

4. POTENTIAL ARCHAIC SIGNIFICATIONS OF NIĠIN/NAŠŠE

Unfortunately, extricating the archaic graphemic convention for the city Niġin from the goddess Našše is not as readily achieved as in the cases of Ur, Zabala, and Larsa from their patron deities. Whereas in the cases of Ur, Zabala, and Larsa there is, even in archaic texts, a clear distinction between the name of the deity and the deity's city (i.e., the names of the patron deities of these cities never include the AB graph even into later periods), in later-period texts the writings for the city Niġin and its titular goddess Našše were written using the same composite graph, AB×KU6. Although it can be inferred from this phenomenon that the symbol for Našše, and hence her city, was KU6, , this simple fish icon never seems to function independently as a marker for the deity, as do URI3, MUŠ3, and UD for Nana,³¹ Inana,³² and Utu, respectively. Indeed, so core is the AB×KU6 graph to the goddess's identification that in later periods the graphemic representations for her name, city, and temple complex, Sirara,³³ all contain the composite graph. Though the arising confusion from this convention was eventually mollified with the appendage of the divine classifier AN to the composite graph when the goddess was signified and the place classifier KI when the city was signified, firm differentiation in the archaic materials is elusive. As can be seen from the following list of potential archaic attestations, there are four different graphemic contenders for writing either Niġin, Našše, both, or either³⁴—ABa×KU6, ; ABb×KU6, ; KU6+ABa,  ; and ABb+KU6,  —with the strong possibility that neither town nor deity is referenced but instead some sort of fish or fishery is meant by either KU6+ABa or ABb+KU6.

31 By the Uruk III period, the phonetic indicator NA is appended to the URI3 graph to specify a reading “Nana.” (For an extensive discussion of these attestations, see n. 25.)

32 It has been assumed that the classifying agent for divine status, AN, was added to the MUŠ3 graph during the Uruk IV and Uruk III phases of the writing system to indicate the reading “Inana.” In reality, AN may not have functioned in this manner. Instead, the graph may function to designate Heaven (AN) Inana from Mountain/Land/Netherworld (KUR) Inana. For this latter Inana, see Szarzyńska 1997. For the possibility that AN functioned as a phonetic indicator, compare the writing for the goddess Ašnan (n. 19).

33 The name is written in full as UD.MA2.AB×KU6.TAG.KI (Heimpel 1981, 98–101; 1999, 152). For “Sirara” as Našše's temple complex, rather than a name for Niġin, see Edzard 1999.

34 Of course, it is also conceivable that Sirara might be signified by one of these writings (as either an earlier manner by which to write the name or a shorter forerunner to the later Diri version).

5. ATTESTATIONS³⁵**AB×KU6, URUK IV, Uruk**

W 19408,40

Obv. col. 1.3. 1(N01) ABb×KU6a GA2a1 KU6a AN ABb³⁶

W 14338,a+W 14338,b

Obv. col. 1.2.a1. 2(N14) 2.a2. 2(N02) 2.a3. 2(N01) 2.b. HI ABb×KU6a³⁷**AB×KU6, URUK III, Uruk**

W 17879,y

Obv. col. 1.4. 1(N34) SUHUR# ABb×KU6a NIRa [. . .]³⁸

W 11931,c

Obv. col. 1.2. 2(N01) ENa ABa×KU6a³⁹

W 24004,2

Obv. col. 1.2. 1(N01) SIG2e SIG7 ŠU GALa SAL ABa×KU6a⁴⁰

W 20274,110

Obv. col. 2.3. NAGARb ABa×KU6a⁴¹

W 20367,1

Rev. col. 1.2. NAGARb ABb×KU6a⁴²

W 24181,c

Obv. col. 1.1. ABb×KU6a#? [. . .]⁴³

W 21208,18

Obv. col. 2.2. [1(N01)] ABb×KU6a⁴⁴

W 24222

Obv. col. 2.3. 1(N01) ABb×KU6a⁴⁵

MSVO 3, 21 URUK?

Obv. col. 1.4. 1(N03) BA# SARA# GU4# SAL ABb×KU6a#

col. 2.2. 2(N03) SAL SARA# X GU4 ABb×KU6a#⁴⁶

35 Unless otherwise noted, all references to *copies* indicate hand copies, and those to *images* indicate digitized photos that can be found at <https://cdli.ucla.edu/>. References to *photos* indicate nondigitized photos that are archived in the Babylonian Section of the Penn Museum, Philadelphia.

36 W 19408,40: According to the copy, ABb×KU6a is inscribed on the top edge above the final case of column 1. The available image does not allow for a collation of this graph; it does, however, demonstrate a badly damaged section with an illegible AN ABb and clear ABa in the lower delineated section.

37 W 14338,a+: The copy and transliteration (Englund and Nissen 2005, 47) have NAŠŠEa (ABa×KU6a); however, as similarly with W 17879,y and CUSAS 31, 24, the image suggests a somewhat curved top horizontal, so ABb×KU6a might be meant.

38 W 17879,y: CDLI transliterates it as ABa×KU6a; however, as similarly with W 14338,a+ and CUSAS 31, 24, the available image suggests a somewhat curved top horizontal, so ABb×KU6a might be meant.

39 W 11931,c: The image demonstrates a clear ABa×KU6a, with ENa inscribed directly above the graph.

40 W 24004,2: The image demonstrates a clear ABa×KU6a. Although the sign cluster SIG2e SIG7 is clearly off to the right of ABa×KU6a, it is difficult to ascertain the relationship between the remaining signs ŠU GALa SAL. If read from lower left to right in a clockwise direction, we might read “delivery of a woman to the foreman of ABa×KU6a”; however, more likely is “delivery accepted by the forewoman of ABa×KU6a,” which is how it is read here.

41 W 20274,110: The image demonstrates a clear ABa×KU6a, with NAGARb inscribed directly above the graph.

42 W 20367,1: The image demonstrates a clear ABb×KU6a, with NAGARb inscribed directly above the graph.

43 W 24181,c: No image of this badly broken small fragment is available. The available copy suggests a much damaged though clear ABb[×KU6a].

44 W 21208,18: A witness to the Cities lexical list, the image has a clear ABb×KU6a.

45 W 24222: Perhaps a witness to an unknown lexical list, the fragment displays a clear ABb×KU6a listed between entries 1(N01) KIŠ ABa and 1(N01) UD UŠUR3b2. Compare the Early Dynastic exemplar of the Cities list AbS-T 094 col. 2. 1. AN ABa×KU6 2. KI UŠUR3 (LAL2) and the discussion below.

46 MSVO 3, 21: Both clusters are marred by either dirt or a break in the tablet; however, the image suggests that in each case ABb×KU6a is meant. Further, the SAL in column 1.4. is clearly to the left of ABb×KU6a, while BA# SARA# GU4 are clustered in the top of the case. Column 2.2. is more jumbled, with

AB×KU6, URUK III, Other

CUSAS 31, 24 unprovenienced Obv. col. 1.4.a. 1(N01) SI TUN3a 4.b. ENa ABb×KU6a⁴⁷
 MS 4503 UMMA? Obv. col. 1.5. 1(N01) SAL ABb×KU6a⁴⁸

KU6+AB, URUK III

W 14111,r URUK Obv. col. 2.3. ABb# KU6a ABa⁴⁹
 MSVO 4, 45 LARSA? Obv. col. 1.1.a. 6(N14) 1(N01) ŠEa KU6a ABa 1.1.b. 9(N19)# 4(N04)#⁵⁰
 CUSAS 1, 122 unprovenienced Obv. col. 1.3. URUa1 ABa KU6a KISALb1 2(N57) DUBa⁵¹
 CUSAS 31, 150 UMMA? Obv. col. 2.3. KAŠb KU6a# ABb# ŠEa#
 Rev. col. 1. 9(N14) 1(N01) ŠEa# KU6a ABb KAŠb KI# SAG⁵²
 MS 4539 UMMA? Obv. col. 1.3.a1. XX X 3.a2. X X 3.b. KU6a ABb ABb⁵³

AB+KU6, URUK III

W 14777,b URUK Obv. col. 2'.5'. 1(N01) ABa KU6a⁵⁴
 MS 2519 UMMA? Obv. col. 4. 1(N01) ABa KU6a⁵⁵

5.1. DISCUSSION OF ATTESTATIONS

We may begin by noting that three exemplars of AB×KU6a have a form of AB that has a slightly rounded top horizontal: Uruk IV, W 14338,a+; Uruk III, W 17879,y; and CUSAS 31, 24 (unprovenienced).⁵⁶ Not the pronounced gabled roof of ABb, this form of AB is still decidedly graphically different from the resolute horizontal of ABa; and, although transliterated inconsistently by editors, it is here assigned the value ABb.⁵⁷ Contextually, the

the SAL wedged almost as an afterthought to the right of the GU4. The SAL must go with ABb×KU6a, since we would expect an AB2 if a female cow were meant.

47 CUSAS 31, 24: CUSAS 31 transliterates this compound graph as ABb×KU6a; however, as similarly with W 14338,a+ and W 17879,y, the available image suggests a somewhat curved top horizontal, so that ABa×KU6a might be meant. The ENa is inscribed directly to the right of the graph.

48 MS 4503: The image demonstrates a clear ABa×KU6a, with SAL inscribed directly above the graph.

49 W 14111,r: As similarly with MS 4539, KU6 is written over AB, with a second AB not under but to the right of the cluster. Unlike with MS 4539, KU6 is clearly over ABa, while the AB on the right is ABb.

50 MSVO 4, 45: Here, as in the other cases, the KU6a is inscribed directly over ABa. For MSVO 4, 45 as the part of the “Larsa” collection, see MSVO 4, 14–19; Englund 1998, 29–30.

51 CUSAS 1, 122: In this account of cereal products, Monaco 2007, 4, reads KU6a together with KISALb1 (with numerous attestations of the sign cluster), thereby interpreting KU6a KISALb1 as the official in charge (see Monaco 2007, 11, for the archive of this official). It is unclear how ABa+URUa1 functions.

52 CUSAS 31, 150: In each cluster, KAŠb is to the right of KU6a ABb, where KU6 is inscribed over ABa.

53 MS 4539: Although this case is mostly destroyed, the unusual writing KU6 over ABb over ABa (possibly ABb, as the upper horizontal would seem to be somewhat rounded) can be made out in the upper left corner of the tablet, thus suggesting that a location or official is indicated. Compare the similar W 14111,r.

54 W 14777,b: A witness to the Archaic Fish list, the image has a clear KU6a over ABa.

55 MS 2519: The image has a clear KU6a over ABa.

56 All excavation numbers that begin with the letter W were discovered at Uruk (aka Warka). Further, unless otherwise noted, all tablets date to the Uruk III period.

57 It should be noted here, briefly, that Uruk IV forms of graphs are distinctly more “drawn” than Uruk III forms of graphs; thus Uruk III forms are more geometric and slightly less pictographic (see n. 17 for

very broken W 14338,a+ records that ABb×KU6a is the recipient of groats (HI), whereas in W 17879,y, ABb×KU6a receives dried fish (SUHUR). The context of CUSAS 31, 24 is more telling. Clustered with the graph EN, a graph that in later periods when modified by a deity's name means "priest/priestess," the writing ENa ABb×KU6a strongly suggests that ABb×KU6a signifies the goddess Našše, as in "priest/priestess of Našše."⁵⁸ In the Archaic corpus, ENs are attested as functionaries of the deity Nana,⁵⁹ never for the city Ur, and of the goddess Inana, never for the city Zabala;⁶⁰ however, ENs are also attested in the Archaic corpus as functionaries for the city Uruk (a combined religious and "secular" title in later periods).⁶¹ Unfortunately, even if Našše is behind the title ENa ABb×KU6a, the incredibly fragmentary tablet W 11931,c attests to the writing of this office with a clear ABa×KU6a, thus nullifying any potential argument that ABb indicates divinity while ABa signifies location. This same variability is attested on tablets W 20274,110, which records a NAGARb ABa×KU6a, and W 20367,1, which records the same title using a clear ABb. In both texts, the official is the recipient of quantities of fish of varying types. A final example of a high official modified by the composite graph AB×KU6a is attested on W 24004,2, which records the reception (ŠU) of yellow/green cloth (SIG2e SIG7) by a GALa SAL, "forewoman," of ABa×KU6a.

The possible Umma tablet MS 4503 seems to list a woman (SAL) of ABb×KU6a among a series of officials receiving commodities, rather than a woman being received by ABb×KU6a. And, if a woman, rather than a female cow, is meant in the disbursement account MSVO 3, 21 (also unprovenienced), then, as with MS 4503, a woman of ABb×KU6a is again listed as receiving goods together with officials such as an En of Uruk. That these women were likely not workers is indicated by their association with a city/god, the company with which they are listed, and the absence of the graph KUR, "worker" (cf. W 24004,3b). To substantiate that Našše rather than Niġin is signified, we may compare W 9168,h+, which records a SAL NAGA (with NAGA perhaps signifying the goddess Nisaba) and a SAL MUŠ3a# (perhaps the goddess Inana; cf. W 20274,86) as receiving goods among other well-known officials, such as PAPA NAM2 BUa, PAa AN MARa, and a male and female

references on graph development). With this said, tablets dating to either the Uruk IV or III period do not demonstrate rounded top horizontals on ABa as it is attested in the writings of other city names. I assign this rounded top AB to ABb simply because to assign it yet another value would seem gratuitous.

58 It is, however, also possible that Sirara is meant, as this inscription also lists an En of what may be the temple of Isin (ENa E2a INb). For IN as a writing for Isin, see also n. 19.

59 For example, W 20274,119; W 20274,86; W 20327,1; W 20274,37; W 20274,80+W 20274,127+W 20274,136; and MSVO 1, 82.

60 For example, W 20596,2; W 20596,2; and perhaps Uruk IV W 19584,a.

61 For example, MSVO 3, 21; RGK 20011204t; CUSAS 1, 20; CUSAS 31, 185; W 22091,5; W 18247,4; W 9578,g; W 15775,d; and W 22091,5. There are also lagar priestesses exclusively attested at Uruk (UNUGa SAL LAGARa): CUSAS 31, 40; CUSAS 31, 13; MS 2430; MS 2509; and MS 2521. Although there are several attestations for an EN UD, the polyvalence of UD makes it impossible to know whether or not the god is signified, but it would seem likely. See also the Archaic unidentified lexical list on W 20921, which records an ENa# ŠURUPPAKa#. Although a study devoted to the later Ur III period, see Hallo 1957 for EN as a title.

Obv. col. 2 2. [1(N01)] ABb×KU6 3. [1(N01)] UŠUR3b1# [...]	Obv. col. 2 3. 1(N01) ABb×KU6 4. 1(N01) UŠUR3b2 UD	Obv. col. 2 1. AN ABa×KU6 2. UŠUR3# KI
a. W 21208,18, Uruk III	b. W 24222, Uruk III	c. AbS-T 294, ED IIIb

Figure 10.2. UŠUR3.

UKKINa ŠU.⁶² It should be noted, however, that SAL is also attested in combination with the cities Uruk and Ur,⁶³ thereby again complicating any divinity/city assignment.

Unfortunately, although W 21208,18, a witness to the City lexical list, attests to the writing ABb×KU6a—a writing we would assume to be the name of the city Niġin, in keeping with the general character of the list (fig. 10.2a)—a later Early Dynastic copy, AbS-T 294 (fig. 10.2c), records the entry as AN ABa×KU6, suggesting the deity, not the city, is meant; however, a reading Niġin may be bolstered by W 24222. W 24222 is an archaic fragment of an unknown lexical list (fig. 10.2b), which, similarly to W 21208,18, has ABb×KU6a *and*, similarly to the Early Dynastic copy, records the entry UŠUR3 in the preceding line. However, where W 24222 has UD UŠUR3b2, the later copy has KI UŠUR3 (fig. 10.2). As can be seen in figure 10.2a–c, though it is possible that the later scribe of AbS-T 294 misinterpreted the vaguely similar UD graph for a KI, it is more likely that UŠUR3 is to be read as niġin₅, “district [irrigation] or vicinity.”⁶⁴ If this reading is correct, then the ABb×KU6a in both W 21208,18 and W 24222 could also be read as Niġin (niġin₆).⁶⁵ One wonders, too, whether there might be some balance at play between the AN of ABa×KU6 and the KI of UŠUR3# in AbS-T 294.

Turning now to the remaining ABb×KU6 attestation on W 19408,40 and those attestations that demonstrate a seemingly altogether different convention for rendering either Niġin or Našše, two can immediately be removed from consideration: W 14777,b from Uruk and the unprovenanced MS 2519. Each has ABa hovering over KU6a. Not only is this method of graph configuration not attested for the cities discussed,⁶⁶ but W 14777,b is also

62 PAPA NAM2 BUa and PAA AN MARa: for these officials as delivery (GI) agents connected to Larsa, see Englund 1996, 17, 188; 1998, 29–30; and Monaco 2016, 7 n. 41, 8 n. 48. For UKKINa, see Vaiman 1974, 25; Johnson 2014.

63 Respectively, the combinations are: Uruk IV W 19591,a, which has SAL UNUGa, and Uruk III W 18247,5, which has SAL URI3a ABa. It must, however, also be noted that in each instance the inscription is quite broken.

64 A fly in the ointment of this reading is the UŠUR3 itself: W 24222 presents the graph clearly as LAL2×AŠ (UŠUR3b1). If the abraded sign present on AbS-T 294 is read LAL2×AŠ2 (UŠUR3b2), then AŠ/AŠ2 may be functioning as a phonetic indicator where the UD of W 24222 should be read as a further indicator (U4), such that the sign should be read UŠUR3, “female neighbor.” In point of fact, the graph read as UD in W 24222 most resembles the UD of undeciphered graph UD+ŠU2 (ZATU 568). Furthermore, since AbS-T 294 reads this graph as a clear KI, it would not suggest that a neighbor is meant, but instead a place. Compare Krispijn (1993), who reads UŠ2/ŠAR2 as ušur, “neighborhood,” rather than niġin, “neighborhood.” To my knowledge, W 24222 and W 21208,18 are the only two Archaic tablets attesting this compound graph.

65 For lexical sections grouped according to phonological values, see Johnson 2014, 14.

66 This is to say that the standard or emblem will be higher than the AB graph. See the conclusion to this investigation below.

a witness to the Fish lexical list; therefore, the compound graph is listed among other fish entries.⁶⁷ In this configuration, ABa is to be read as “sea” or, more specifically, the Persian Gulf.⁶⁸ Indeed, Robert Englund in his discussion of the AB graph conjectures that the graph originally signified “sea,” though ultimately he suggests a meaning “temple” or “household.” For Englund, the iconicity of the AB graph can in no way be seen as representing a temple-like structure; rather, to him it resembles the large swampy area that extended out from the gulf, or the gulf itself. In a pre-Sumerian language, he suggests, this area (and graph) would have been referred to as eš. Using the rebus principle, the graph AB, read as pre-Sumerian *EŠ, could then be used phonographically to signify Sumerian /eš/, “shrine or small household,” as it does in later periods (with AB being read as eš₃). Further, this pre-Sumerian *EŠ could be read ideographically as /ab/, the Sumerian term for “sea” or the Persian Gulf, as it is read in later periods (Englund 1998, 81).

Unfortunately, though it might be tempting to use these attestations to justify a reading “sea” for the specific ABa variant, attestations for both ABa and ABb with a meaning “sea” are attested. For example, CUSAS 31, 82 records a large quantity of UBIC ABa, “sea carp,” while a list of fish on MS 4486 includes ABb KU6a+KU6a, “sea fishes(?)” and ABb GIRb, the ab-gir fish. Also containing a list of fish is MSVO 4, 15, with an entry ABb ZATU 759×KU6a, “sea, container of freshwater fish.” Curiously, references to ABa SUKUD and ABa SUHUR, which should translate to “sea carp” and “dried fish of the sea,”⁶⁹ are attested in contexts that suggest they are instead officials or priests, as they are in later texts.⁷⁰

Immediately observable of four of the remaining five attestations in contention is that they are inscribed on square-shaped tablets, with the fifth attestation being in the

67 It must also be noted that typical to sections within lexical lists where a series of entries contain the same graph (e.g., KU6), the reoccurring graph will regularly be in the same location in each case. This positioning can give the impression that the graph is functioning as an unspoken classifying agent; however, it can also be that it functions as the spoken core term (*genus*) compounded with a descriptor—for example, as in the English “swordfish.”

68 Compare ED I–II witness UET 2 234 obv. col. 1.11'. 1(N01) AB UB₂; col. 2.5'. 1(N01) NUN AB KU₆ and 16'. 1(N01) AB₂ KU₆; and ED IIIa witness SF 10 col. 1.13. 1(N01) AB-ubi_x (ŠE SUHUR), col. 2.11. 1(N01) AB ku₆, and col. 3.3. 1(N01) AB-gir.

69 See particularly MSVO 1, 179; CUSAS 1, 133; W 21263,1.

70 Of course, no discussion of the graph AB in relation to water is complete without mention of the Abzu, the primeval waters of Mesopotamian myth. To my knowledge, the traditional graph combination for this location, ZU AB, is never attested in the Archaic corpus outside of exemplars of the Cities lexical list, all of which are in less-than-optimal condition. (For various writing traditions for signifying this body of water, see Horowitz and Horowitz 1998, 306–17.) According to the copy, the fragment W 21208,18 records the entry 1(N01) ABa ZU followed by 1(N01) UD UR2. The image, however, has a clear ABa but barely hints at a ZU beneath it. The copy of W 20335,2+, in an obliterated section, suggests an entry 1(N01) AB ZU# between entries 1(N01) NEa GI and 1(N01)# UD# UR2#. In this section of the Cities list, on a later ED Fara witness SF 23, AN ABa, not AB ZU, is recorded. AN ABa is located between the entries ^dgibil₆ (AN NE GI) and UR2×UD on the tablet. Archaic tablet W 24219,2, too, suggests a reading 1(N01) ABa# ZU#; however, according to the copy, this entry is located in a different section, coming much later after the entries 1(N01) GIR2# SU and 1(N01) SU E2. SF 23 also preserves this entry for Abzu (written ZU ABa) after the entries Esu (E2 SU) and Girsu (SU GIR2). ZU ABa is also suggested on ED Abū Šalābikh witness to the Cities list, AbS-T 294. Here it is in the same section, where listed are the very broken Esu (E2# SU#), Girsu (SU GIR2#), and Abzu (ZU# AB#). Thus, from this highly fragmentary evidence, no truly firm conclusions can be made regarding the Archaic tradition signifying the Abzu, as written ZU.AB where AB would be read either phonographically as /ab/ or ideographically as “sea.”

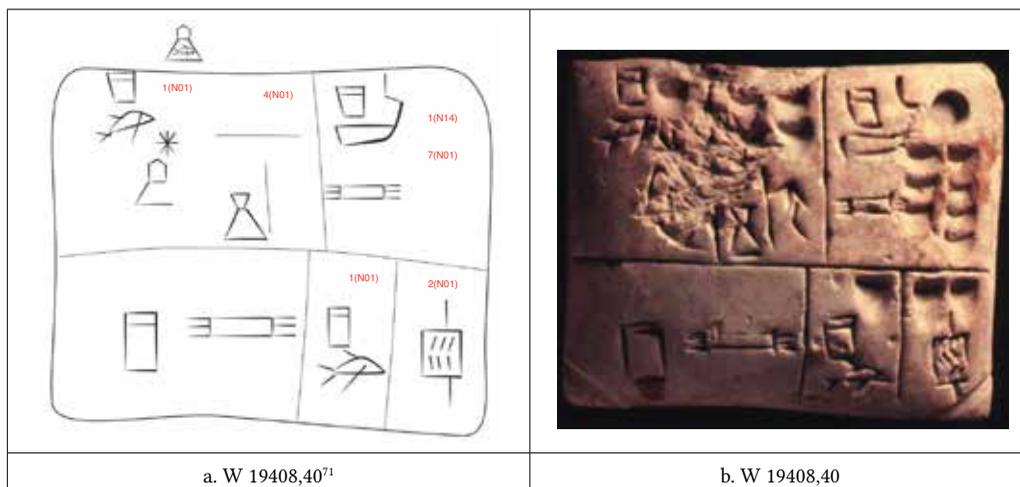


Figure 10.3. W 19408,40.

panoramic style.⁷² Also notable is that although two of the five were discovered at Uruk, with one of those two being the only other Uruk IV attestation of Našše/Niġin, the remaining three are unprovenienced (and possibly come from Umma and Larsa). Turning to W 19408,40 first, it can be seen that the hand-copy demonstrates a clear ABa×KU6a inscribed on its upper edge, just above the upper left case (fig. 10.3a). Although not present in this drawing, in the image of the tablet (fig. 10.3b) a dividing line can be discerned between this case and the adjoining one, which records an amount of 4(N01) with an ABa in its lower left subcase. Thus the ABa in the copy is not to be read as part of the conceptual unit in the upper left case. The reading is then: ABa×KU6a 1(N01) GA2a1 KU6a AN ABb, “1 unit basket of fish [for] the divine (AN) ABb, [which is to say,] Niġin” or “1 unit basket of fish [for] the divine (AN) ABb, [that of] Našše.” In either case, the KU6a in this instance belongs not with the AN ABb but with GA2, which here signifies a container.⁷³ The AN ABb, however, is interesting. Whether or not originally signifying a pre-Sumerian word for “sea,” /eš/, the writing of the AN above the ABb strongly suggests reading the graph set as /an ab/, “divine sea” (“basket of fish for[?] the divine sea”?) or as /an eš₃/, allowing the reading “divine shrine [Sirara?].”

Bolstering a reading of AB as /ab/, “sea,” is the entry AN AB on an Early Dynastic version of the Cities lexical list (*SF* 23). The entry is not in any Našše/Niġin context; rather, it may have been a writing for Abzu, the divine waters of later(?) tradition (see n. 70).⁷⁴ Bolstering a phonological reading /eš/ for AB are attestations for AB+ME, Sumerian išib, “priest,” in Archaic exemplars of the LUa lexical list (and elsewhere), where AB would

71 Modifications in red are mine. Unfortunately, the image of W 19408,40 (fig. 10.3b) does not give the upper edge and so does not allow for collation.

72 For the disqualified CUSAS 1, 122, see n. 51.

73 For a primer on the signification and accounting practices of early fisheries, see Englund 1998, 128–43.

74 Compare, however, RIM E1.9.1.2 a. 8–9, where Ur-Nanše proclaims that he built the Niġirsu temple referred to as the abzu(ZU.AB)-banda₃^{da}, “little Abzu,” and the é-⁴Našše, “temple of Našše.”

function as a phonetic indicator.⁷⁵ Complications with a reading “shrine” or “temple” for either ABa or ABb become evident in the existence of few, if any, compelling sign clusters that, aside from the cities discussed herein, suggest this signification.⁷⁶ Instead, as in later periods, the graph E2, with a meaning “house,” would seem to designate temples, as it does in later periods.⁷⁷ The Archaic corpus likely contains references to the well-known Uruk temples Eana, “House of Heaven” (W 23998,1; W 15897,c2; W 15920,a2; CUSAS 1, 119), and the Eanki, “House of Heaven and Earth” (W 20274,59; W 15773,l), as well as divine homes for the Tigris (CUSAS 1, 202), the goddesses Sud (W 23998,1), Ninlil (W 23998,1), Ningal (MSVO 3, 12), and Nintur (MSVO 3, 73; MSVO 3, 84; CUSAS 31, 101; CUSAS 31, 129),⁷⁸ and the god Nana (MSVO 1, 71). Sacred locations may also be behind two attestations for SAL+E2b, which in later periods when read as e₂-mi₂,⁷⁹ literally “woman’s house,” refers to

75 See particularly CUSAS 31, 68, which lists an ABb+ME E2, “išib of the temple(?)” See also Archaic exemplars of LUa, a lexical list that contains entries of various Urukian offices, where this official is written ABa+ME. Further, it may be that certain of the manifold discrete attestations for AB in the corpus could be a shorthand form either for this office or for the office of the nu’eša(k) priest (later written nu-eš₃-a). For this priest in the Early Dynastic version of the Kesh Temple Hymn, see Biggs 1971, 202.

76 Compare Szarzyńska 1981; also 1992, where she argues for reading the graph AB (of unspecified variant) as eš₃, “shrine,” thereby reading URI3+ABa, MUŠ3+ABa, and UD+ABa as “shrines of” Nana, Inana, and Utu, respectively. Szarzyńska also then reads lines containing the signs MUŠ3 ABa SIG as eš₃ Inana-sig, “shrine of Evening Inana,” while lines including MUŠ3 ABa AN she reads as eš₃ Inana-an, “shrine of Heaven Inana.” Unfortunately, Szarzyńska provides no tablet references for her examples of MUŠ3 ABa AN. Attestations for MUŠ3 ABa AN that I have located are: W 20274,33 obv. 1.a. 5(N01) GAa# DUBa, 1.b1A1. 1(N01) BA ABa AN MUŠ3a, 1.b1A2. 1(N01) SAL BA PIRIGb1. For this inscription, ABa is likely better read in combination with BA—analogueous to SAL BA in the following line. This reading would then be the same as that for W 20274,122 obv. col. iii 2. (see also CUSAS 1, 182 for entry AN ABa BA). References provided by Szarzyńska for MUŠ3 ABa SIG I have read as Zabala, reading AB2 rather than the incredibly similar sign SIG. As these tablets are part of a very particular group, listed with repeating structures and in contexts quite different from those bearing only MUŠ3 ABa, Szarzyńska’s reading may be the correct one; however, this discussion cannot be presented here. The clusters MUŠ3 SIG (AB2?), MUŠ3 AN, and MUŠ3 AN SIG (AB2?) do appear in the Archaic corpus with MUŠ3 AN also being attested in Archaic exemplars of the Geographical lexical list. For the use of AB in location combination graphs, see also the concluding discussion in this chapter.

77 Compare Szarzyńska (1992, 274–77), who sees rather more temples in the corpus. And for further reading, see Szarzyńska 1993, 2000.

78 There are an impressive seven attestations for the goddess Nintur, if she is signified in the Archaic corpus by the combination NIN+TUR3. Nintur is traditionally the goddess of midwifery, birth, and fating, and her name is written in later periods with the TU sign: AN NIN TU (or simply AN TU and, perhaps, TU during the Early Dynastic period). Although the TU graph,  (TUc), bears a strong resemblance to the TUR3 graph  (TUR3b), the two are kept somewhat separate in later periods, with TU signifying “to give birth” (Sumerian tud/tur₂) and TUR3 signifying an “animal stall” (Sumerian tur); however, TUR3 can also have a value du₂, which can signify Akkadian *walādu*, “to give birth.” While TUR3 has numerous attestations in the Archaic corpus, TU is rare; thus it is possible that this goddess was originally a goddess of animal stalls whose purview included midwifery, birth, and fating (such that Archaic TUR3 would have had the same semantic range of later TU, thereby including these functions), or her purview was expanded to include such functions and so was then signified by the graph TU. For reading NIN TU as Nintur, not Nintu, see Jacobsen 1973, 277 n. 9, where he cites An (Anum, CT XXIV pl. 12.16, in which ^dNin-tur₂ is glossed by tur₂). Jacobsen further sees both Archaic graphs TU and TUR3 as representative of sheepfolds, thereby holding no semantic distinction (cf. Englund [1998, 102 fig. 3.1], who sees TUR3 as a temple household).

79 MRAH O.4995 and CUSAS 31, 38. Note that both tablets may originate at Umma. See also Early Dynastic example RIM E1.9.9.1 vii 5–11 for E₂-MI₂ as “queen’s estate.” See also this same inscription, ix 12–16, where Bau is allocated rule over this area: e₂-E₂-MI₂ GANA₂-E₂-MI₂-ka ^dBa-ba₆ nin-ba i₃-gub.

the “estate of the queen” but can also be the name of the goddess Bau’s temple complex at Lagaš (ETCSL 2.1.7 B5.10.). Other potentially sacred places include the combination NA2a+E2a, which is attested clustered with Inana (W 20274,36; W 20274,54; W 20494,9; and by context, W 20327,4; W 22100,8) and Utu (W 20327,5). If read e_2 -nud, NA2a+E2a then likely refers to their divine sleeping chambers,⁸⁰ and the cluster 3(N57)+EN2+E2b is perhaps to be read “incantation” (with the later writing en_2 - e_2 -nu-ru for “incantation”). Final examples are KURa+E2a, either “House of the Netherworld” or “House of the Mountain,”⁸¹ and DUB+E2, “storehouse.”⁸²

Far more straightforward is the inscription located on MSVO 4, 45 (fig. 10.4a–b),⁸³ a tablet that may have originated at Larsa. MSVO 4, 45 lists KU6a over ABa as one of several locations(?) in a barley and emmer-seed account involving the officials PAPA BUa NAM2 and PAa AN MARa.⁸⁴ There is a third recipient, BUa+DU6a# BUa+DU6a#. BUa+DU6a BUa+DU6a would seem to be a specific location, as it is attested in the Archaic Cities list (W 21208,18 obv. col. 4. 4); however, that the sign compound is doubled could simply mean that it refers to a type of place, of which there may be several, or that it is a minor (i.e., non-city-state) location. In any case, that KU6a over ABa is recorded as one of several links in a grain-processing chain suggests that Niġin, not Našše, is meant. It would also mean that there was a writing convention for signifying Niġin that followed the pattern of the cities Ur, Zabala, and Larsa while also following the tradition of representing the city by using the ABb variant.

80 This reading would require reading NA2 with the attested later value nud (NU2), “to sleep or lie down,” generally written with either the classifier KI, “place,” or ĠIŠ, “wood” (see OB Nippur Kagal 113. e_2 ki-nud). Compare ETCSL 2.1.7 B 912. a_2 -nu $_2$ -da-ka-na, “[in] her bedchamber,” in reference to Bau, and Niġirsu: B 9.10 e_2 -nu $_2$ e_2 -dug $_3$ -ga-ni-a, “the bedchamber in his E_2 -DUG $_3$ [Good House],” and Nana in *LSUr* 441. a_2 -nu $_2$ -da kug d nanna-ka (Michalowski 1989, 180). See also ETCSL 4.80.1 211. a_2 -nu $_2$ -da kug d inana-ke $_4$.

81 There are too many attestations for each of these to list. For an ED IIIa example, see *SF* 54, which lists a series of incantations (en_2 - e_2 -nu-ru). It is likely that if KURa+E2a does reference a temple (Szarzyńska 1992, 275), it is not the famous temple of the god Enlil at Nippur simply because there is no firm reference to either Enlil or his city Nippur in the Archaic corpus (see n. 23). It is also possible that 3(N57) EN2+E2b and KURa+E2a refer to the same location if we accept that 3(N57) = KUR, as it does in the signification of the city Šuruppak (which may be signified by either 3(N57)+RU or KUR+RU), and if EN2 is taken as a phonetic indicator.

82 A further three combinations with E2 are suggestive: NAR A E2, NAR HAL E2, and TI E2 (though this latter writing may well signify the city Ebih, as it does in later periods). A note on GAL E2: One of the more common later combinations with E2, e_2 gal, literally “big house,” with meaning “[secular] palace,” is not common in the Archaic corpus. The majority of attestations for GAL E2 are not directly associated with a location (i.e., “palace of X”)—for example, CUSAS 1, 22; CUSAS 21, 89; CUSAS 31, 177; CUSAS 31, 118; CUSAS 31, 120; MSVO 3, 33; and W 20776. One attestation does give pause. Monaco suggests that CUSAS 31, 39 contains an attestation for a palace at UB (Umma? [see n. 23]); however, the sign UB, not GAL, is over the E2 (cf. the more likely CUSAS 21, 51 and CUSAS 1, 133). This signification is perhaps analogous to E2 in combination with Uruk in MSVO 3, 42, UNUGa E2a; W 20327,6, ŠURUPPAKa E2a?; and W 20274,61, NAMEŠDA X ŠURUPPAKa# E2a#. Note that the majority of these tablets are unprovenanced.

83 For a discussion of this tablet, see Friberg 1997, 42–43; Englund 1998, 188–91, 190 fig. 74.

84 For primers on early grain accounting practices, see Englund 1998, 181–204; 2001.

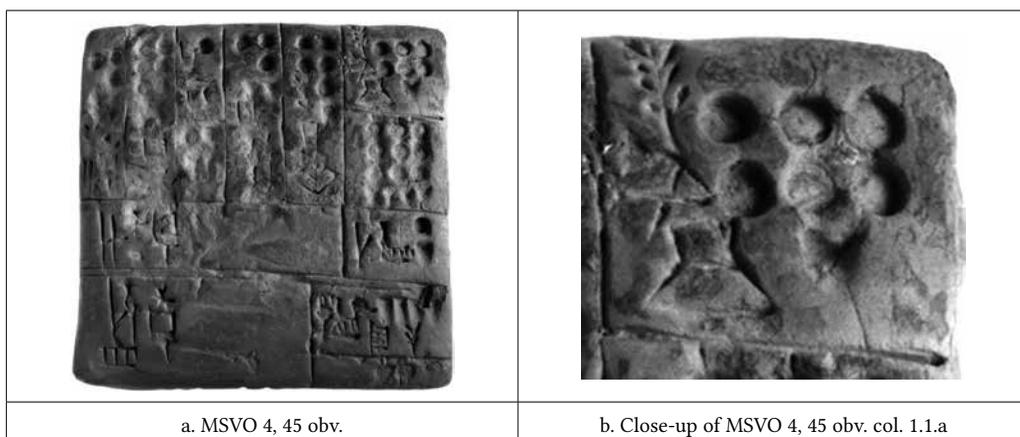


Figure 10.4. MSVO 4, 45.



Figure 10.5. CUSAS 31, 150.



Figure 10.6. W 14111,r.

Unlike MSVO 4, 45, Umma(?) tablet CUSAS 31, 150 (fig. 10.5a–d) records KU6a over ABb as the lone location in the subscript, with KI SAG as the listed official.⁸⁵ As with MSVO 4, 45, the document’s subject involves large amounts of barley. As similarly with W 14111,r (below), here the product of concern is KAŠ (KAŠb), with the suggested meaning “dairy fat mixed with crushed barley” (see n. 16). In his edition of this inscription, Salvatore Monaco (CUSAS 31) reads both ABs as ABa. As can be seen, they are quite clearly ABb, having telltale gabled “roofs.” He further reads KU6a ABa(!) as Niġin; unfortunately, however, he provides no justification for this reading.

As similarly with both MSVO 4, 45 and CUSAS 31, 150, W 14111,r attests to KU6 over AB; however, this AB is a clear ABa (as with MSVO 4, 45), while a second AB—ABb—is inscribed to its right (fig. 10.6a–b). As with CUSAS 31, 150, the inscription records KU6 over AB’s seeming reception (the record’s bearing no graph indicating a delivery: GI, BA, or GU7) of the product KAŠ (KAŠb), as well as simple dairy fat (DUGc) and GEŠTUc3 (unknown product; see W 20274,59; W 15773,l). Two responsible “en” officials are listed on the reverse of the tablet: ENa ERIMa NUNa and ENa AN RU.

The final Archaic inscription under consideration, MS 4539 (again possibly from Umma), also records a double AB. In this case it is inscribed as a vertical sign cluster: KU6 over ABb over ABb (fig. 10.7a). Although the case in which this cluster is attested is mostly destroyed on this poorly executed tablet, that it is in the upper left of the case indicates that it is likely connected to an unknown quantity of barley that would be noted to its right

85 Although it could be read as something akin to “fish-house,” this reading is contextually unlikely. Monaco (2016, 6) also interprets KI SAG as a responsible official as opposed to an assembly of people (cf. Civil 2013, 23–24) or a type of land. Because of the large quantity of dairy fat mixed with crushed barley mentioned (91 units) and because in lexical lists SAG is never attested in titles (with the exception saġ-ġa, where we would expect this title signified by ŠID), the latter translation may be preferred. Note that KI SAG also occurs in the Archaic Plants list (obv. col. 1.2) in a context similar to Archaic Word List C (Civil 2013; see also Veldhuis 2006).



Figure 10.7. MS 4539.

in the obliterated section, as with the others mentioned.⁸⁶ The remainder of the inscription records accounts of barley vis-à-vis other possible sacred institutions or personages—for example, ENa UD SI, GI(?) ABa MEa, NAGaA E2b—with the name of the accountant (SANGaA), NAGARa ZIa, listed as the final official on the reverse.⁸⁷

5.2. EARLY DYNASTIC EVIDENCE FOR GRAPHIC DISTINCTION BETWEEN AB IN THE SIGNIFICATION OF NIĠIN AND UR, ZABALA, AND LARSA

Although there is, to my knowledge, no ED I or ED II inscription attesting a writing for either Niġin or Našše that might be used to compare the writing convention for this city/deity with writings for Ur, Zabala, and Larsa, there are several significant exemplars on tablets dating to the ED IIIa and ED IIIb periods (table 10.1). The Fara witness to the Cities lexical list, *SF* 23,⁸⁸ demonstrates a continuation of the Archaic tradition that graphemically signifies Zabala with the ABa variant of AB.⁸⁹ Witnesses of the list discovered at Abū Šalābīkh, on the other hand, demonstrate a different tradition. In the two extant exemplars, AbS-T 294 and the fragment AbS-T 392q, Larsa and Zabala are both written with ABgunu, the variant of AB reserved only for the city Uruk in the Archaic corpus.⁹⁰ Although not extant in these exemplars of the Cities list, attestations of the city Ur appear in witnesses to

86 Though the graphs indicating the product are obliterated in the case, the total on the reverse is in barley.

87 For NAGARa ZIa, see CUSAS 21, 7.

88 Only containing the names of NIN-deities, *SF* 24 is too broken to be of use for this discussion. See n. 21 for these periods and the Early Dynastic cities Fara and Abū Šalābīkh.

89 *SF* 23 obv. col. 1.6. MUŠ#+ABa. Lines 1–5 of this text, which would include Ur and Larsa, are broken.

90 Too late for this discussion, the Old Babylonian (1900–1600 BCE) exemplar of the Cities list discovered at Ur, *UET* 7 80, does not preserve the names of the cities Uruk, Ur, and Larsa but does attest to the writing ^ZA MUŠ3.ABgunu^{kl} for Zabala. An entry for Našše/Niġin is also not preserved in this list.

Table 10.1. Conventions for Early Dynastic writings (Fara exemplars in blue).

Tablet	Ur	Larsa	Zabala	Niġin/Našše
Cities: <i>SF</i> 23	Broken	Broken	MUŠ+ABa	Broken
Cities: AbS-T 294	URI3#	UD+ABgunu#	MUŠ#+ABgunu#	AN ABa×KU6
Cities: AbS-T 392q	Broken	UD+ABgunu	MUŠ#+ABgunu	Broken
Names: <i>Ist Š</i> 696	NA	NA	NA	AN ABa×KU6
Zami: AbS-T 191	URI3+ABgunu	Not present	MUŠ+ABgunu?	Broken
Zami: AbS-T 192	URI3+ABgunu	Not present	?	AB _x ×KU6 AN KU7×KU6 TAG AN AB _x ×KU6
Zami: AbS-T 196	URI3+ABgunu	Not present	?	Broken
Zami: AbS 217a	Broken	Not present	Broken	ABa×KU6 AN ABa×KU6
Gods: <i>SF</i> 1	NA	NA	NA	AN ABa×KU6 AN ABa×KU6-ta-e ₃
Gods: AbS-T 200	NA	NA	NA	AN# ABa×KU6

the Zami Hymns,⁹¹ where the name UR is always written URI3+ABgunu.⁹² The city Niġin is not attested in the Fara exemplar to the Cities list; however, the goddess's name, Našše, is attested with a clear ABa on a broken Fara tablet. On this Fara tablet, Našše appears as part of the personal name Ur-^dNašše with the writing AN ABa×KU6 (*Ist Š* 696 obv. col. 1. 3.). Also, both Našše and Sirara are listed, one after the other, in the Fara Great God list, each with a beautifully rendered AN ABa×KU6.⁹³ The deity's name, rather than the city's, is also

91 The Zami Hymns are an Early Dynastic collection of praise hymns to various temples and their patron deities, examples for which have been discovered only at Abū Šalābīkh. They are further thought to be forerunners to the later OB Temple Hymns collection; however, though there seems to be some consistency in content between the two collections, there are also significant disagreements. (See Biggs 1974, 45–56; Krebernik 1994b.)

92 See line 35 of exemplars AbS-T 191; AbS-T 192; AbS-T 193+371; AbS-T 195; AbS-T 196. The writing of Zabala in the same set of hymns (l. 49) is difficult to confirm, since photos suggest the name is damaged on the majority of tablets that preserve the line (AbS-T 192; AbS-T 194+295; AbS-T 195; AbS-T 196). In the case of AbS-T 191, the photo of it suggests that the name is written MUŠ+ABgunu in that one vertical is present in the body of the AB graph. That this form is perhaps an idiosyncratic style for writing ABgunu and not a case of caked-in dirt is suggested by the fact that the city Kiš, in the “Kiš” hymn, is written GIR3+ABgunu, with an AB of the same style (l. 65). Curiously, in these hymns the Abzu is consistently signified by the compound sign ZU+ABa, never ZU+ABgunu (l. 30 on AbS-T 191 and AbS-T 196; also see n. 70).

93 *SF* 1 col. ix 11. ^dABa×KU6 and 12. ^dABa×KU6-ta-e₃: Here I read Sirara rather than Niġin and translate “The one who comes forth from [her temple] Sirara.” Compare column iv, Meslamtaea, written, ^dMes-lam-ta-e₃, “The one who comes forth from [his temple] the Meslam.” Compare also the Abū Šalābīkh god list AbS-T 200+AbS-T 207 obv. col. ii 4. 1(N01)# AN# ABa×KU6. For studies on the pantheons of Abū Šalābīkh and Fara, see Mander 1986 and Krebernik 1986, respectively.

attested in Cities list AbS-T 294 with this same writing.⁹⁴ The Cities fragment AbS-T 392q is broken where AB×KU6 would be expected and so cannot be used as a comparison.

Though paltry, this Fara evidence might suggest there was no tradition that needed (or knew) to differentiate graphically between the AB used to write Ur, Zabala, and perhaps Larsa and that used to write Niġin (or, at the very least, Našše). This was not the case at Abū Šalābīkh. As noted, in the Abū Šalābīkh corpus, Ur, Zabala, and Larsa are signified using unified AB in both the Cities list and Zami Hymns; however, neither Niġin nor Našše is written with this sign. As in the case of the Fara examples and Cities list AbS-T 294, in two of the witnesses to the Zami Hymns in which the Našše hymn is extant—AbS-T 191 and AbS-T 217—the composite graph that renders both the city Niġin and goddess Našše is ABa×KU6 (AN ABa×KU6 for the deity). That this variation of AB is not simply a practical result arising from the lack of space in the AB*gunu* graph versus the ABa graph is demonstrated by a third witness to the Našše Zami hymn extant on AbS-T 192.⁹⁵

The witness to the Našše Zami hymn on AbS-T 192 attests to yet another manner by which the AB graph used to contain the KU6 symbol of Našše may be constructed. By comparing the AB_x graph in AbS-T 192 lines 110, 111, and 116 to the standard ABa in line 115 (fig. 10.8a),⁹⁶ one can observe that the names of the city Niġin, the temple complex of Našše, Sirara, and the deity Našše are in this text written AB_x×KU6, AN AB_x×KU6 TAG, and AN AB_x×KU6, respectively.⁹⁷ In his edition of the hymns (fig. 10.8b), Robert Biggs reads this AB_x form of AB as KU7, the graph that more regularly signifies GURUŠDA, “fattener.”

The Archaic corpus attests KU7 in two distinct forms, both of which consistently occur in either lists or the context of sheep and goats and are visually distinct from AB. In the Uruk IV example below (fig. 10.9a), the professional name gal gurušda, “chief fattener,” is written with the open-necked form of the sign with an extended top horizontal, whereas in the Uruk III example of Archaic Lu2 A (fig. 10.9b), the same professional name is written with a curved lower half.

The sign KU₇ is also kept quite apart from AB at Early Dynastic Ur, where the open-necked style is attested in a case adjacent to a case bearing the AB graph (fig. 10.9c). At Abū Šalābīkh, however, KU₇ does resemble the form of the sign AB_x on AbS-T 192 (fig. 10.9e); however, it has the closed, rather than open, curved lower half attested on W 20266,70 (fig. 10.9b) and an extended top horizontal. In this example, AbS-T 0219+, a witness to the lexical list Plants, the KU7 graph is found in the entries sum KU₇ and sum še₃ KU₇ (fig. 10.9d).⁹⁸ In each

94 See n. 64 and discussion above for this reference.

95 Compare also ABa×ÁŠ (l. 100) and ABa×ŠUŠ (l. 102) in the Zami Hymns.

96 Although the hymn is not entirely understood, Biggs notes in his edition that the AB in line 115 is likely a writing for ab, “sea” (Biggs 1974, 54).

97 Where to put the AN in line 110? Each Zami hymn, as in the later OB Temple Hymns collection, begins with the name of the temple and a short description/epithet/alternative name. Therefore, following Biggs (1974, fig. 8c), the name in line 110 should read “Niġin,” with the name in the following line 111 perhaps being a shortened form of the temple precinct of Našše, Sirara. (This point is also noted by Biggs, who comments that tag occurs in UD.MA2.NAŠŠE.TAG.KI, the writing for Sirara.) As a rule, location names are not written with the classifier KI in the Zami Hymns.

98 Unfortunately, all archaic exemplars of this list are broken where we would expect to find KU₇, so comparison is impossible at this time.

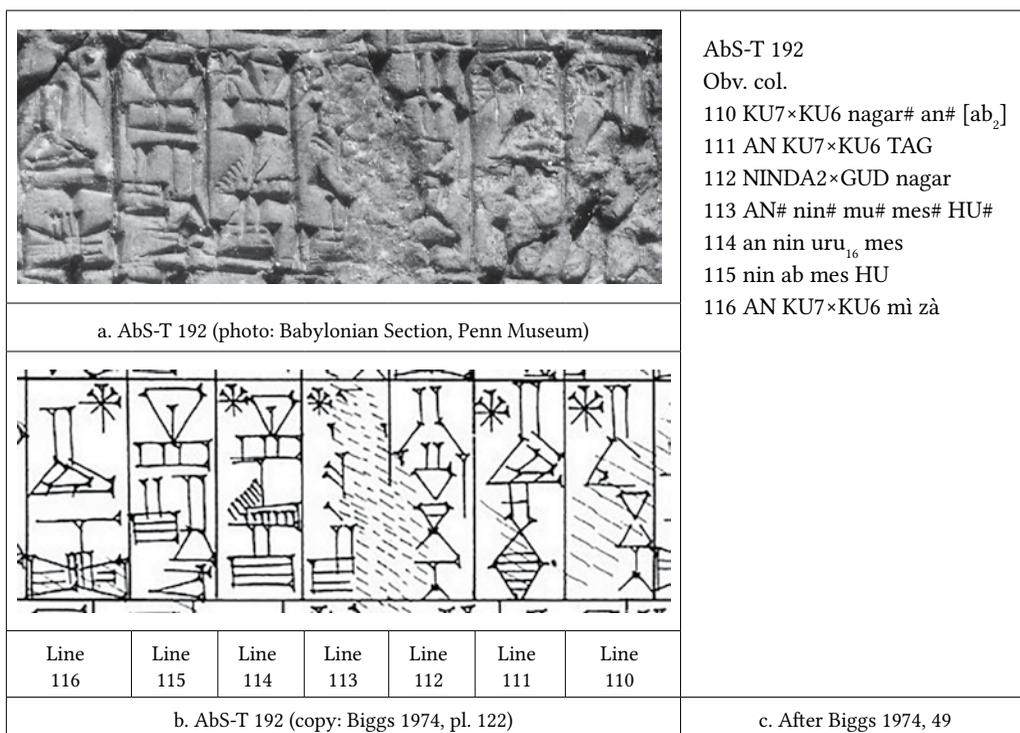


Figure 10.8. AbS-T 192.

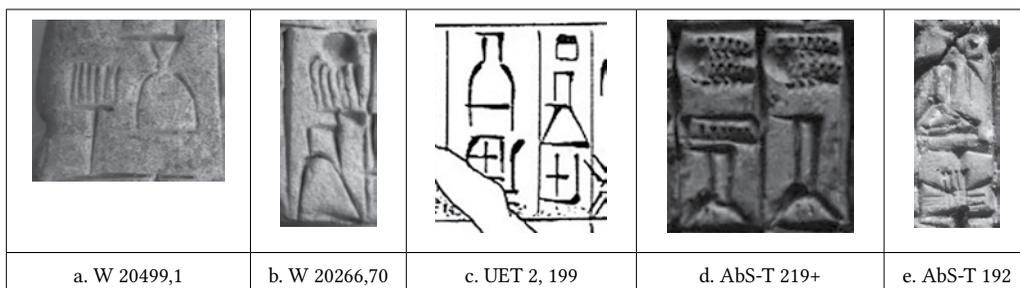


Figure 10.9. Writing conventions for KU7 compared with AB.

one, KU7 signifies the Sumerian word *kakkala*, a vegetative designation describing a sort of garlic (sum).

Therefore, though AB_x resembles KU7, it is not likely that the presence of AB_x in the writings of the names Niġin, Sirara, and Našše on Abs-T 192 is indicative of an Archaic tradition of using this sign to represent ABb or, in turn, that ABb means “fattener” or signifies any sort of plant. Instead, it is more likely that the ABb form of AB, with its gabled roof, was neither aesthetically pleasing (or visible) on the lengthened slender shaft of the Abū Šalābīkh AB graph nor efficient to render. But what is curious, and perhaps telling, is that the scribe chose not to employ the ABa variant in writing Niġin, Sirara, or Našše.

5.3. SUMMATION OF EVIDENCE

As the preceding investigation indicates, throughout the Archaic and into the Early Dynastic periods there was a tradition of visually distinguishing the AB graph used to signify the goddess Našše and her city Niġin from that used to signify Uruk, Ur, Zabala, and Larsa. Of the seventeen possible attestations for either Našše or Niġin considered herein, twelve attest to a writing of either ABb×KU6 or KU6+ABb, if the slightly rounded top version of the AB graph is read as ABb; however, the evidence also reveals that this tradition was inconsistently maintained, for scribal variation in the form of AB on tablets with even the earliest date is evident.

As charted in table 10.2, the earliest attestations for AB×KU6 on the administrative tablets Uruk IV W 14338,a+ and W 19408,40 each demonstrate either a slightly rounded top horizontal (W 14338,a+) or a distinctly gabled one (W 19408,40). Each of these tablets bears an inscription that records the delivery of goods. The remaining disbursement accounts MSVO 3, 21 and MS 4503 also evidence gabled ABbs; thus there is a correlation between the context and the ABb variant of AB. The two lexical tablets W 21208,18 and W 24222 also attest to the ABb variant in the writing of Našše/Niġin. It would seem, then, that inconsistency is to be found only in graph clusters that include an official office. When modifying NAGAR, AB is written as a distinct ABa on W 20274,110 and a clear ABb on W 20367,1. Likewise, when modifying EN, W 11931,c demonstrates a clear ABa, while CUSAS 31, 24 has the slightly curved form of ABb. Finally, when modifying GAL SAL, the sign is an obvious ABa on W 24004,2.

Turning to the KU6+AB attestations, it cannot be stated with certainty that either the city Niġin or the deity Našše is signified by this compound; however, Niġin would seem to be the logical choice. The most compelling reason for concluding that it is Niġin is simply that the configuration of the sign cluster follows that of Larsa (UD over AB) with KU6 over ABb in two (CUSAS 31, 150 and MS 4539) out of the four attestations. It may also be telling that three of the four tablets attesting to the convention of writing KU6+AB are of a square shape (MSVO 4, 45; CUSAS 31, 150; and W 14111,r) with very distinctly drawn KU6 graphs, as well as that all four tablets attest to the presence of KU6 over ABb in the cereal-products production line. Together, these latter two points may suggest a specific writing convention for the KAŠb and KAŠc industry where the two seed accounts, MSVO 4, 45 and CUSAS 31, 150, attest to KU6 over ABa and the two inscriptions, W 14111,r and MS 4539, have a writing KU6 over AB, clustered with a second AB, possibly indicating that the temple complex of Našše is meant.

An alternative conclusion may be that because those inscriptions bearing the combination graph KU6 over AB are of a different nature from those bearing the composite graph AB×KU6 (that is, they relate to the barley industry and land use thereof), AB×KU6 may refer to the goddess herself, while KU6 over AB may refer to Niġin, with KU6 over AB referring to Sirara. In any case, it is interesting that in one of the exemplars for ABa×KU6, an ABb appears in the cluster (W 14111,r).⁹⁹

⁹⁹ Dividing the attestations by provenience is also unproductive at this time. Because so many of the tablets derive from undocumented locations, the most that can be said is that although the Uruk tablets attest to variation in graph form, the three unprovenienced tablets demonstrate ABb.

Table 10.2. AB×KU6 and KU6+AB attestations (occurrences of ABa in green).

		Graph form	Context
URUK IV			
W 19408,40	ABb×KU6a	Gabled	Fish
W 14338,a+	ABb×KU6a	Rounded top	Groats
URUK III			
W 17879,y	ABb×KU6a	Rounded top	Dried fish
W 11931,c	ENa ABa×KU6a	Flat top	Official
CUSAS 31, 24	ENa ABb×KU6a	Rounded top	Official
W 24004,2	GALa SAL ABa×KU6a	Flat top	Official
W 20367,1	NAGARb ABb×KU6a	Gabled	Official
W 20274,110	NAGARb ABa×KU6a	Flat top	Official
MSVO 3, 21	SAL ABb×KU6a	Gabled	Disbursement
MS 4503	SAL ABb×KU6a	Gabled	Disbursement
W 21208,18	ABb×KU6a	Gabled	Lexical
W 24222	ABb×KU6a	Gabled	Lexical
W 24181,c	ABb×KU6a#?	Gabled	Fragment
URUK III			
W 14111,r	ABb# KU6a+ABa	Gabled and flat	Barley
MSVO 4, 45	KU6a ABa	Flat top	Barley
CUSAS 31, 150	KU6a+ABb	Gabled	Barley
MS 4539	KU6a+ABb ABb	Rounded top	Barley

Unlike the Archaic materials, the Early Dynastic exemplars demonstrate consistent conventions. Inscriptions discovered at Fara *seem* to suggest that the tradition visually to differentiate Ur, Zabala, and Larsa from Niġin was either never known, never adopted, or made obsolete at an early date. Conversely, on those tablets discovered at Abū Šalābīkh, Ur, Zabala, and Larsa were kept visually distinct from Niġin by signifying the former three cities using the compound standard+gunified ABa, and by signifying Niġin/Našše using either ungunified ABa×symbol or a variant of AB—AB_x—specific only to Niġin/Našše.

5.4. REFUTATION: OTHER POSSIBLE AB LOCATIONS

As emphasized by Robert Englund in his investigation of the graph KIDa, in the Archaic corpus AB can also be attested in graph clusters that signify locations other than Uruk, Ur, Zabala, Larsa, and Niġin (Englund 2011), but importantly, none of these graph clusters signifies a known Sumerian city. Further, the clustering of the graphs for these possible locations is of a different nature from that attested for the five established cities. The locations

to which Englund specifically refers are NI+RU, UB, and APIN. Investigated in depth by Roger Matthews, only in some cases in inscriptions attesting NI+RU,¹⁰⁰ UB,¹⁰¹ or APIN¹⁰² are the locations written in combination with the graph ABa (never ABb).¹⁰³ This phenomenon has led Matthews and Englund to discern a meaning “household” for AB such that “household” stands for an administering unit. Piotr Steinkeller, too, reads AB in such a way when it is written in concert with the APIN graph. When combined with AB, APIN, signifying a plough or farmer, is then read “ploughmen household.”¹⁰⁴

What sets these examples apart from the Ur, Zabala, Larsa, and Niġin attestations is that, while unprovenanced, those tablets bearing NI+RU, UB, and APIN in combination with ABa are considered part of the Jemdet Našr/“Uqair” collection.¹⁰⁵ This is to say that they are decidedly not Uruk tablets. They also demonstrate a different writing convention for the placement of AB. In the cases of NI+RU and APIN, the ABa graph when present hovers *over* the NI+RU ligature or is inscribed to its left and only *over* the APIN graph. The case of UB is not as straightforward. In inscriptions, sometimes the ABa graph is inscribed either over or to the left of the UB, as in the case of NI+RU, but in some instances it is to the right or even under it.

The graph ABb is also attested in the Archaic corpus in clusters that suggest a meaning “household” or, at the very least, “location.” The two most prominent of these clusters are ABb 3(N57) PIRIGb1 SUa106 and (ENa) ABb DUGa ZATU 686a.¹⁰⁷ In both cases, it is first and foremost entirely unclear to me whether they reference a location, ministry, or deity.¹⁰⁸ ABb 3(N57) PIRIGb1 SUa can occur in contexts in which Zabala is also present, while (ENa) ABb DUGa ZATU 686a occurs on a very specific set of tablets. As in the Jemdet Našr/“Uqair” collection ABa examples, ABb is always inscribed over and to the left of

100 ABa NIa+RU occurs on eighteen tablets: MSVO 1, 1–2, 5–6, 26, 51, 79, 83, 89–90, 94, 108, 134, 137, 144, 185, 187, and 218.

101 ABa UB occurs on twelve tablets: MSVO 1, 13, 20, 54, 57–58, 60, 68, 72, 200, 215, and 219–20.

102 MSVO 1, 1, 13, 20–22, 97–99, 218; MSVO 4, 39; CUSAS 1, 150; CUSAS 31, 140; CUSAS 31, 147; W 14335,w; W 17729,av; W 20809,07; and Anonymous 448701.

103 Investigating the correlation of sign combinations with sealings (MSVO 1, 1, 13, 20–22, 97–99, and 218), Matthews notes that the combinations ABa APINa, ABa NIa+RU, and ABa UB are all located “in such positions on the tablets as to suggest a function as a controlling authority of some kind” (MSVO 2, 28–29). He concludes that in these cases ABa signifies “institution” (with a later, more specific meaning “temple household,” Sumerian eš₃). Agreeing with Steinkeller (below), AB APIN would then be the ploughmen household. Matthews has no conjecture for AB NI+RU or AB UB (MSVO 2, 29ff.).

104 In his edition of the Blau Obelisk, Steinkeller reads ABa APIN as the Sumerian profession or title en-*gar* eš₃, regarding them as “a high official in charge of the agricultural sector in a household, comparable to the Greek *agronomos*” (Gelb, Steinkeller, and Whiting 1991, 40).

105 For this collection, see MSVO 4, 9–14.

106 Uruk IV: W 15773,a; Uruk III: W 15771,a; W 15772,n; W 15774,u; W 15775,p; W 15892,m; W 15897,c19; W 19948,5; W 19948,6; W 20274,033; W 20274,089; W 20367,07.

107 Uruk IV: W 20920,5?; Uruk III: W 14804,a+; W 20274,5; W 20274,13; W 20274,39; W 20274,43; W 20274,47; W 20274,62+; W 20274,70; W 20327,3; W 20327,4; W 20493,24; W 20511,1; W 20511,2; W 20512.

108 Nissen seems to consider it a location (Englund and Nissen 2005, 24 pl. 58, where it appears in a list of place names).

3(N57) PIRIGb1 SUa. In writings for ABb DUGa ZATU 686a, the ABb also is either to the left of ZATU 686a or over it.¹⁰⁹

Although this positional variation may seem to be an insignificant detail such that one can easily argue the early writing system did not feature graph position within a cluster as fixed, some constants are, indeed, present. Like Ur, Zabala, and Larsa, NIa+RU, UB, APINa, when written in combination with AB, are always written with the ABa variant of the AB graph. Also constant is that Ur, Zabala, and Larsa are written with ABa to the left or under the standard or emblem of the god. The same is also true for Niġin if we agree that the graph cluster KU6 over ABb signifies the city. Divergent, yet also set, are the cases of NI.RU and APIN, where ABa is always positioned over or to the right. This above positioning is also attested in the writings of UB, 3(N57) PIRIGb1 SUa, and ABb DUGa ZATU 686a.

6. HIGHLY SPECULATIVE CONCLUSION

The ABa/ABb distinction demonstrated in the Archaic tablets and the AB*gunu*/AB/AB_x distinction demonstrated in the Abū Ṣalābikh tablets is not to my knowledge attested in inscriptions dating to any period at Ur, Adab, or Nippur, nor would it seem to be present in inscriptions from Girsu (a sister-city to Niġin) that date to the ED IIIb period.¹¹⁰ This absence is not altogether surprising, for many variant forms of graphs were selected out as the writing system was pared down, abstracted, and altered to be more grammatically flexible. It may be telling that the ED III evidence from Abū Ṣalābikh that has been presented has been from either literary contexts, the Zami Hymns, or lexical lists—the Cities and Great God lists; however, lest too much be drawn from this evidence, a thorough search of this corpus would be needed before any conclusion might be made about genre.

As stated in the introduction to this chapter, it is not the purpose of the investigation to argue a specific meaning for either ABa or ABb, as such. As has been demonstrated, it has been convincingly reasoned by scholars that in Archaic inscriptions AB may well signify all or any of the terms *shrine*, *temple*, *household*, *city*, *ministry*, or *sea*. In keeping with the theme of this volume, however, the evidence presented here has focused on the curious seen-only tradition of representing Niġin/Našše with a variant of AB different from that used in the signification of Uruk, Ur, Zabala, and Larsa into the ED III period. It is indeed striking that of these five cities, three are written ABa+standard/symbol, while two are written ABa+striations and ABb×symbol. It is also notable that the three cities signified by ABa+standard/symbol have as their patron deities celestial gods: the Moon, Nana of Ur, Venus, Inana of Zabala, and the Sun, Utu of Larsa. Uruk, without an obvious standard/symbol, has two patron deities in later tradition: Inana, whose name may indeed mean “Queen of the Heavens,” and An, the “Heavens.” Archaeology has borne out this celestial foundation in that the Eana, “Heaven House”—the traditional temple of Inana at Uruk—dates to the earliest periods in the city’s history.¹¹¹ And, as suggested above, the

109 These four graphs are, but with one exception, always written out horizontally.

110 For Ur, see *UET* 2, supp 14 U 08826.3 obv. col. iv 3. sirara₃(UD.MA2.NINA.TAG)-ki-du₁₀ AN ABa×KU6. For Girsu, the examples are too numerous to list individually. I should note that I have not collated all the editions of these texts.

111 Per Falkenstein (1941), there were two sister cities: Uruk of Inana, and Kulaba of An. Remains of an Uruk V period “limestone temple” have been discovered under the later Eana temple to Inana at Uruk,

Archaic tablets, too, may attest to the existence of this temple (see W 23998,1; W 15897,c2; W 15920,a2; CUSAS 1, 119). Niġin, the city not signified by ABa but instead by ABb×symbol, does not have a celestial connection. Its patron deity, Našše, is instead deeply connected with the sea.¹¹²

When assigning “type” to cuneiform signs, gunified signs and container signs are not commonly considered of the same character. This is to say that gunification is considered a general way of marking a sign—any sign can be gunified. Container signs, on the other hand, are those signs that generally represent a space modified; for example, GA2×KU6 is a container (GA2) of fish (KU6). With this said, I dare the highly speculative thought that perhaps the ABa and ABb variants used to signify Uruk and Niġin, respectively, might be considered containers, with ABa being the container of celestial bodies, represented through gunification,¹¹³ and ABb being the container of aquatic life, represented by a simple fish. Pushing this hypothesis further, the different forms of AB used might then represent the heavenly sea and the terrestrial sea.¹¹⁴ Naturally, the cities of the moon, Venus, and sun, being celestial, would be signified by ABa. Aquatic Našše, being so tied to her city Niġin, is the ^dABb×KU6-ta-e₃, “One who rises from the terrestrial sea of fish”—a distinction that would be accessible only visually.¹¹⁵

remains that were perhaps referred to as the Eana even at this early date. Also discovered was a “stone cone temple” near what would come to be the Anu ziggurat.

112 Most obviously, in the later OB Temple Hymns collection, Našše is “a great storm, a mighty flood, who is born on the shore of the sea, who laughs on the foam of the sea, and who plays on the water of the flood” (ETCSL 4.80.1 276–279. nin-zu ^dnanše ud gal-la a-ġi₆ uru₁₆-na peš₁₀ a-ab-ba-ka tud-da-a uh₂-pu₂ ab-ba-ka zu₂ li-li [a] i-zi-ba e-ne dug₄-dug₄).

113 Or perhaps it might not be considered so much a container as “the heaven-sea,” such that Uruk, city of the heavens, is signified by gunified ABa (“heaven-sea”), while Ur, Larsa, and Zabala are heaven-sea (ABa) god cities.

114 For the heavens as made of water, see Horowitz and Horowitz 1998, 262–63.

115 I will add that Našše is also strongly connected to birds, which of course are of the sky. I do not believe this connection interferes with my supposition. In southern Mesopotamia, birds are also intrinsically tied to the waters. If An is the high heavens, the watery region of Našše is home to both aquatic creatures and the birds who nest and feed in the environs.

ADDITIONAL FIGURES

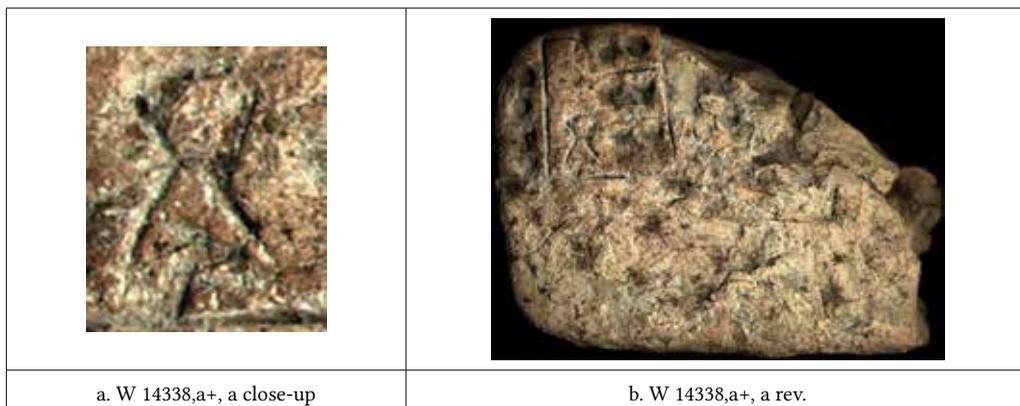


Figure 10.10. W 14338,a+, a.

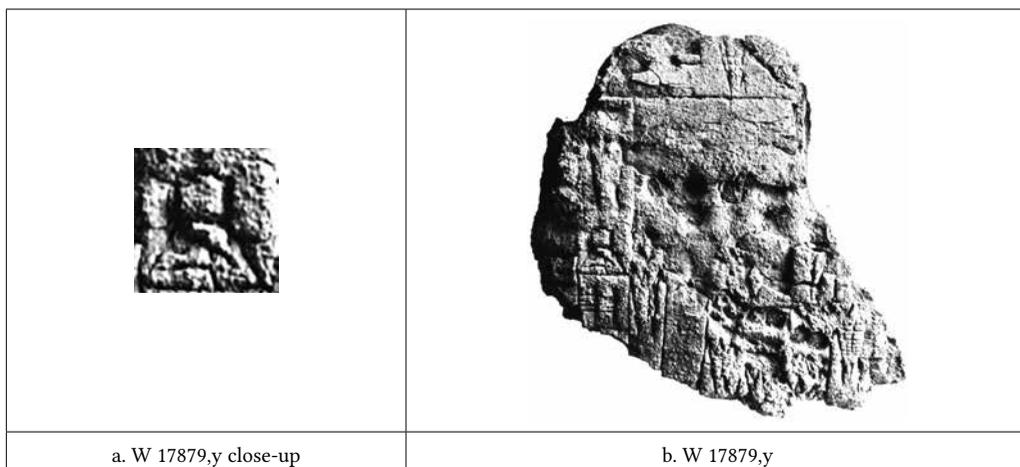


Figure 10.11. W 17879,y.

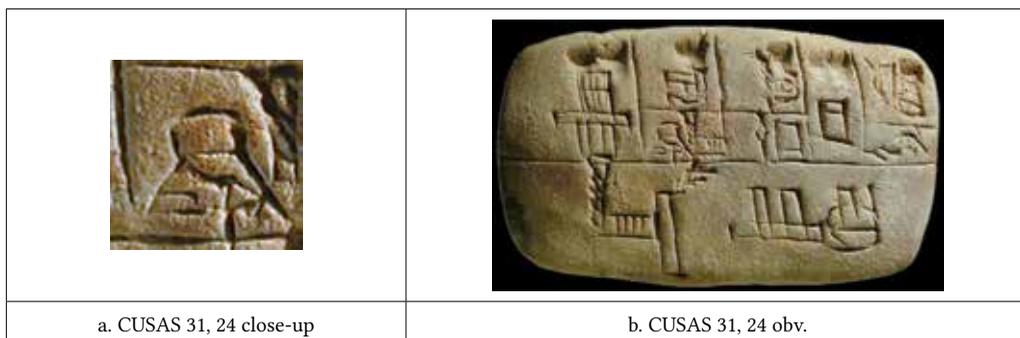


Figure 10.12. CUSAS 31, 24.



Figure 10.13. W 11931,c.

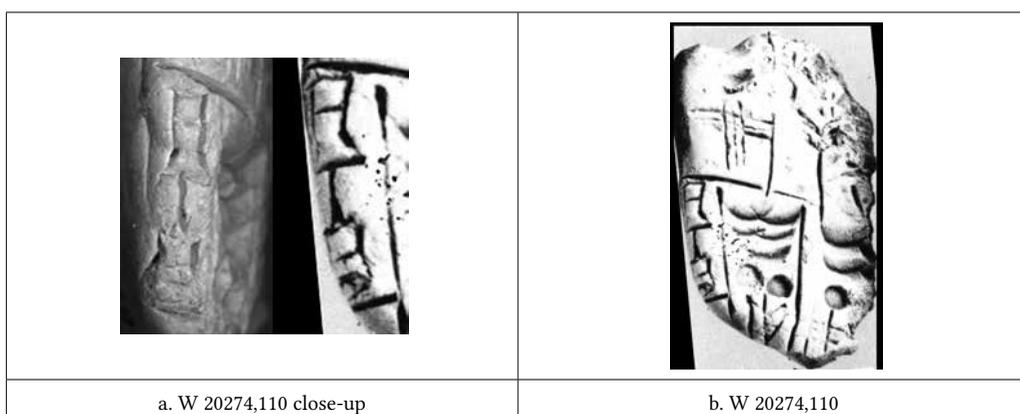


Figure 10.14. W 20274,110.

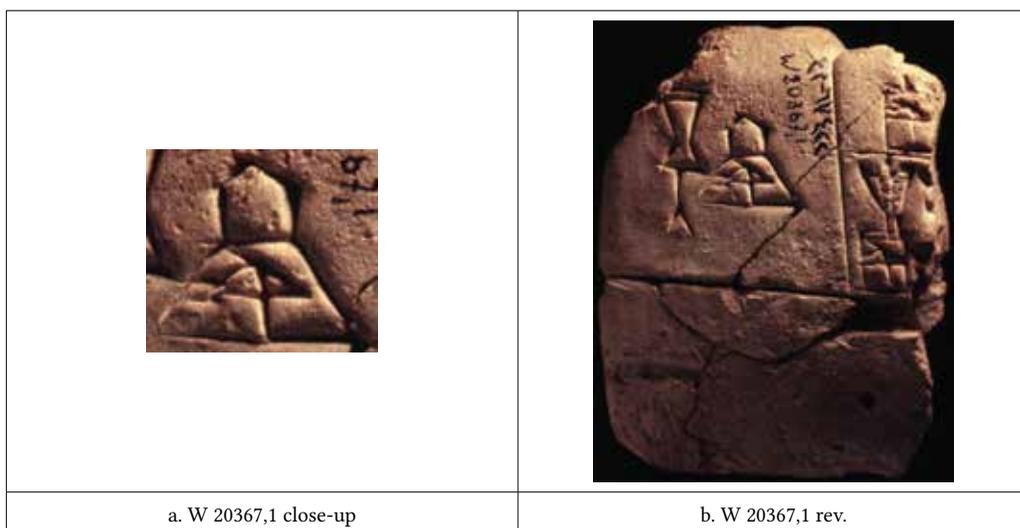


Figure 10.15. W 20367,1.

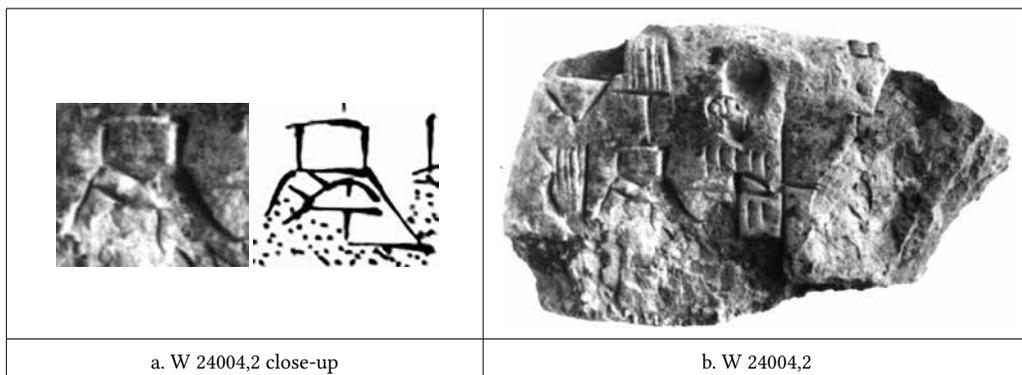


Figure 10.16. W 24004,2.

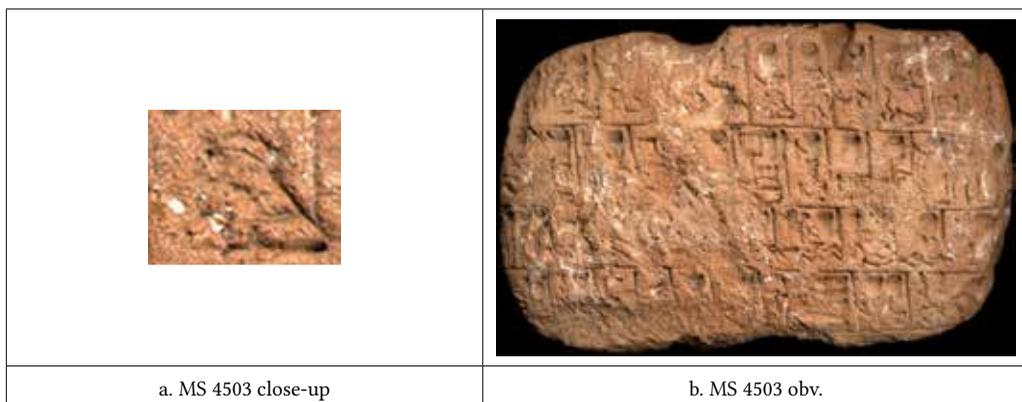


Figure 10.17. MS 4503.

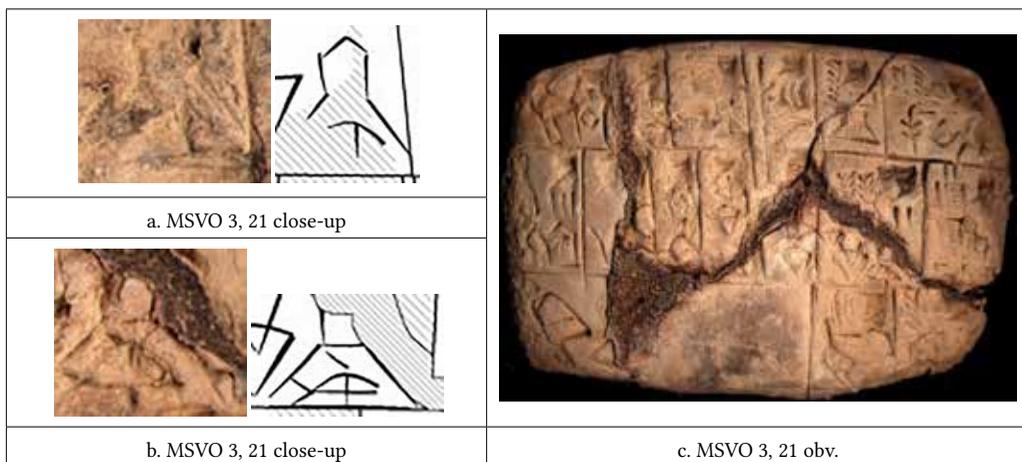


Figure 10.18. MSVO 3, 21.

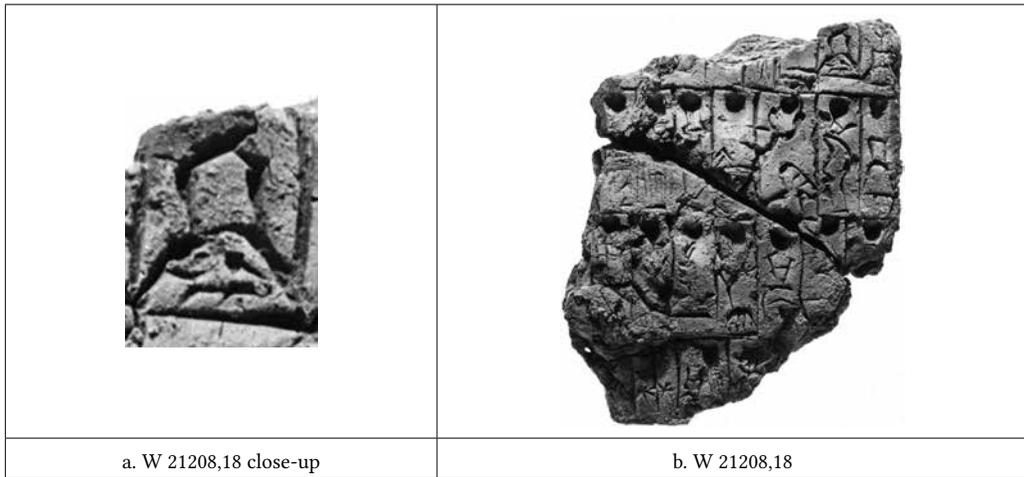


Figure 10.19. W 21208,18.

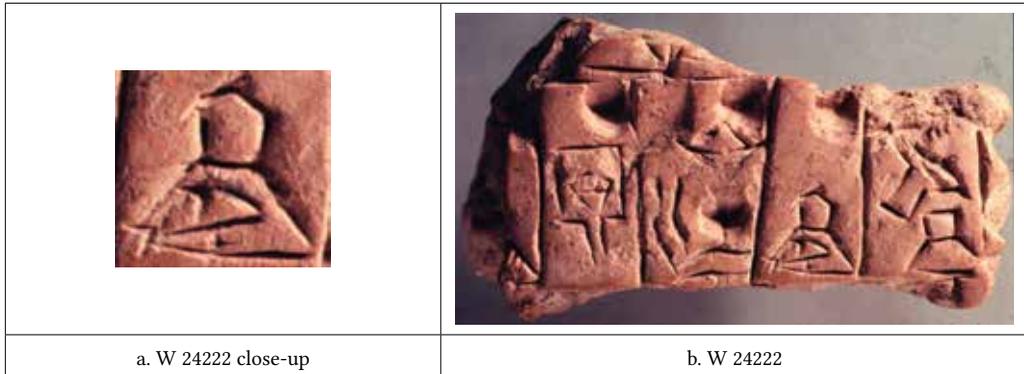


Figure 10.20. W 24222.

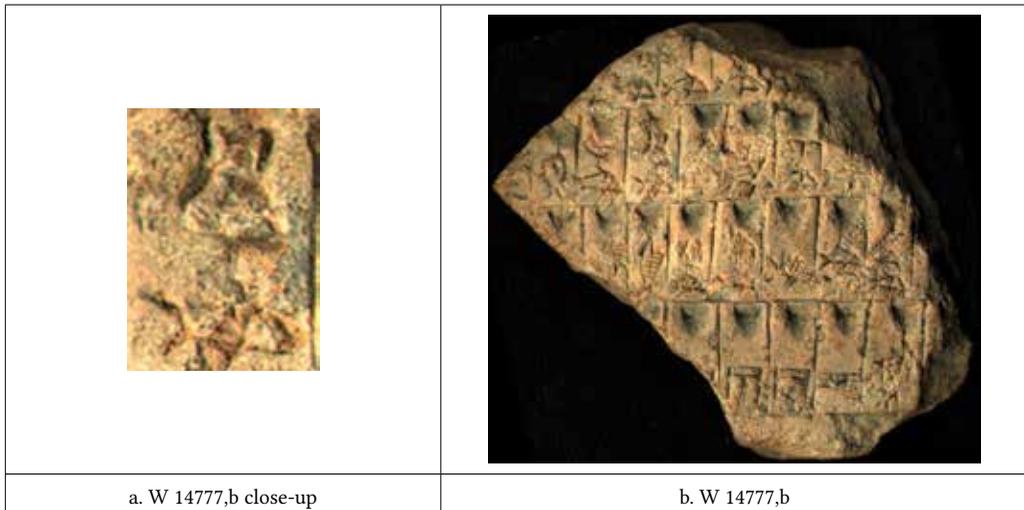


Figure 10.21. W 14777,b.



Figure 10.22. MS 2519.

ABBREVIATIONS

AbS-T	field numbers of texts excavated at Tell Abu Salabikh
CDLI	Cuneiform Digital Library Initiative (http://cdli.ucla.edu)
CT	Cuneiform Texts (British Museum series)
CUSAS	Cornell University Studies in Assyriology and Sumerology
ED	Early Dynastic
ETCSL	Electronic Text Corpus of Sumerian Literature (http://etcsl.orinst.ox.ac.uk)
LAK	A. Deimel, <i>Liste der archaischen Keilschriftzeichen</i> . Vol. 1 of <i>Die Inschriften von Fara</i> . Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 40. Leipzig: Hinrichs, 1922
MRAH	Musées Royaux d'Art et d'Histoire
MS	Martin Schøyen Collection
MSVO	Materialien zu den frühen Schriftzeugnissen des Vorderen Orients
RIM	Royal Inscriptions of Mesopotamia
SF	A. Deimel, <i>Schultexte aus Fara</i> . Vol. 2 of <i>Die Inschriften von Fara</i> . Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 43. Leipzig: Hinrichs, 1923
UET	<i>Ur Excavation: Texts</i> . London: 1928–present
W	field numbers of tablets excavated at Warka
ZATU	Margret Green and Hansjörg Nissen, <i>Zeichenliste der archaischen Texte aus Uruk</i> . Archaische Texte aus Uruk 2. Berlin: Mann, 1987

For further Assyriological abbreviations, consult
http://cdli.ox.ac.uk/wiki/abbreviations_for_assyriology.

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PART IV
RESPONSE

11

On the Visual Presentation of Writing

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1. INTRODUCTION

ALTHOUGH THE CHAPTERS of the present volume are divided into three thematic groups under the headings “Experiential Writing,” “Classifiers,” and “Script Evolutions,” they are intricately interconnected. One phenomenon they all bear on is communication by nonlinguistic features of a piece of writing, or of a sign language or cylinder seal. My response, organized by a different triad of thematic headings, will suggest cross-cultural parallels for two forms of metalinguistic communication and then conclude with some thoughts about a third form. First I examine a few instances in which meaning is carried by format (broadly understood) or by iconic elements accompanying writing. Then I discuss some striking uses of classifiers and examine their implications for cognitive psychology. Finally, I describe nonlinguistic messages that are encountered in Chinese calligraphy but not, to my knowledge, in other script traditions similarly invested in beautiful writing.

2. FORMATS AND SILENT HIERARCHIES

Format has been used to convey nonlinguistic information ever since the invention of writing. The earliest and perhaps best-studied instance is the formatting of archaic tablets from Mesopotamia, a standard layout that helped the reader extract a tablet’s content quickly (see figs. 10.3–10.6 in ch. 10 and Ilona Zsolnay’s summary of work by Margaret Green). This format has counterparts in book design today (including features of which few readers are aware but over which designers and copyeditors have labored). Under the heading “external layout,” Andréas Stauder’s chapter describes formats that can be used to mark a textual genre or document type, such as a royal decree or an administrative document. One of his examples, the embedding in the *Tale of Sinuhe* of a fictional royal letter (fig. 11.1), makes a dramatic shift from the vertically written narrative to the horizontal letter, a shift that John Baines considers to have a “representational” significance in the narrative (Baines 2012, 55, fig. 2.10). The shift is reinforced (we might say “highlighted”) by another feature of formatting: a short horizontal phrase written in red at the top of the papyrus. Spanning both the vertical column and the first half of the fictional royal letter, it reads: “Copy of the decree brought to this servant concerning his being brought back to

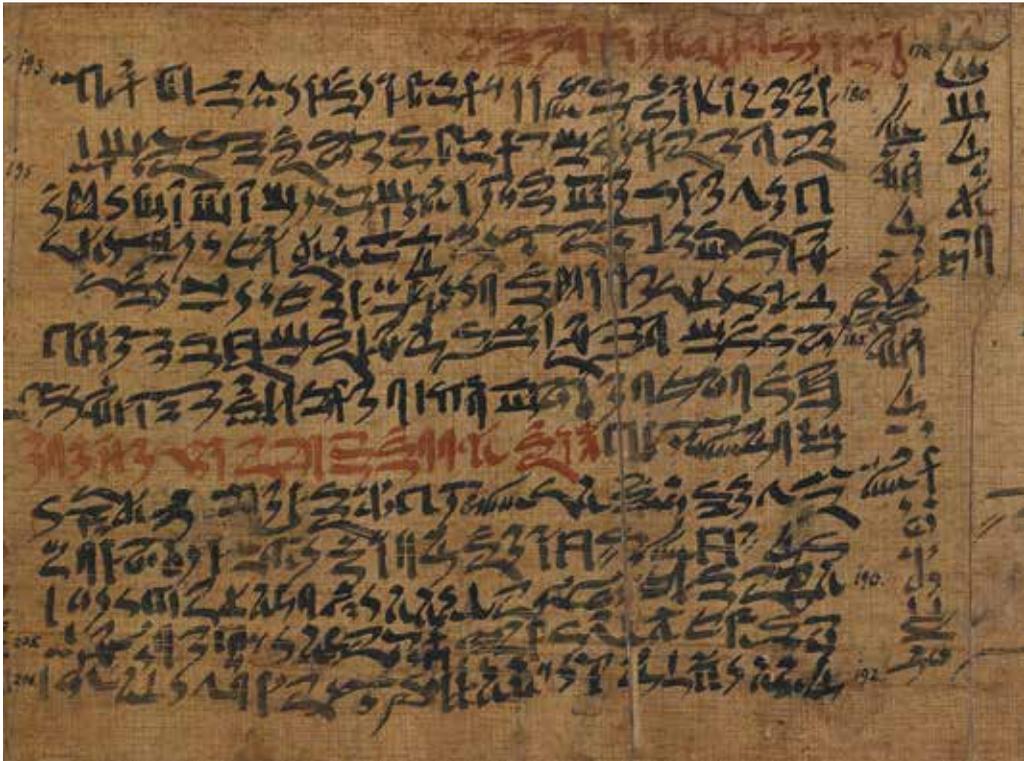


Figure 11.1. Tale of Sinuhe, Papyrus Berlin 3022, lines 178–94. Photo © Ägyptisches Museum und Papyrussammlung, Staatliche Museen zu Berlin. Photo by Lisa Baylis, British Museum.

Egypt” (Baines 2012, 55).¹ This feature does not differ from the figure captions we employ in this volume.

Visual formatting is also a concern of Joshua Roberson’s chapter. He reads the cosmological scenes in Eighteenth Dynasty royal tombs and their positioning in the tomb as embodying the hieroglyph for the word *akhet*, “horizon,” an allusion to the solar journey through the cosmos from day to night in perpetual cycle. The many diagrams he employs to explain his argument serve as a reminder that illustrations and diagrams are invaluable articulating devices when complicated multidimensional relationships in space and time need to be represented in two dimensions. Another instance is the medieval study and teaching aid in figure 11.2, which presents an abridged version of biblical history in a vertical scroll. The length of a scroll makes it an ideal analog representation of time and/or space because it is theoretically endless (Kelly 2019, 75–99). The composition of the extract in figure 11.2 is roughly symmetrical, with God the Father in the roundel at top center, Adam and Eve a trifle lower, and descending from their union, on the central axis of the document, the genealogical line that leads to King David and beyond to Joseph. The beads on the line contain names; the beads for particularly important names are enlarged to illustrated roundels:

1 The red line within the letter refers to benefits the queen and her children will provide for Sinuhe when he returns. John Baines (personal communication) has suggested that the red color introduces the queen and royal children as actors. For detailed studies on external layout in Old Kingdom Egypt, see Stauder-Porchet 2020a, 2020b.

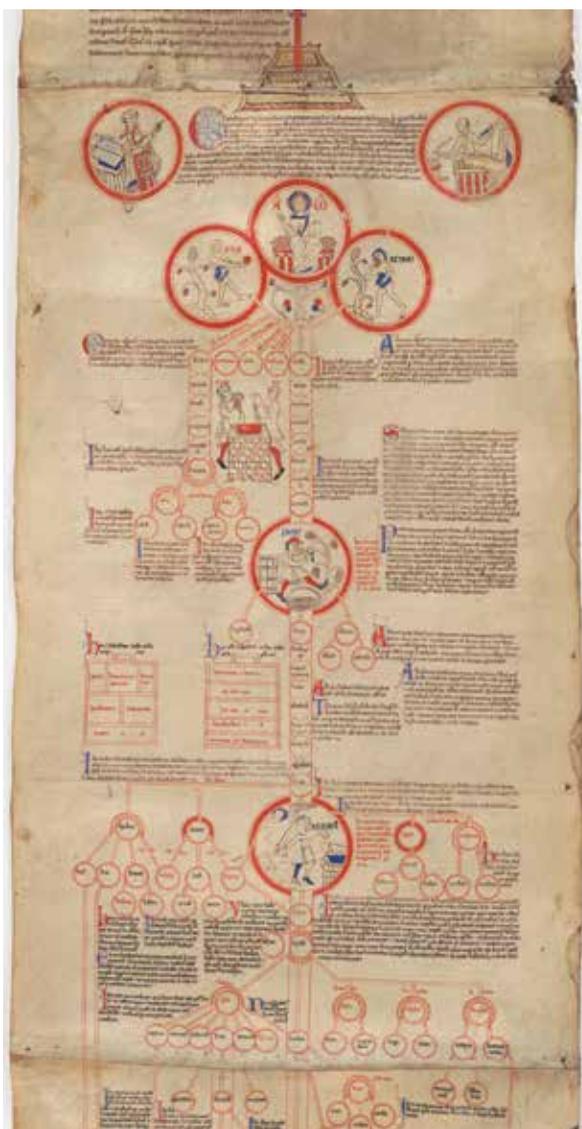


Figure 11.2. *Compendium historiae in genealogia Christi*, by Peter of Poitiers (c. 1130–1215), manuscript, second membrane. MS Typ 216. Houghton Library, Harvard University, Cambridge, Massachusetts. Persistent link: <https://nrs.harvard.edu/urn-3:FHCL.HOUGH:2655226>.

three script types were recognized as suitable for writing canonical texts: ancient script, seal script, and clerical script, listed in descending order of assumed antiquity and hence cultural prestige (fig. 11.3). The so-called “ancient script graphs” (first and fourth characters of each column in fig. 11.3) were contemporary versions of a script used for writing on bamboo slips in the Yangzi region around the fourth century BCE. The so-called “seal script graphs” (second and fifth characters of each column in fig. 11.3) derive from a script used by the Qin state in the fourth century and, after the founding of the Qin empire in

Noah harvesting in red hat and stockings, Abraham stopped by an angel from sacrificing Isaac. Below Noah’s roundel are plans of decks on his ark. Being deeply familiar with such embellishments, we think of them as *illustrations* of the text. But what do they actually do? They help us visualize what the text discusses in words. Might we think of them as classifiers? Might we think of the text as captioning? The illustrations were drawn (or at least sketched) before the text was added.

One of the most pervasive uses of formatting has been silently to convey hierarchy. The chapter titles, section headings, and subheadings in this volume establish hierarchies. So does the use of red ink for the beginning of a hieratic text or for the headings in a medieval manuscript. Cultural hierarchies can also be signaled by format. Stauder reminds us that on the Rosetta Stone, the tiered layout of the trilingual decree, with hieroglyphic at the top and Greek at the bottom, conforms to the script and language hierarchies of Ptolemaic times. In order of descending prestige, the basic Egyptian script forms are hieroglyphic, cursive hieroglyphic, and hieratic (Baines 2012, 28–29, 59). Similarly, in China from the third century CE onward,



Figure 11.3. Rubbing from a stone fragment of the Tri-script Stone Classics, completed 241 CE. Limestone fragment now in the Luoyang Museum; rubbing in the National Museum of Chinese Writing. CC BY-SA 4.0. Adapted from <https://zh.wikipedia.org/wiki/三体石经#/media/File:三体石经拓片.JPG>.

221 BCE, became the official script for inscribing monuments (Qiu 2000, 84–85, 97–103). Unlike the ancient script, which eventually ceased to be written by none but antiquarian scholars, the seal script has continued in use for “seals or for other contexts in which a deliberately archaizing effect was desired to confer on a piece of writing an air of authority and formality” (Harrist 1999, 10; see also Moore 2000, 65). The seal-script heading of a fifth-century grave tablet is an illustration (fig. 11.4). The carver further accentuated the heading by using larger graphs and by carving it in raised relief (hence the black ink on the rubbing). Sunken relief has been standard for display inscriptions throughout their long history in China.

Raised and sunken relief were options exploited also by the Egyptians and the Maya, and these types of relief figured in hierarchies both artistic and social. Claudia Brittenham’s chapter uses a royal monument, Piedras Negras Panel 3, to study the control of visibility by size, carving technique, and placement within a composition. The most public text, that relating to the dedication of the monument, was carved in high relief. The king’s name occurs in this text, and the designer contrived to position it directly above the seated ruler at the center of the scene; the names of his courtiers are smaller, sunken, and placed on the lower margin of the panel, in keeping with their place in courtly society (Houston and Inomata 2009, 150–55). Even the names of the sculptors, carved in low relief, were arranged by rank, with the head sculptor preceding the others (Houston 2016, 418, fig. 13.22). Maya sculptors apparently enjoyed high social status, and some, including one from Piedras Negras, perhaps even lordly status (Houston 2016, 421). In China, quality-control inscriptions on the products of Han factories list the names of supervisors—bureaucrats more similar to clerks than to lords—by rank, ordered from high to low (Nie 2020, 85; Barbieri-Low 2007, 79, chart 3.1). There is nothing unusual about ranking contributors—look at the list of authors on a scientific paper. But the nonlinguistic resources employed to express ranking, things like raised and sunken relief, deserve study. These nonlinguistic resources can have potent effects without rising to the threshold of the viewer’s consciousness. Any skilled



Figure 11.4. Rubbing of the grave tablet of Prince Sima Jinlong (420–84 CE) and detail of the top. Limestone. Northern Wei dynasty (386–534 CE). Excavated from his tomb in Datong, now in the Shanxi Museum, Taiyuan. Rubbing after Wenwu 1972.3, 27. Photo by Wang Hiacheng.

designer of advertisements knows and exploits this phenomenon.

In Egypt, raised relief, which required lowering the whole surface around the glyphs, was the default for work of high quality (Aldred 1980, 27), hence for work done for patrons high in the social hierarchy. But some considerations could override the default. For example, sunken relief was commonly used for outdoor inscriptions mainly because strong sunlight can wash out high relief. The diffuse lighting of architectural interiors served better for high relief.² Another consideration was the hardness of the stone: lowering the surface was less laborious on limestone than on granite (Aldred 1980, 27). Inscriptions and principal images are usually either both sunken or both raised, and they are carved to the same depth or height, thus making them participants in a single composition (fig. 11.5). A very few Egyptian monuments, almost all from the Middle Kingdom, use both raised and sunken relief. The stela of Tjetji (fig. 11.6) and the way station of Senwosret I at Karnak constitute examples.³ In these cases the distinction seems to have carried specific meanings, though they remain to be elucidated.

One Egyptian formatting device for expressing hierarchy is referred to as “honorific transposition,” a kind of graphic reversal that in Stauder’s terminology can be classified as “internal layout.” In the Fourth Dynasty wall panel of Iry (fig. 11.5), the topmost register begins with the funerary formula “An offering which Anubis gives” (the first three

2 For an Egyptian example of playing with conditions of lighting, see Houston and Stauder 2020, 21.

3 On this way station, the so-called “White Chapel,” see Arnaudès, Beaux, and Chéné 2015, pls. 3–6, 12, 25–27, 40–41. A few other examples can be conveniently found in Oppenheim et al. 2015, including the stelae of Intef (no. 4), Intef (no. 10), Kay (no. 59), Mentuwoiser (no. 60), Abkau and Imemi (no. 193), and Dedu (no. 194). To these John Baines adds the stelae of Wepwawetemhat and Nakht.



Figure 11.5. Limestone relief of Iry, Fourth Dynasty (c. 2613–2494 BCE). British Museum, EA1168. CC BY-SA 4.0. Photo © The Trustees of the British Museum.



Figure 11.6. Stela of the Chief Treasurer and Royal Chamberlain Tjetji. Limestone. First Intermediate Period, Eleventh Dynasty, reign of Nakhtnebtpefer Intef III (c. 2059–2051 BCE). British Museum, EA614. CC BY-SA 4.0. Photo © The Trustees of the British Museum.

signs from the right). The name of the god Anubis comes third in the order of Egyptian speech, but the jackal hieroglyph that stands for it occupies the initial position because the names of gods should be “given precedence in writing over words which, in speech, they followed.”⁴ Similarly, in the title for Iry, “priest of the king,” near the end of the second register, the sedge sign for the word “king” and its phonogram (the flat loaf of bread) are written before the seated man with a pot pouring water that stands for the word “priest.”

The deference that Egyptian scribes expressed by honorific transposition can in Chinese inscriptions be expressed by spacing alone. In the sixth-century epitaph of Lou Rui (fig. 11.7), a prince and high-ranking official in northern China, a blank space precedes every mention of the emperor or empress dowager in an otherwise unpunctuated composition. Another device sometimes encountered is to skip to the beginning of the next column for every honorific title, even when the previous column has ample space to accommodate

⁴ Davies 1987, 13–14. Most of what Davies describes here can be put under the heading of “nonlinguistic communication.”

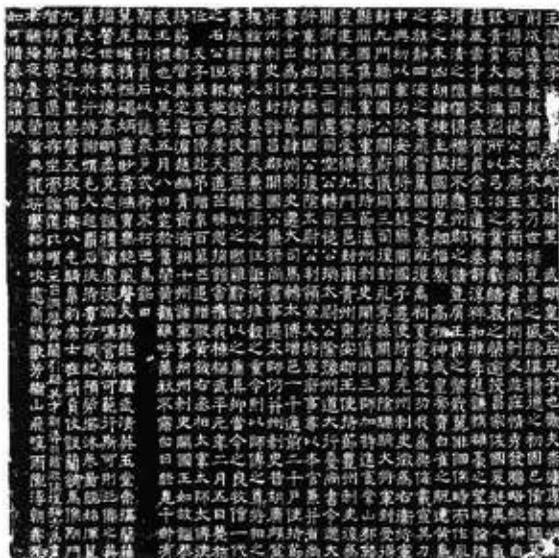


Figure 11.7. Rubbing of the limestone epitaph of Prince Lou Rui (531–70 CE), Northern Qi dynasty (550–77 CE). After Shanxi 1983, 17.

it. The Manchu rulers of the Qing dynasty instituted such an elaborate protocol for the silent expression of hierarchy that a few sentences can sometimes be broken up into many columns of unequal length. In the leftmost column of figure 11.8, the fourth character appears at the top of what we might call the “normal text block”; important names are written above the block, in the “margin.” Mentions of the royal ancestors or things related to them begin three spaces above the block; mentions of the current emperor begin two spaces above it; the official who is writing to the throne is placed at the bottom of the page (the rightmost column in fig. 11.8); and his humble title “servant” is written at half size wherever it occurs (e.g., the leftmost column, ninth character). Failure to follow these protocols could result in a severe reprimand from the throne or a substantial fine (Shi 2019; Zhang 1990).

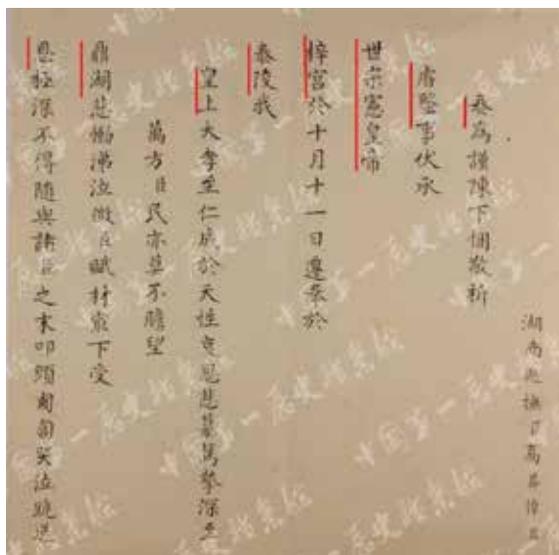


Figure 11.8. Memorial by Gao Qizhuo (1676–1738), governor of Hunan, to the Qianlong emperor (1711–99) regarding the funeral of his father the Yongzheng emperor (1678–1735). The diagonal lines of white writing are superimposed on the document by the First Historical Archives in Beijing, which owns it (no. 04–01-14-0002-003). Dated day 18, ninth month, first year of Qianlong’s reign (1736). Courtesy of Shi Wenyun.

3. CLASSIFIERS AND COGNITION

A hierarchy is a classification of ranks or orders. Statements in the chapters by Gebhard Selz and Orly Goldwasser to the effect that categorization and classification are our way of dealing with the outside world found my ready assent, for on the first page of my book on writing and the ancient state I made a similar statement: “Classification imposes order on a vagrant and unruly reality, enabling us to perceive a chaotic world as an orderly one” (Wang 2014, 1). As Barry Kemp has observed, reducing complexity to

comprehensible order is the essence of the act of writing and drawing (Kemp 2018, 183). His insight is richly illustrated by Holly Pittman's chapter on the administrative imagery of Uruk-period cylinder seals. Pittman argues that these images, which formed part of the graphic environment in which the cuneiform script was invented, were functional equivalents of its semantic classifiers. A seal bearing grain silos, for instance, certified that grains or administrative records relating to them had been controlled. The granary scene is often accompanied by a second theme she interprets as a scribe with tablet and stylus. Since many seals bear nearly duplicate imagery, her interpretation of seal imagery and hence of the function of sealing seems more plausible than that of Hans Nissen, who holds that the imagery was effectively the signature of the sealing party.

Regardless of how much the cuneiform script owed to seal images, there is no doubt that it was invented, for bookkeeping purposes, by assembling a collection of signs that, when arranged in rectangular cases on clay tablets, stood for the names of goods, places, titles, and persons. As soon as the number of signs became large, a list of them had to be made. The moment a list existed, it became the curriculum for training new bookkeepers. As the list grew in length, a way had to be found to organize it for easy reference, so the signs were grouped according to distinct classifiers. (The lexical lists of animals discussed in Selz's chapter are lists of the signs grouped under the classifiers for "bird," "fish," and so on.) Finally, grouping signs by classifier suggested paradigms for generating new signs from the existing repertoire. This constellation of historical events, too closely interconnected to be sequenced, constitutes the Mesopotamian invention of writing (Wang 2014, 307).

Several chapters in the present volume focus on the role of semantic classifiers in the invention and development of writing systems and on the cognitive functioning of the classifiers, which has instructive parallels in spoken and sign languages. In Sumer the overwhelming majority of cuneiform classifiers—vessels, fish, wood, birds, and so on—represent primary nouns. Since they are the topics of the various lexical lists, Selz argues that the classification they express reflects a linguistic phenomenon. This seems to say that the semantic classifiers were actually pronounced. But in modern Chinese writing, semantic classifiers that can function as independent graphs have pronunciations (see Zev Handel in ch. 6); however, classifiers that are not used independently and do not represent linguistic elements do not.⁵ Goldwasser assures us that unpronounced graphemes are used in the Egyptian system of classification; moreover, they are not only nouns but also verbs, pronouns, and so on—in other words, their semantic content is rather varied. Pronounced or not, she says, these classifiers speed up the reader's "mental search for correct meanings" (ch. 5). During reading, as in any other act of visual perception, our eyes make saccades, that is, they sample the visual field by changing direction every few seconds (Wolfe et al. 2009, 184). Stauder (2021, 51) describes this activity as scanning chunks of visual information, usually whole words. It is a basic strategy of the perceptual system that the users of writing systems exploit or adapt to. Goldwasser suggests, if I interpret her correctly, that saccades home in on classifiers, interpret adjacent signs in their light, and group the signs into words. When a writer suppresses these landmarks of meaning by omitting classifiers and spelling with uniconsonantal signs alone, the result is "enigmatic writing" that the

5 Actually, they have been assigned conventional pronunciations, but few script users know them. See Handel (ch. 6) in this volume.

reader may struggle to parse—the same crocodile sign on column after column in the temple of Esna, for instance (Stauder 2021). The reader will struggle, of course. The universal compulsion to read, known in psychology as the “Stroop effect,” does not allow the literate mind to rest until it has matched a graphic configuration with a lexical item stored in the brain (Wang 2021, 33).

However universal our cognitive process, the iconic content of the classifiers, whether in hieroglyphic scripts or in sign languages, must be learned, as Diane Brentari’s chapter reminds us. Browsing through *Reading Maya Art* (Stone and Zender 2011), I often find it difficult to recognize fish, wood, or even jaguar, for I have only a casual acquaintance with Mayan writing. Some classifiers that I cannot make head or tail of will have looked transparent to the script’s users, but only because their (supposed) iconic content will have been one of the first things a beginner learning to write the script was taught. Surely, this approach is a universal of literacy training in logographic scripts. The Chinese teacher shows the class, “the horse 馬 has four feet.” That this “iconicity” must be learned is confirmed by the existence of classifiers whose basis in visual depiction has been forgotten. As Handel (ch. 6) cogently explains, some of the Chinese script’s classifiers are now opaque. The script lost its iconicity early in its development, and we only “recognize” the mnemonics that schoolteachers found it useful to teach us, mnemonics unrelated to the original image. Brentari’s explanation for the incremental loss of iconicity from writing systems is that, with experience, the semantic content carried by iconicity was found to be less important than efficient execution. This view is shared by many present-day students of Chinese writing (Qiu 2000, 54–58). I wonder what will happen in the long run to the iconic content of ASL’s sign for Donald Trump’s name, the classifier that represents his toupee (fig. 11.9). As the Gallaudet student Rodney in the Netflix documentary *Deaf U* explains, “we all know that man has a toupee.”⁶ But a hundred years from now, will anyone remember? Rodney highlights another point of sociolinguistic interest—deaf Trump supporters do not use this sign; instead, they spell out his name, thus implying that they regard the toupee as a derogatory classifier created by his opponents (as it presumably was). As Brentari explains, handshapes associated with English letters are not considered to be native forms of ASL. Might these handshapes be analogous to the katakana script that is used in modern Japanese to transcribe the sounds of foreign words, or to the use of uniconsonantal signs to write non-Egyptian names without recourse to classifiers (Baines 2012, 30)? I do not know the full implication of these comparisons, but they do underline the complexity of communication at the intersection of spoken and visual languages.

Let me offer just one example from China for this kind of complexity. According to Handel’s salience index for semantic classifiers, the classifier 艹 for “grass” or “flower” scores 3 on a scale of 1 to 5 (ch. 6, table 6.4), and to judge by its high semantic consistency index, the classifier 木 for “tree” or “wood” probably has the same score (ch. 6, table 6.5). Handel’s hypothesis is that classifiers with a salience index of 3 to 5 will prove to be more “active” than classifiers with a lower index and to play a more significant role in character learning and recognition. In support he cites their employment in creating neograms—new characters—to represent the names of imported concepts and things. Nutmeg, 蔻, for

6 The statement is made in season 1, episode 2. See the trailer *Deaf U | Assigning Names in ASL | Official Clip | Netflix on YouTube*: https://www.youtube.com/watch?v=_7A0DuGFfxI.



Definition: An American businessman, television personality, and a candidate for the Republican nomination for President of the United States in the 2016 election.

There are variants of this sign.



Informal. One of the earlier variants of this sign name was given to Donald Trump during the presidential campaign in 2016.

Figure 11.9. Entry for the name of Donald Trump from the ASL Sign Language Dictionary. Public domain. Screenshot taken from <https://www.handspeak.com/word/search/index.php?id=7216>.

instance, has “grass/flower” at the top. If such classifiers are transparent and significant to their modern users, we should not be surprised to find them at least as meaningful to ancient users. In the hands of a highly literate writer, they could be exploited to make the kind of “visual poetry” discussed in Stauder’s chapter. An excellent example is the first line of a quatrain by the Tang dynasty poet Wang Wei (692–761), one of the towering figures in Chinese literature:

木 末 芙蓉 花
Branch end hibiscus flowers

François Cheng translates: “At the end of the branches, the hibiscus (or magnolia) flowers.”⁷ But the line is not quite as simple as this translation makes it appear. As Cheng explains, the poet, a devout Buddhist, here “seeks to suggest that he is able through his contemplation of the tree to become of ‘one body’ with the tree and to perceive from the ‘interior’ of the tree the experience of its blossoming.” How? By aligning five carefully chosen characters. Cheng’s masterful analysis deserves to be quoted at length:

Even the reader who does not know Chinese can easily become sensitive to the visual aspect of these characters: the succession of the characters taken purely from the point of view of their visual aspect is completely in accord with the lexical meanings of the

⁷ Cheng 1982, 9–10, also the source of the quotations that follow. A later edition of Cheng’s book, translated from an expanded French edition, is available on Kindle. Thien (2020, 36) summarizes Cheng’s account of Wang Wei’s poem.

characters, and finally of the line itself. Viewing these characters in order gives the visual impression of the process of a tree blossoming into flower (first character: a bare tree; second character: something is born at the end of the branches; third character: a bud breaks out, ⁺⁺ being the radical [semantic classifier] of grass or flower; fourth character: the bursting open of the bud; fifth character: a flower in its fullness). But behind what is shown (the visual aspect) and what is denoted (the normal codified meanings of the characters), a reader who is familiar with the language will not fail to note in addition, through the ideograms, a subtly hidden idea, that of the man who enters the tree in spirit and who therefore participates in its metamorphosis. The third character (芙) contains the element 夫 “man,” which itself contains the element 人 “Man” (*homo*); thus, the tree presented by the first two characters is from this point onward inhabited by the presence of the man.⁸ The fourth character (蓉) contains 容 “face” (the bud breaks out into a face), which contains the element 口 “mouth” (this speaks). And finally, the fifth character contains the element 化 “transformation” (man participating in the universal transformation). By an economy of means, and without recourse to external commentary, the poet re-creates, before our eyes, in its successive states, a mystical experience.

The visual and auditory closeness of the first and second characters 木 (*muk*) 末 (*muat*) is comparable to what Stauder (ch. 3) calls “double entendres,” in which the spelling of one word incorporates a sign (or a set of signs) from another word, the two often being phonetically related. The last three characters are semantic-phonetic compounds (see Handel, ch. 6, table 6.1). Cheng has told us that they have hidden meanings embedded in them: 夫, “man”; 容, “face”; and 化, “transformation.” Those embedded elements are in fact the phonetic classifiers. As Handel explains, phonetic elements can always be used on their own to write morphemes. Thus the “transformation” hidden in “flower” can speak to the properly attentive reader. Wang Wei has used characters and their components to make our reading “contemplative, or absorbed: an experience, in and through writing itself,” of how Zen spirituality is “at once revealed and concealed.” Stauder’s characterization of delayed reading in Egypt fits perfectly here (Stauder 2021, 46).

4. METALINGUISTIC INFORMATION AND ART

Metalinguistic information in the visual presentation of writing is a vast subject—one that raises many issues not covered in this short essay or in the present volume. Let me end with a remark about one substantial component of the problem.

木 末 芙 蓉 花
mù mò fú róng huā

The Wang Wei line and its romanized transcription record the same words. Cheng has just shown us some of the metalinguistic information that is lost when the words are written in Roman letters. Was there a similar loss when the Rosetta Stone’s hieroglyphic text was re-written lower down in the Demotic script?⁹ What is added when the words of the Bible are

8 In fact, the two slanting strokes in the first two characters are basically identical to the element 人, “man.”

9 Richard Parkinson points out that the three versions cannot be matched word for word. See Parkinson 1999, 30–31.

decorated, as for example in the little animals and plants and figural scenes that embellish the letters on a page of the Book of Kells?¹⁰ And what do Mayan full-figure glyphs, which are capable of acting and interacting, add to a text written with them (Houston 2021)?

What would be added to the Wang Wei poem if, instead of being printed in modern Chinese characters, it were written out by a great calligrapher? As it happens, Dong Qichang (1555–1636 CE), the leading calligrapher of late Ming China, wrote it out at least once (fig. 11.10). It comes from an album of twenty Wang Wei poems that Dong copied out for a friend named Wu Zhengzhi (d. c. 1619 CE).¹¹ In his colophon at the end of the album (not shown here), Dong says that his friend loved Wang’s poems and studied them to be close to the poet’s spirit, so he asked Dong to make these copies; but, Dong adds, “I am ashamed that I am not able to study Wang Xizhi’s calligraphy [as my friend studies Wang Wei’s poetry].”

Several things are going on here. First, Dong was an ambitious man who set out to make himself the most celebrated calligrapher and painter of his time. He achieved this status partly by collecting and avidly studying the ancient masters he considered to be the best. In calligraphy, the fourth-century master Wang Xizhi, universally recognized as the best of all time, stood at the head of these masters. Dong is known to have been studying copies of Wang’s calligraphy long before the album was written (1600 CE), and experts can detect Wang’s style in the album; yet Dong laments that he is *not* able to study Wang’s calligraphy, thereby implying that he has fallen short. At first glance this lamentation looks like the Confucian scholar’s obligatory self-deprecation. But the message might be a claim to artistic independence.

Second, Dong’s towering position in the history of painting was not owed entirely to his study and synthesis of past masters. It owed something also to the fact that, in support of his own theory of painting, he wrote the history of painting. According to his history, he was the standard-bearer of the Orthodox School, and Wang Wei, who was a painter as well as a poet, was the fountainhead. When on this and other occasions Dong chose Wang Wei’s poems for his calligraphy, he was communing not only with the poet but also with the painter.

Third, the set of twenty poems Dong copied out for his friend, including the one analyzed by Cheng, celebrated the scenery around the country villa where the poet lived in seclusion for a time (Owen 1996, 392–95). When Dong wrote out the album in 1600 CE, both he and the friend he was writing for had been driven into temporary retirement by conflicts at court. Another metalinguistic message carried by this piece of writing is an allusion to their common fate of political failure and seclusion.

A final observation is that the fourth character of the poem (the fourth in the right-most column) lacks its semantic classifier, the “grass/flower” element ⁺⁺. Was the omission accidental? Or did Dong choose to expose the hidden meaning “face”?

It has often been observed that the kind of calligraphic art known in East Asia and the Islamic world—beautiful writing practiced as an art, studied by connoisseurs and critics, collected and sold in an art market—had no counterpart in ancient Egypt or Mesoamerica

¹⁰ See Meehan 2012 for superb illustrations.

¹¹ For reproduction and description of this album, see Lee, He, and Qiu 2016, 42–45, 378–79. For the life of Dong Qichang and his friendship with Wu Zhengzhi, see Riely 1992, esp. 411–13.



Figure 11.10. Dong Qichang (1555–1636), leaf from an album of *The Wangchuan Poems*, dated 1600. Ink on paper, 27 × 11.7 cm. National Palace Museum, Taipei. 故-書-000209-00000. Public domain. Adapted from https://painting.npm.gov.tw/Painting_Page.aspx?dep=P&PaintingId=2587.

(e.g., Baines 2012, 32). But there are Egyptian inscriptions with metalinguistic messages far more densely layered than the Chinese example I have just described, monuments that exploit the iconicity of the hieroglyphic script in such complex ways that a verbal transcription is actually not possible. A lintel of Senwosret III from Medamud provides a spectacular example.¹² Examples such as Dong’s calligraphy, the Kells embellishments, and Senwosret’s lintel raise the possibility that metalinguistic messages might include very large domains of art. Certainly there is no way of excluding art from the study of writing. Perhaps this fact explains why three contributors to the present volume,

myself included, are art historians. Perhaps some future gathering can make a concerted attack on the meta-linguistic message we call “art.”

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¹² For excellent illustrations and comments, see Bagley 2015, 174–80.

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Traditionally, writing—a graphic, multidimensional form of communication—has been approached as a vehicle for representing, and therefore conveying, the spoken word. Moving beyond this manner of analysis, this volume interrogates writing as a medium that is not simply a handmaiden to oral and aural exchange but a communication system that is richly layered and experienced. To exploit this aspect of visual code, scholars from the fields of Egyptology, Sinology, Hittitology, and Assyriology, together with Mesoamericanists, art historians, and a sign language specialist, are brought together in this volume. In its pages, these contributors incorporate into their analyses methods more commonly used in linguistics and semiotics, communication studies, art historical analysis, and traditional philology to new ends in order to form original trajectories of inquiry. Each contribution either lays bare explicit exploitation of visuality in scribal production as a means to cement power, reveal the mystical, induce humor, or expose clandestine views or it locates implicit knowledge schemes and cultural maps underlying and informing these same productions. The pioneering investigations presented in *Seen Not Heard* reveal that although writing may be heard, the fact that it can also be seen affects its reception and therefore the meaning of any transported phonological units.

About the Editor

Ilona Zsolnay is an Assyriologist who seeks to make the ancient world more germane by integrating rigorous philological inquiry and cutting-edge theory with lateral approaches. She is the editor of *Being a Man: Negotiating Ancient Constructs of Masculinity* (Routledge, 2016) and the ancient Near East editor for the *Oxford Encyclopedia of the Bible and Gender Studies* (Oxford University Press, 2014). Currently, she is a consulting scholar in the Babylonian section of the Penn Museum at the University of Pennsylvania, where as an Andrew W. Mellon Postdoctoral Fellow she served as project manager for the Penn extension of the Cuneiform Digital Library Initiative.



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