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candidate for the degree of Doctor of Philosophy, and hereby certify that it is worthy of acceptance.

Signature _____

Typed name: Dr. Piotr Steinkeller (Advisor)

Signature _____

Typed name: Dr. Gojko Barjamovic

Signature Piotr Michalowski Digitally signed by Piotr Michalowski Date: 2023.04.19 12:29:09 -04'00'

Typed name: Dr. Piotr Michalowski

Date: *April 19, 2023*

THE ADAPTATION PROCESS OF CUNEIFORM IN THE OLD BABYLONIAN PERIOD

A DISSERTATION PRESENTED

BY

YEHONATAN HERSHKOVITZ

TO

THE DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN THE SUBJECT OF

ASSYRIOLOGY

HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS
APRIL 2023

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Dissertation Advisor: Piotr Steinkeller Yehonatan Hershkovitz

The Adaptation Process of Cuneiform in the Old Babylonian Period

Abstract

This dissertation explores the orthographic changes in cuneiform during the Old Babylonian Period (2004-1595 BCE). Over the course of several decades around 1900-1850 BCE, the cuneiform script underwent significant orthographic changes, and transformed from a script of Sumerian speakers to a script of Akkadian speakers. The decline of the Isin Dynasty and the fragmentation of the Ur III traditions formed the background for the growth of a new curriculum in scribal schools in Babylonia. This dissertation proposes that the new OB curriculum put emphasis on interpretation of the dead Sumerian language o Akkadian speakers which caused the cuneiform orthography to be more detailed, and consequently more suitable to writing Akkadian. In order to unpack this proposal, it is necessary to investigate how adaptations of scripts are done in general, and then track the roots of cuneiform and the background to the orthographic changes of the OB period.

This thesis states that the cuneiform script is the only way to understand the Mesopotamian languages, and that script and language are inseparable. Like cuneiform writing itself, this dissertation develops across historical, geographical, and political lines, surveying textual material from northern and southern Babylonia, as it seeks to determine the date of the OB orthographic reform.

Finally, the dissertation addresses the problem of the OA texts and their orthography, investigating whether it was executed in a unique non-professional manner, or merely preserved from the earlier Old Akkadian orthography with minor modifications.

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Acknowledgements

Writing this dissertation gave me the opportunity to work with great scholars whose input and advice made this present study possible. Piotr Steinkeller, Chair of the Dissertation Committee, helped me greatly in formulating large parts of the dissertation, correcting countless errors, and providing consistent encouragement and advice. Piotr Michalowski meticulously scanned the final draft and offered numerous insights and corrections, and Gojko Barjamovic was in constant contact with me throughout the process, which improved the general form of the work.

Irit Aharony is a wonderful teacher who guided me how to teach a class and convey information to students in the best way. Osnat Aharoni helped me with the technical details regarding the class, and other personal matters.

My first Sumerian teacher Walther Sallaberger gave me a comprehensive introduction to the language and the opportunity to think about Sumerian lexicography in all its complexity.

I benefitted from discussions with scholars and colleagues who contributed to my understanding of many aspects and issues in this work: Rustam Ajami, Hasegawa Shuichi, Honda Keisuke, Ikeda Jun, Alexander A. Sukhodola, Ghil'ad Zuckermann among others. Uri Gabbay encouraged me throughout the writing process and offered invaluable suggestions and ideas.

I have had the pleasure of sharing classes with the most supportive and genial colleagues: Eric R. Aupperle, Kim Jae-Hwan, Declan Maloney, William F. Nation III and Taha Yurttaş. Andrew A. N. Deloucas patiently listened to some ideas expressed in this thesis and discussed them with me in detail. I particularly enjoyed the friendship of Andrew R. Pottorf and our long

conversations, both on the professional and personal side. Adam J. Aja, Eva S. Misho, Carrie C. Mountain, Soma K. Roy, and others at NELC and the Harvard Semitic Museum have been of great assistance and will always be fondly remembered.

Special thanks are due to Ian McGonigle, a good friend who showed constant interest, and enriched my work with endless tips and suggestions.

I am indebted to Barnea L. Selavan, a true gentleman, who proofread many versions of this thesis from start to finish, and to Jaimie Johansson who carefully edited the last version.

Finally, I would like to express my gratitude to Yoram Cohen, without whom this thesis would never have been written.

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Abbreviations

AbB - Altbabylonische Briefe

ActAntH - Acta Archaeologica Academiae Scientiarum Hungaricae

ADOG - Abhandlungen der Deutschen Orient-Gesellschaft

AfO - Archiv für Orientforschung

AoN - Altorientalische Notizen

ARES - Archivi reali di Ebla. Studi

ARM - Archives royales de Mari

AS - Assyriological Studies

ASJ - Acta Sumerologica

BaM - Baghdader Mitteilungen

BIN - Babylonian inscriptions in the collection of James B. Nies

BSA - Bulletin on Sumerian Agriculture

CAD - Chicago Assyrian Dictionary

CHD - Chicago Hittite Dictionary

CDLI - Cuneiform Digital Library Initiative

CT - Cuneiform Texts from Babylonian Tablets in the British Museum

CUSAS - Cornell University Studies in Assyriology and Sumerology

FAOS - Freiburger Altorientalische Studien

HANES - History of the Ancient Near East Studies

HED - Hittite Etymological Dictionary

HfS - Historisk-filosofiske Skrifter

JAOS - Journal of American Oriental Society

JCAS - Journal of Central Asian Studies

JCS - Journal of Cuneiform Studies

JEOL - Jaarbericht van het Voor-Aziatisch-Egyptisch-Gezelschap

JESHO - Journal of the Economic and Social History of the Orient

LAK - A. Deimel's Liste der archaischen Keilschriftzeichen

MEE - Materiali epigrafici di Ebla

MSL - Materialien zum Sumerischen Lexikon

MVN - Materiali per il vocabulario neosumerico

MZL - R. Borger (2003) Mesopotamisches Zeichenlexikon. AOAT 305. Ugarit-Verlag.

OAAS - Old Assyrian Archives. Studies.

OIP - Oriental Institute Publications

PIHANS - Publications de l'Institut historique-archéologique néerlandais de Stamboul

RA - Revue d'assyriologie et d'archéologie orientale

RIMA - Royal Inscriptions of Mesopotamia, Assyrian periods

RIME - Royal Inscriptions of Mesopotamia, Early periods

RINAP - Royal Inscriptions of the Neo-Assyrian Period

RlA - Reallexikon der Assyriologie

SANER - Studies in Ancient Near Eastern Records

StBoT - Studien zu den Boğazköy-Texten

StOr - Studia Orientalia

TCL - Textes cunéiformes, Musées du Louvre

TTKY - Türk Tarih Kurumu Yayinlari

UET - Ur Excavations Texts

UF - Ugarit Forschungen

REW - M. Vasmer's Russisches Etymologisches Wörterbuch

Wehr - H. Wehr Arabic Dictionary

WO - Die Welt des Orients. Wissenschaftliche Beiträge zur Kunde des Morgenlandes

WZKM - Wiener Zeitschrift für die Kunde des Morgenlandes

YOS - Yale Oriental Series

ZA - Zeitschrift für Assyriologie und vorderasiatische Archäologie

ZATU - Zelchenliste der archaischen Texte aus Uruk

ZDMG - Zeitschrift der Deutschen Morgenländischen Gesellschaft

Chapter One: Introduction

1.1 Thesis

This dissertation investigates the nature, purpose, cultural background and effect of orthographic changes during the Old Babylonian Period (2004-1595 BCE) which transformed cuneiform from a writing system used primarily for the Sumerian language, into the main writing system of Akkadian.[1]

Cuneiform script first appeared in southern Mesopotamia towards the end of the fourth millennium BCE and remained in use until the early years of the first century CE.[2] Although cuneiform progressively spread throughout the Near East, with various languages employing it as their writing system, the largest textual corpora preserved in the cuneiform script is mostly found in two languages: Sumerian and Akkadian. As such, this dissertation will focus on the relationship between these two languages as it was reflected in cuneiform writing. The main problem this thesis investigates is the problem that Sumerian cuneiform posed to its Semitic adapters: how to write a language in a script that was originally constructed for an entirely different language.

1.2. Overview of the Problem

At its outset, cuneiform was solely utilized for writing Sumerian and was specifically purposed for economic record-keeping (Steinkeller 2017, 24 ff.). The initial (or "archaic") signs were

[1] The following abbreviations are used throughout this dissertation:
OAkk - Old Akkadian
OB - Old Babylonian / OA - Old Assyrian
MB - Middle Babylonian / MA - Middle Assyrian
NB - Neo Babylonian / NA - Neo-Assyrian

[2] For a comprehensive overview of the cuneiform culture, see Radner and Robson 2011. All dates follow the conventional Middle Chronology, with Hammurabi's reign 1792-1750 BCE.

pictograms, mostly representing goods and quantities. At this point, the script was almost entirely logographic, with a few phonetic indicators (Krispijn 1991-1992; Steinkeller 1995a). It is only in later stages that the first manifestations of syllabic writing are employed to express grammatical features or abstract ideas that could not be written logographically. By 2500 BCE, cuneiform had become a logo-syllabic script, combining logograms and phonograms. It retained this character for more than two millennia, prior to its total disappearance (Gelb 1961a).

Cuneiform script served the Sumerian language well in its initial form. Over time and with the gradual increase of Semitic populations in Mesopotamia, new needs emerged. Sumerian's agglutinative nature, in which mono- or polysyllabic morphemes were merely affixed one to another in a predetermined order, was well-suited to cuneiform's nature. But other languages, particularly Semitic languages constructed on roots and conjugated according to grammatical patterns, could not be easily expressed in this script. The first development in cuneiform was syllabic writing, which made the script more flexible and versatile. Yet though this development appeared in the context of writing Sumerian, it is important to note that syllabic writing is not essential for agglutinative Sumerian, as it is for inflected Semitic languages.[3] It is not surprising, therefore, that cuneiform shifted to its logo-syllabic form in a single developmental phase around 2500 BCE, almost simultaneously with the appearance of Semitic personal names and other elements found in sites such as Abu-Salabikh.[4] Moreover, although more evidence is needed at this phase, it is possible that even the earliest syllabic writings in archaic Uruk were produced for Semitic loanwords in the Sumerian language.

[3] To avoid anachronism, I use the term "Semitic" rather than "Akkadian", as the latter refers to the written language convention of Akkade and its area.

[4] While it was previously assumed that the earliest documents written solely in a Semitic language first appeared only in the Old Akkadian Period (c. 2350-2250 BCE). This assumption must now be revised, as dialects that are clearly Semitic are now attested from Ebla and Tell Beydar as predating the OAkk.

Throughout its four thousand years of existence and use, cuneiform underwent significant changes that contributed to its functionality, both in terms of its application and the shapes of the signs that were introduced. Apart from local ad-hoc changes, this thesis points to several events in which an aggregate of significant changes may be considered in the broader sense to constitute an orthographic reform. Whereas other non-Semitic languages like Gutian or Kassite were spoken in Mesopotamia, there is no extant evidence of any effort to overhaul and adapt cuneiform to these languages.[5]

Adapting cuneiform to Semitic languages should be divided into two main phases. The first phase, spanning the third millennium BCE, enabled Sumerian-speaking scribes engaging with Mesopotamia's new Semitic populations to write their personal names in economic transactions or administrative memoranda (Hasselbach 2005, 28; Lieberman 1977, 19). The third-millennium Semitic syllabary shows a clear deficiency. Many Semitic phonemes were not assigned a specific sign, e.g., all obstruent phonemes were written in one sign. The same with gemination, a main feature of Semitic languages, which was not expressed in writing.

The second phase occurred in the early second millennium BCE, when cuneiform was reshaped to better suit the needs of Akkadian. Concurrent with the onset of the OB period, we can detect a series of orthographic developments and changes. These include the differentiation between voiced and voiceless consonants, gemination, the replacement of the syllabary and possibly an increase of logographic writing in Akkadian.[6] However, it is difficult to determine whether such changes were conventional *per se* or if they also reflected phonetic changes. The

[5] Relics of Gutian and Kassite are limited to personal names and a handful of lexical entries.

[6] Along with many other novelties related to writing, such as, the shape of the tablet, paleography and even arrangement of economic and mathematical texts.

disappearance of the dental fricative /θ/ in the OB syllabary, for instance, may show a development in Akkadian phonological inventory (Hasselbach 2005, 31).[7] Other changes, such as using the sign DI for the value /di/ or the sign KA for /ka/ seem more conventional.[8]

Throughout centuries of usage, cuneiform was never fully adapted to write Akkadian, a striking fact whose implications must be considered. Some developments did take place in later periods, such as the invention of a sign for the glottal stop. Other naturally expected inventions never occurred, such as the development of specific signs for the emphatic phonemes /ṣ/ and /ṭ/ or for VC syllables.[9] Moreover, there is no evidence that the incomplete orthography of the third millennium BCE presented any problems for Semitic speakers whose language continued to demand further adaptation of the script. Had it created difficulties in reading comprehension, the OAkk scribes would have instituted any necessary adaptations to the script much earlier. It is even further surprising that instead of the anticipated dispensation with Sumerian features, such as logograms, not only were these features retained in the updated script, but the new OB orthography used them even more vigorously.[10] New syllabic values were indeed added, yet the syllabary was not reduced. Redundant signs that the current and widely-spoken language of Akkadian did not require were still not dropped from usage.[11] Remarkably, new *values* were added but not new *signs*; that is, existing signs were assigned new values according to their

[7] The symbols used in this work follow Gelb 1970b:
< > for graphemic transliteration
/ / for phonemic transcription
[ ] for phonetic transcription

[8] Capital letters represent cuneiform signs, small letters are used for Sumerian, and small letters in italics are used for Akkadian.

[9] That is to say, specific signs for /ag/ and /ak/, /ib/ and /ip/, /ud/ and /ut/ and so on.

[10] See for instance the purely syllabic Ge'ez script.

[11] Such as many signs with the same syllabic value.

Sumerian readings or by acrophonic principle. However, by and large, we detect almost no invention of new signs that did not already exist beforehand in the earlier orthography.[12] Writing logograms could indeed have been easier or more efficient for a professional scribe who knew the conventions. Yet, in legal and administrative texts in particular, there are examples of favoring not only conventional simple logograms, but also of using difficult and long logograms when syllabic writing would be more efficient.[13]

All in all, despite some essential orthographic novelties, these changes occured within a framework that on the surface appears to run counter to the general tendency of writing developments throughout history. Upon closer examination, the cuneiform adaptation from Sumerian to Akkadian is remarkable for its highly conservative and retentive approach to both syllabary and script usage. This opens the question of whether the OB reform addressed specific needs and was of a purely functional character as occurs in many other changes, or whether it was predominantly a series of scribal conventions, each prompted by one of a range of factors that as an aggregate became a set which we now categorize and recognize as the OB orthography. One must therefore look for an underlying and fundamental difference between the initial third millennium BCE cuneiform adaptation and the OB scribal treatment. While the first phase may have originated out of purely functional necessity, the latter phase was associated with and based on specific circumstances. This dissertation will explore the nature of the OB orthographic changes, examining possible reasons behind these changes from the perspective of

[12] For instance, the value /ka/ was added to the sign KA, or /qa/ for $SILA_3$, due to its Akkadian reading *qû*. On the other hand, no new sign was introduced to differentiate between the values /bu/ and /pu/. In fact, the sign BU was used for both values throughout cuneiform's lifetime. We do see, however, new combinations of signs for syllabic values that did not exist in the third millennium BCE.

[13] A striking example is using the logogram TUKUMBI (written ŠU.NIĜ$_2$.TUR.LAL.BI) instead of syllabic *šum-ma*.

the scribal class, and the extended influence these changes would exert on cuneiform writing in the following centuries.

1.3. What is Orthography?

A basic definition for orthography is necessary, since several related terms are often used interchangeably and sometimes incorrectly. Orthography (Gr. *ορθογραφία – ὀρθός* 'correct, right' + *γράφω* 'to write') is the body of rules and conventions designated to set a standard way for writing a language. It is common, however, to see other terms in the literature on the subject, such as 'spelling', 'script', and 'writing system' used in place of the meaning of orthography or vice versa. Such term mixing is even more common in the context of cuneiform studies, primarily due to the scarcity of research and the absence of emphasis dedicated thus far to the physical aspect of writing.

The term 'writing system' refers to the technical method of writing, while 'script' indicates the visual representation of the writing system. An alphabet is a writing system that can be demonstrated in the Roman, Cyrillic, Arabic, and many other scripts. The Roman alphabet, in turn, is a script, employed for many languages, each one using its own orthography - that is, the specific rules and conventions that apply to a given language according to its needs or traditions.[14] For instance, the Roman letter <z> represents a voiceless alveolar affricate [t͡s] in German, whereas in English it usually represents a voiced alveolar fricative [z].[15] The graph <z>

[14] This includes changes on the timeline, e.g., Middle English orthography is not the same as Early Modern English, and both differ from contemporary English.

[15] As English orthography is irregular, this grapheme represents other sounds in specific cases, such as voiced postalveolar fricative [ʒ] (e.g., *azure*). Due to its complex orthography, English not only allows one graph to represent more than one phoneme, but also one phoneme to be represented in several graphs. Note for instance that [ʒ] is represented with /z/ in *azure*, but with /s/ in vision, /g/ in mirage, /j/ in *bijou*, and /t/ in *equation*. See Chapter Three.

conveys its pronunciation according to the orthography only; by itself it is devoid of any value or sound. The graph <S>, is not only pronounced differently in English and German, both of which use the Roman script; but it also exists in other scripts, such as the Armenian script <S>, where it represents the phoneme /t/ and has nothing to do with the Roman letter S.[16] We must perceive this graph as a merely curved line with no content by itself. It is used in different contexts for different purposes, and it draws its value from the orthography alone.

Mesopotamian cuneiform uses a separate writing system that can hardly be classified alongside other scripts.[17] Similarly to the scripts mentioned above, however, cuneiform signs do convey their value according to the orthography. The specific context and dialect are even more essential in the case of cuneiform. For instance, the sign , transliterated $\hat{G}A_2$, has the syllabic value /ga/ in Sumerian only[18], while in Akkadian it is used as a syllabogram /ga/ only rarely and even these attestations appear only in later periods.[19] Many syllabic values, especially CVC signs, appear for the first time in the first millennium BCE, and cannot be applied to previous periods. This is equivalent to the value /t/ ascribed to <S> only in Armenian, and not in any other language. A cuneiform sign is merely a few wedges arranged in a predetermined order, but it lacks any content by itself.

The last term that should be more carefully defined is ‘spelling’. For our purposes, spelling may serve as a synonym for ‘orthography’, unlike for modern languages, where orthography contains other elements like capitalization or punctuation rather than spelling *per-se*,

[16] The same is true for the graph <H> that denotes different values in Latin and Cyrillic scripts.

[17] One may classify it under “syllabic scripts”, but the Ge’ez script, for instance, is syllabic, and cannot be compared to cuneiform, as it lacks logograms.

[18] Such as ĝa-ra for ĝar ‘to place’ (e.g., CT 50, 67).

[19] Unless otherwise noted, all the cuneiform signs in this work are taken from Mittermayer 2006 and are for illustration only.

features that are not relevant for cuneiform.[20] All these terms apply to writing only and are not related to language. Hence, a term such as the "Akkadian writing system" is a misnomer.

Finally, it is important to note that orthography has nothing to do with paleography, i.e., the physical shape of the sign and its evolution throughout history.[21]

1.4. Phonology and Phonetics

Phonology and phonetics are both related to the sound of the language, and they may be intertwined to some degree (Odden 2005, 2). However, they refer to different dimensions of the sound of the language. Phonetics refers to the natural sounds of all languages in practice, whereas phonology is a grammatical term regarding specific rules of a certain language. For instance, the performance of the voiceless plosive, representing the phoneme /q/ in Semitic languages is a phonetic matter. While in Arabic it is a uvular [q], in Ethiopic languages it is pronounced as an ejective [q'], and in Modern Hebrew it has lost its emphasis and coalesced with the velar plosive [k]. Phonology, on the other hand, deals with specific rules of languages, e.g., syncope rules, metatheses or final devoicing.[22] But for our purposes, it is important to note the difference between *phones*, a phonetic term, and *phonemes* a phonological matter. Phones are natural sounds spoken in languages, while phonemes are specific sounds of a language that can distinguish words one from another. Each language has a specific number of phonemes that comprise the phonological inventory of this language. It may contain other phones that are physically uttered in this language but have no influence on the meaning of words. The English

[20] Except for some rare phenomena, such as the word divider in Old Assyrian texts. See Chapter Six.

[21] This statement may look trivial, but errors of this sort can be found in literature. See for instance Crawford 1954, 5.

[22] For instance, Russian <зуб> is pronounced [zup], a phenomenon that does not exist in English, e.g., <cub> [kəb].

language, for instance, has 44 phonemes, though English speakers use in practice other phones that have no influence on the meaning of words. These phones, called *allophones*, may be either *positional variants*, that is, dependent on the phonetic context, or *free variants*, dependent on the specific dialect or accent of the speaker.

To illustrate this difference, let us take two phonetic phenomena: aspiration and voicing. Both are performed in English, but only voicing has a phonemic content, while aspiration is merely allophonic. As opposed to English, other languages see the same phenomena differently: Aspirated consonants are considered separate phonemes in Armenian[23], while several voiced consonants are not considered phonemes in Finnish.[24]

Armenian contains two separate voiceless velar plosives, represented by two different graphemes: կ <k> (unaspirated k) and ք <k^h> (aspirated k). A minimal pair can be found in կար <kar> 'suture' and քար <k^{h}ar> 'stone'. i.e., there is a *phonemic* difference between these two words. In English, on the other hand, the graph <k> represents one phoneme, the voiceless velar plosive /k/, though it may be performed in two different ways, e.g., *skill*, phonemically /skɪl/, performed [skɪl], while *kill* is phonemically /kɪl/, but phonetically performed [k^{h}ɪl]. Therefore, [k] and [k^h] are both allophones (positional variants) of the same phoneme /k/. One cannot find a minimal pair (i.e., two words differing only by one sound in the same position) of two English words differing in their plosives whether aspirated or not. While the word *car* is pronounced [kɑɹ], even a hypothetical pronunciation *[k^{h}ɑɹ] will not indicate a different meaning. The same is true for the final /r/ of this word, pronounced as an approximant [ɹ] in American English, but

[23] Armenian has two main literary forms, Eastern Armenian, spoken by Armenians who lived roughly under the Russian rule (currently the Republic of Armenia), and Western Armenian, spoken by those who lived under the Turkish rule. Only Eastern Armenian preserves the Classical Armenian differentiation between unaspirated and aspirated voiceless consonants. The term "Armenian", is used henceforth for Eastern Armenian.

[24] Though not a full No Voicing Distinction language (NVD), I use Finnish due to its better accessibility it has compared to full NVDs, such Australian languages, Mandarin or Korean.

can also be pronounced as a tap [ɾ] or a trill [r], depending on the dialect or accent. These are all allophones (free variants) of the same phoneme /r/; meaning there is no difference between [kɑɹ], [kɑɾ] or [kɑr], they all mean the same word. In Armenian, on the other hand, voiced alveolar tap and voiced alveolar trill are different *phonemes*, represented also by two different graphemes - <ր> /ɾ/ and <ռ> /r/. One can find a minimal pair such as վարել /vɑɾɛl/ 'to drive' and վառել /vɑrɛl/ 'to burn'. Hence, the phones [ɾ] and [r] may exist in English, but only as allophones of the phoneme /r/, while in Armenian these two exist as separate phonemes /ɾ/ and /r/, respectively.

On the other hand, voicing is obviously phonemic in English, while in Finnish it has no phonemic content. An English minimal pair such as /bin/ and /pin/ may sound the same for a Finnish speaker, as plosives in Finnish are always voiceless unaspirated. They can be uttered as voiced in "fast and careless speech" (Suomi, Toivanen and Ylitalo 2008, 27), that is to say, the phone [b] can theoretically be pronounced by Finnish speakers, but only as an allophone of the same phoneme as the phone [p]; hence, in Finnish, [b] and [p] are both allophones of the same phoneme, /p/; hence, in Finnish, [b] and [p] are both allophones of the same phoneme /p/.

Finally, it should be emphasized that only phones are absolute, while phonemes are directly connected to the language and the context. The sounds phonemes represent derive from the language's phonology and have no exact and objective definition. Uriel Weinreich (1963, 7) has pointed out:

> … /p/ in Russian, or $_{R}$/p/, is defined, among others, by its distinctive feature of non-palatality (in opposition to /p'/), while the definition of /p/ in English, or $_{E}$/p/, involves no such restriction. From the point of view of the language, therefore, $_{R}$/p/ and $_{E}$/p/ cannot be "the same".

This is true of any other stop in Russian that has the quality of palatalization, which means it contains two different phonemes in practice. Russian <t>, is not only pronounced in two different ways, but also contains a *phonemic* quality, as it can be either palatalized, e.g., брать

‘to take’, or non-palatalized, брат ‘brother’. English <t>, on the other hand, though it can be pronounced in more than one way, depending on its position in the word or the speaker’s accent, still represents one phoneme, /t/. Speaking of cuneiform, though the same signs were used for both Sumerian and Akkadian, $_{Sum}$/d/ for example, cannot be $_{Akk}$/d/, though the sign indicating them is identical - . And unlike modern languages, wherein we definitely know what $_{R}$/p/ and $_{E}$/p/ are, we may have a good guess of what $_{Akk}$/d/ is, but the $_{Sum}$/d/ is much more difficult, if even at all possible, to perceive. This is a valuable point to recognize: just as the modern scholar is challenged to understand ancient Sumerian phonetics, so did the OB period Akkadian speakers, who faced similar challenges as they reached back in time to properly understand what $_{Sum}$/d/ was.

Phonology may be traced in orthography or learned by historical linguistics; yet, by nature, ancient phonetics can hardly be deduced. Studying the phonetics of dead languages such as Akkadian and, even more so, Sumerian is almost impossible and can only be inferred indirectly.[25] Because there are no longer native Akkadian speakers, we may never know how the plosive /q/ or the affricate /ṣ/ were originally pronounced.[26] One must keep in mind that all our knowledge about the Akkadian language, let alone the Sumerian language, comes from texts read on inanimate clay tablets. Therefore, the changes we see in these texts are first and foremost orthographic changes, and it is only indirectly that we may interpret them as phonetic changes. The scholarly tendency to assume phonetic changes in the OB-MB transition must be rejected, as the massive changes in the early MB period were primarily orthographic. For example, it is assumed that the shift of writing intervocalic /w/ to /m/ is phonetic, and yet all we see is that the

[25] Even Attic Greek pronunciation widely studied today is only a working assumption.

[26] See the discussion in Steiner 1982, 70.

sign PI was replaced by M-series signs, which by itself cannot indicate phonetic changes (von Soden 1995, 26 §21d).[27] Since Akkadian has been dead for more than two millennia, we cannot determine for certain how the phonemes /w/ and /m/ were performed in origin, nor the real nature of the w>m change.[28]

Even so, transcriptions of Akkadian words in Greek and in the Bible do offer some hints about first-millennium Akkadian phonetics, as do foreign names written in cuneiform texts.[29] And yet, as useful as these hints may be, many of these transcriptions are dated to periods long after Akkadian had died out as a spoken language. Such texts cannot serve, therefore, as a firm basis for reconstructing pronunciation in earlier periods.

And whereas Akkadian phonetics can still be postulated through comparative study vis-à-vis other Semitic languages, Sumerian phonetics is largely beyond the reach of our hands. Any guess regarding the phonetics of Sumerian, an isolated language with no known relatives, is speculative. Inanimate tablets, as detailed as they may be, do not and cannot provide this information. One cannot ask "How do you *say* X in Sumerian?", but only "How do you *write* X in Sumerian?".

This problem is not the sole domain of present-day Assyriology. Modern scholars face the same challenges in reconstructing Sumerian as OB period Akkadian scribes did. Though their motivation and approaches were historically contingent, the ancients themselves sought to study and understand dead languages in a way that is not dissimilar to modern philologists. Indeed, the problems they faced caused them to apply what may be considered an example of ancient

[27] The phonetic change w>m cannot be excluded, but it is not necessarily related to the orthographic change mentioned above.

[28] Compare to the phonetic uncertainty in Latin, a much better-preserved language compared to Akkadian.

[29] Such as names of Persian kings written in cuneiform, showing consistence of using /k/ for Persian [x] and may indicate spirantization in Akkadian.

philology. These efforts by Akkadian speakers to grapple with a dead language they were committed to preserving is, therefore, a plausible fulcrum of the collective changes that resulted in what this dissertation calls the OB orthographic reform.

1.5. Aims and Methodology

This dissertation is among the first to provide an overview of the OB cuneiform adaptation process, and to investigate the factors that engendered this process. It will focus on the orthographic changes, the possible reasons for their appearance and the resultant implications for cuneiform writing from the OB period and onwards. The main examination will focus on the OB reform and the relationship between language and script as reflected in cuneiform and in the Sumerian and Akkadian languages.

This work will be divided into two parts: the first part, which comprises Chapters Two and Three, is largely theoretical and outlines the challenges inherent in adapting scripts to languages that do not correspond to their original purpose and design. This part will explore orthographic depth and its significance to the history of orthographic reforms. For this purpose, two modern case studies will be analyzed and compared to cuneiform: the Japanese adoption of Chinese characters and the Persian and Ottoman Turkish adaptation of Arabic script into their writing systems.

Chapters Four and Five, which form the second part of this dissertation, will investigate the OB orthographic reform; provide the background to the appearance of the orthographic changes in cuneiform; and review the possible reasons for them, such as political or linguistic changes in Mesopotamia, the rise of Semitic languages in the third millennium, the disappearance of Sumerian and the attempts to preserve it in the Mesopotamian tradition. The

earliest Akkadian material from the early OB period will be collected and classified chronologically where possible. OB pedagogical material will be presented as well as possible patterns in the orthographic changes themselves, or in the scribal priorities in presenting the new orthography.

Finally, a short discussion will be held on a specific test case of the Old Assyrian orthography, its integration into the chain of orthographic changes in Mesopotamia, and the question of whether it was affected by the OB reform changes.

1.6. Previous Research

To date, the OB orthographic reform has not yet been studied in its own right. Several articles have briefly identified the phenomenon and its importance on the timeline and language development in Mesopotamia. Yet the OB reform is not a newly identified phenomenon at all. From the early stages of Assyriology, scholars have identified the early OB period as a turning point in the cuneiform script and its uses for writing the Akkadian language. Editors of sign lists published at the turn of the 20th century indicated cuneiform developments in the OB period (Thureau-Dangin 1898; Fossey 1926). Thureau-Dangin (1931) specifically highlighted the problem of writing Akkadian in cuneiform, especially in expressing Akkadian sibilants which did not exist in Sumerian. A. Goetze (1958) elaborated on the matter, as did Gelb (1961a), Hasselbach (2005, 135-145), Streck (2006) and Westenholz (2006).

In his analysis of OB mathematical texts, Goetze (1945) noted regional differences in orthography, in which southern scribes used different signs from their counterparts in the north. He divided the texts into the northern group, which came from Sippar and Dilbat as well as several royal texts, including the Code of Hammurabi, which he contrasted with the southern

group, mainly comprised of texts from Larsa. Although Goetze never used the term "orthography", he did point out several differences in sign use, such as the sign PI, which was used for the value /pi/ in the south, as compared to BI in the north (as pi_2), or ZU and SU, in the south and the north, respectively, to express /su/.[30] Goetze emphasized that the data at his disposal was insufficient to set strict rules regarding the north-south differences, since texts from Ur and Uruk had not been fully published at the time. Nevertheless, after the three-quarters of a century that have elapsed since its publication, his article, which is cited in all studies regarding OB orthography, remains seriously influential.

S. J. Lieberman (1977) expanded on the geographical scope of Goetze's article, by investigating other regions, such as Syria, Assur, the Diyala and Elam. While he agreed with most of Goetze's observations, he also asserted that orthographic differences were not necessarily related to regional differences. Rather, in Lieberman's opinion, they pertained to the scribal traditions of local schools. For instance, Nippur's syllabary differs from that of Ur, although both cities were located in the south.[31]

One of the first scholars to identify massive changes in the early OB period was Benno Landsberger (1951, 98), but he was mainly concerned with the visual display of the signs and the sign simplification, which he believed to have applied in the Isin I period. M. A. Powell (1974) also dealt with this matter, mostly focusing on paleography.

In their discussion of the OB syllabary changes, von Soden and Röllig (1976) viewed them as so striking as to indicate a deliberate reform taking place at the time. They noted several OB traits; among them the limited use of CVC signs, usually for signs ending with /*m*/ (CV*m*).

[30] Though not directly relevant to this discussion, Goetze even identified syntactical differences between the south and the north, e.g., *tuppī anniam ina amārika* in the south vs. *kīma* (or *ūm*) *tuppī anniam tammaru* in the north ("when you see my tablet/letter").
[31] The South is usually considered the part that extends from Nippur and southward.

They also pointed out geographical differences between southern and northern Babylonia. Michalowski (2006) took an opposite approach and posited that no specific reform was dictated at one juncture by a political actor. Rather, several changes were made by local scribes, and these gradually aggregated into what we recognize as the OB orthography. A. Seri (2010) briefly discussed the cuneiform adaptation, but she did not distinguish between the two phases of the process as outlined above. Niek Veldhuis (2012) surveyed the numerous changes in cuneiform and briefly mentioned what he called "the OB writing revolution". He later pointed out (Veldhuis 2014, 223) that the difficulties in describing the OB writing developments were not due to a lack of material, but rather the enormous volume of data concerning novelties across all textual genres.[32]

R. Hernáiz (2019) has recently researched the orthographic variability in the Old Babylonian letters. He created an OB letter database, and quantitively checked the occurrences of various spellings.

Scholars have long noticed the resemblance between cuneiform script and the Japanese writing system, noting that this likeness could be a potential key to understanding the dead Mesopotamian script. M. Civil (1976) was the first scholar to observe that in many aspects the cuneiform adaptation resembled the adaptation of the Chinese script to write Japanese. Lieberman (1977) further discussed this comparison in light of its influence on reading comprehension. J. Ikeda, in several contributions (Ikeda 2007; Ikeda 2019; Ikeda and Yamada 2017), likewise compared the Japanese writing system to cuneiform, presenting the similarities and the differences between the two scripts. Reading cuneiform logograms, according to Ikeda,

[32] As mentioned above, the changes are not only expressed in orthography, and might have been related to each other. This study focuses only on the orthography.

works on the same principles as reading *kanji*. Chinese characters are read in Japanese in two ways: (1) in their original Chinese pronunciation (*on*-reading) and (2) in the Japanese pronunciation (*kun*-reading). This practice parallels the cuneiform reading of the Sumerian values (*on*-reading) or in Akkadian normalization (*kun*-reading). While it is generally assumed that Akkadian texts were all read in Akkadian with all logograms being normalized into Akkadian, yet the OA material suggests that *on*-reading was common, at least in the OA system, and perhaps in other dialects as well.[33] On the other hand, Ikeda also points out fundamental differences between the two scripts; among them, the lack of VC signs in the *kana* system, and the lack of polyphony in *kanji*.

[33] Syllabic reading of logograms is extremely rare in OB (if it existed at all), but this apparent lack may stem from scribal conventions.

Chapter Two: Adaptations of Scripts

2.1. Overview

Speech is a ubiquitous phenomenon that has existed at least since mankind's latest developmental stages.[34] Writing, on the other hand, is a rare and relatively recent phenomenon that appeared only in certain regions, and never developed in others.[35] Many languages have remained unwritten, and its native speakers continue to transmit knowledge orally.[36] Modern research, specifically philological research, regards ancient languages exclusively through the prism of script, and not speech. Furthermore, almost all information about past societies, first and foremost their political and social history, comes from the written material at our disposal.[37] This statement is doubly true when dealing with dead cultures and their extinct languages.[38] Since language preceded script, the information about languages at their unwritten stage is scarce. Our knowledge about them is almost the same as that of languages that never entered into script. Thus, Mesopotamian languages are known only by their physical representation – clay tablets written in Sumerian or Akkadian. Our insight into these tablets is limited to the *graphic* aspect of languages, a situation that does not lend itself to linguists' methods of analyzing living language, which considers both its spoken and written aspects. Speech and writing operate on two different levels of language expression, and never completely overlap.

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[34] For studies concerning language evolution, see De Boer 2017, as well as Christiansen and Kirby 2003; Johannson 2005.

[35] S. R. L. Clark (2000, 411-412) argues that writing precedes speaking, but this claim has not been accepted in research.

[36] Some entered script only due to external factors. For example, many sub-Saharan languages came to be written only under European colonialist influences.

[37] Other information, e.g., material culture or other physical remains shed almost no light on their language and history. See for instance pre-Colonial Africa or pre-Columbian America.

[38] Such as the Oxus civilization whose language remains unknown.

2.2. Script

It is beyond the scope of this work to provide an account of the origins of writing.[39] It will suffice to say that, throughout history, users employed an existing script to represent languages rather than developing an entirely new script customized to that language's specific needs, purpose, and unique phonetics. Today, the vast number of spoken natural languages today are mostly expressed by a minimal number of scripts. Latin script is used to write over 100 languages; Arabic script is used to convey languages across the Muslim world, while Cyrillic scripts have been employed by many languages in the former Soviet Union. Chinese characters have been adapted to write several languages in East Asia, while Ge'ez script is used for many Ethiopian languages (Semitic and non-Semitic). In fact, few languages currently use their own original script; among them Chinese, Greek, Georgian, Armenian, Arabic, and Hebrew.[40] One remarkable exception is found in the Indian subcontinent, where several languages have co-existed for centuries, each using their own script.[41]

All in all, one can state that many, perhaps most languages, use scripts originally created for another language. This tendency may prove that script not only constitutes a functional tool to convey lingual information, but that it is also a salient feature with cultural content that reflects its users' priorities. A cursory look at contemporary world scripts reveals a clear connection to a dominant cultural factor, in many cases religions or a set of holy scriptures. Western European languages, historically of the Catholic tradition, use the Roman alphabet,

[39] See several contributions in Olson and Torrance 2009.

[40] Though Modern Hebrew is not exactly the direct successor of Biblical Hebrew, the Hebrew script was in continuous use even while Hebrew was a dead language, in theory. It was used mostly for Rabbinic writings and in liturgy, not as conversational communication, even between those who understood it equally. The script itself was adapted within many Jewish dialects, such as Yiddish, Judeo-Arabic, Ladino, and others. See Rubin and Khan 2021.

[41] Many of these independent scripts do either directly or indirectly derive from the Brahmi Script (Salomon 1996). One may even claim that *all* alphabetic scripts are descendants of one script.

while Eastern European languages, especially those of the Orthodox world, adopted the Cyrillic script, a modified Greek alphabet form. A good example of this split is Serbo-Croatian,[42] a pluricentric language, written in the Cyrillic alphabet in majority Orthodox Serbia, but written in the Roman alphabet in majority Catholic Croatia.[43] Until the late 19th century this same language was also written in a third script, the Arabic alphabet, in Bosnia.[44] The Georgian script probably derives from the Greek alphabet, and appeared in the 4th century CE parallel to the Christianization of Georgia (Gamkrelidze 1994). The Armenian script is indeed unique and has a specific history, which was perhaps effected to express the Armenian Church's independence.[45]

2.3. Adaptation of Scripts

When a language without its own script adopts the written characters of another language, the natural linguistic differences between them often create dissonances. These surface both in phonology, related to sound differences, and in morphology, regarding the structural language features. Both aspects require script modification and adaptation to the new target language; and as such, the consequent orthographic problems must be considered. [46]

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[42] The term Serbo-Croatian is used for convenience only, referring to the standard literary dialect, Shtokavian. In practice, most of its speakers usually call their language according to their ethnopolitical affiliation.

[43] One should differentiate between two slightly similar phenomena: biscriptality and synchronic digraphia. The first occurs in a language written in more than one script, while the second refers to speakers who use multiple scripts for their language. Serbo-Croatian is biscriptal in general, but synchronic digraphia exists only in Bosnia and Herzegovina, Serbia and Montenegro, where the state uses both Cyrillic and Latin, unlike Croatia, where the Latin script is used alone. Other examples for biscriptality are found in Hindi/Urdu (written Devanagari in India and Arabic in Pakistan) or Persian/Tajik (written Arabic in Iran and Cyrillic in Tajikistan). Synchronic digraphia also happens in Indonesia where the Java language is written in both the Javanese script and Pegon, a modified Arabic alphabet form.

[44] Though this use was by and large limited, as elites in Bosnia wrote mostly Ottoman Turkish.

[45] Note that all languages of the Oriental Orthodox (Non-Chalcedonian) churches use their own independent script: Coptic (and Ge'ez), Armenian and Syriac.

[46] One should distinguish between adapting a script for a language with no script of its own, to the effects of writing a language in a different script from its own. This also requires adaptation, but the model of the original language is

When the two respective languages have only phonological differences, then adaptation usually just entails the rearrangement of the graphic inventory. The Roman alphabet's adaptation to support French, English or German was relatively effortless and did not foster orthographic problems. However, when adaptation crosses language classification boundaries, such as a Semitic language script adapted to write an Indo-European language or vice versa, the orthographic ramifications are more complex.

Cuneiform adaptation may be a case of the latter, as agglutinative Sumerian and fusional Akkadian, each built on its own distinctive structure.[47] While in theory adapting a fusional language script to an agglutinative language is complicated, adapting the agglutinative language's cuneiform to write a fusional language is even more difficult.

It is important to distinguish between ancient and modern adaptations. For our purposes, the dividing line between ancient and modern is the spread of the printing press, a key point in the history of writing. From this point on, textual material ceased to be the exclusive domain of a certain class – the scribes – and gradually became the property of the public.[48] Modern adaptations, usually implemented by intellectuals and academicians, attach great importance to practicality and functionality, matters that are in many cases less relevant in the pre-modern world.

Any adaptation potentially causes difficulties and creates by-products. Yet, in the ancient world, these orthographic problems were not necessarily a top priority for the adapting culture. A

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clear, with known guidelines for proper pronunciation and usage true to the spoken word. Consider Judeo-Arabic (Arabic written in the Hebrew script) or Garshuni (Arabic written in the Syriac script). G. Kiraz (2014; 2019) has recently studied this phenomenon, naming it *garshunography*.

[47] The term "agglutinative" used in regard to Sumerian should be carefully examined in future research. As stated above, dead languages have survived in script only, and therefore it is difficult to assess its degree of agglutinativity in Sumerian, as many forms may reflect merely morphographemic spellings.

[48] For the social, cultural, and political implications of the "Press Revolution", see Eisenstein 1979; 2005.

defective script can be quite functional for a society, in the way that the Persian language today is mostly written in the Arabic alphabet. Foreign to modern thinking, thus stressed, is that cuneiform adaptation's most distinctive feature is its incompleteness. Many phonemic problems were never resolved, leaving cuneiform not entirely suitable for Akkadian writing. Despite this, most principles outlined in the OB remained in use for almost two millennia, until the end of cuneiform writing.

To better demonstrate how adaptations are executed, this chapter will discuss two case studies: Arabic script's adaptation for Persian and Ottoman Turkish, and Chinese characters for writing Japanese.

Arabic script was modified for two different languages: Persian, an Indo-European language, analytic in its basis, but with an agglutinative component; and Turkish, an agglutinative language. While Persian has maintained this script to the present day, modern Turkish abandoned Arabic script nearly a century ago in favor of the Roman alphabet. Indeed, over the course of history, Turkish adopted two different scripts for its purposes, each a mirror image of the other. The former was done for religious reasons while the latter was a deliberately secular revision.

The Japanese writing system contains three separate scripts, of which the first, called *kanji*, is based on pre-existing Chinese characters. The other two are independent syllabaries (*kana*), created to meet specific Japanese requirements.

2.3.1. The Perso-Arabic Alphabet

A well-known example of adaptation is the Arabic alphabet, employed by many languages in the Muslim world. Iranian (Persian, Pashto, Kurdish) or Turkic languages are the most widely-

known adaptors of Arabic, but it has also been employed in the Balkans with Serbo-Croatian and Albanian as well as in Africa and East Asia for several languages, spoken my Muslim populations.

Arabic script usually does not mark vowels. To be accurate, only long vowels can be expressed, and even they are often understood as consonants.[49] This script reasonably serves the Arabic language's phonology and linguistic structure. Arabic has only three vowels, and more importantly, it is constructed on grammatical patterns helping the reader predict the correct reading even when words are not vocalized.[50] A given word such as ردّ <rd>, can either be /radda/ "to send back" or /radd/ "return", whereas the hypothetical vowelless word in English <rd> could be understood in multiple options: read, reed, rid, red, rod, road, rude, ready, and more. The functional advantages of vowelless scripts may seem obscure to modern eyes, but one cannot underestimate the economical aspects of using a limited number of signs. This is not the case, however, with the non-Semitic languages of Persian and Turkish, which contain five and eight vowels, respectively. Though Arabic script is thus not suited to these languages' greater phonological needs, Arabic's religious and prestigious status prompted both Persian and Turkish speakers to adopt its script as their own.

There is an important difference between the Persian and Turkish adaptations of Arabic script: Persian had the preexisting Pahlavi script, while Turkish was influenced by the Perso-Arabic alphabet itself. A short period time after Persia's Islamization, when the Persian political and cultural center headed east, the Emirs of Khorasan decided to discard the pagan-oriented

[49] Namely ا, و and ي that can be used for /ā/, /ū/ and /ī/, respectively, but usually represent the consonants /ʔ/, /w/ and /y/.

[50] The same is true for other Semitic languages using vowelless scripts, such as Hebrew or Syriac.

Pahlavi script and to adopt the Arabic alphabet. The act of rejection, however, played a smaller role in the case of Turkish, whose roots extend back to the 11th century CE, though Turkic languages already existed in central Asia since the 8th century CE. By the 10th century CE, many Turkic tribes had converted to Islam. Under the influence of close contact with Persia[51], the Turkish language also adopted the Arabic alphabet.[52]

Persian, then followed by Turkish, added some letters for the extra phonemes missing in Arabic: پ <p>, چ <č>, ژ <ʒ> and گ <g>; and an additional Turkish letter, ڭ <ŋ>. The added letters are not entirely alien to the Arabic script, as they are all based on existing characters, with diacritics to distinguish them from the original. Redundant Arabic letters, such as emphatic consonants were not omitted from the Perso-Turkish alphabet, but rather phonemically merged to existing phonemes. Therefore, ح <ḥ> and ه <h> both represented /h/; ث <ṯ>, س <s> and ص <ṣ> expressed /s/; while ذ <ḏ>, ز <z>, ض <ḍ> and ظ <ẓ> were all /z/. The redundant letters were mainly used for Arabic loanwords in Persian and Turkish, written in the Arabic orthography but pronounced according to Persian or Turkish phonology. For instance, the Arabic personal name محمد <mḥmd> retained its original spelling in writing but was pronounced [Mohammad] in Persian and [Mehmet] in Turkish; rather than the original Arabic pronunciation [Muḥammad].[53] This created de-facto *logographs*, words with conceptual substance, but with no phonetic content. The logograph محمد for this matter, conveys an idea – the name of the Prophet of Islam, but it gives no information about the word's pronunciation. Here is a situation in which three

[51] Persia refers to the entire Persian space (or Greater Persia), from Iran in the west to Tajikistan, including parts of Uzbekistan and Afghanistan.

[52] And not the Old Turkic script (Orkhon), a descendant of the Aramaic script. For Old Turkic, see Erdal 2004.

[53] The stress in Persian always falls on the last syllable, and therefore it is pronounced [Mohamm**a**d] in Persian, unlike the original Arabic where the stress is on the first /a/, Muḥ**a**mmad.

completely different languages write words identically, and retain and share the same meaning, but each pronounces the words according to its particular phonology, either Arabic, Persian or Turkish. Below (Table 1) is another example from a common word, 'ready'.

Table 1. Logographic Writing in Alphabetic Scripts

Language	Spelling	Transliteration	Pronunciation	Meaning
Arabic	حاضر	ḥaḍr	ḥāḍir	'ready'
Persian	حاضر	ḥaḍr	hɒzir	'ready'
Turkish	حاضر	ḥaḍr	hazır	'ready'

The situation with the vowel system was even more complicated, especially in Turkish which has no fewer than eight vowels.[54] A striking example of the problem here is the Arabic letter و <w> that may express /ū/ in Arabic but was employed for four different phonemes in Ottoman Turkish: /u/, /ü/, /o/ and /ö/.[55] That caused a situation in which words could be read in various ways. For example, اولدو <ʔyldy> could be either *oldu* 'he became' or *öldü* 'he died'.[56] All in all, despite the obvious prestige of Arabic script, problems and difficulties in reading comprehension caused by this script abound, even for native speakers.[57] Nevertheless, Ottoman Turkish maintained the Perso-Arabic alphabet almost intact, and did not assign new letters for the extra vowels it required.[58] It may be suggested that adding consonants was seen as an acceptable ad-hoc modification, whereas inventing new signs for vowels – which had never existed in Arabic –

[54] With no grammatical patterns, similar to Persian.

[55] Besides the consonant /v/.

[56] Lewis (1999, 28) explains the relevance of this difference, like in the sentence محمد پاشا اولدو <mḥmd pʔšʔ ʔyldy> which can be translated as either 'Mehmet became a pasha' or 'Mehmet Pasha died'.

[57] Sir Charles Eliot noted in 1926: "… [P]ure Turkish words written in Arabic letters are often hardly intelligible even to Turks…" (quoted in Lewis ibid.).

[58] The Arabic vowel system is problematic to Persian as well, but not to the same degree as Turkish.

was perceived as a conceptual change that was not to be done. One can discern a highly conservative attitude towards Arabic script, as if it were regarded as a sanctified instrument that could not, and was never to be, altered. This is also one of the reasons the Ottoman Empire banned the printing press until the late 18th century.[59] European travelers, such as Leonhard Reuwolf and Pietro della Valle, had already observed as early as the 16th and 17th centuries that the Arabic alphabet was completely unsuited to the needs of the Turkish language, causing reading comprehension difficulties. But as long as Turkish texts and literacy in general were the exclusive domains of certain strata of Ottoman society, this problem was not urgent enough to necessitate orthographic reform. Starting in the early 19th century, and more vigorously with the *Tanzimat* reforms which ushered the Empire into modernity, a demand for orthographic reform began to spread among Ottoman intellectual circles. These discussions began at the periphery of Empire and were not initiated by Turkish speakers. In 1863, Fatali Akhundov, a prominent writer of Azeri origins, suggested alphabet modifications for Azeri, a close relative of the Turkish language. Akhundov was specifically concerned with the vowel system. He suggested retaining the Arabic alphabet but using some Arabic letters to represent the lacking vowels.

In the Balkans, a similar proposal was offered by Džemaludin Čaušević, a Bosnian scholar and the Grand Mufti of Yugoslavia. He suggested updating the Perso-Turkish alphabet, usually referred to as Arebica, which was used in Bosnia since the 16th century. The addition of new signs for vowels and the removal of unnecessary Arabic letters was not only an effective and functional reform of Serbo-Croat writing; Čaušević's work changed the Perso-Arabic script conceptually. From a pan-Islamic script, Arebica was now positioned as the individual, even

[59] A similar phenomenon exists in Judaism even today, but only for the special script employed in writing religious texts; Sefer Torah or Mezuzah, for example, must be handwritten, never printed.

national, script of the Bosnian language.[60] Were Čaušević successful in his efforts, he would have practically invented the independent Bosnian language in the same way the Tajik language is independent of Persian.[61] However, Čaušević's alphabet was never effectively implemented. Unlike its neighbors, Bosnia did not gain its independence following the Treaty of Berlin in 1878, but instead fell under Austro-Hungarian rule. Shortly afterward, Arebica was completely abandoned. Yet, the conceptual shift Akhundov and Čaušević suggested was not entirely fruitless. Other languages employing the Perso-Arabic alphabet also adopted these guidelines to develop their script into a true alphabet, representing all their needed phonemes.[62] They also abandoned the practice described above of writing Arabic loanwords in the original Arabic orthography.[63]

As these scholars sought to update the existing Perso-Arabic, another development took place in the Balkans. Albanian author and nationalist Sami Frashëri (Şemseddin Sami Bey), proposed to completely abandon the Arabic alphabet in favor of the Roman alphabet, with some modifications from Greek suited to the Albanian language.[64] It took more than half a century to adopt the Roman alphabet for Turkish, following the collapse of the Ottoman Empire and the

[60] Another outcome of this proposal was shallowing the Bosnian orthography. For orthography depth, see Chapter Three.

[61] It could have been a national achievement for independent Bosnia, but thus prevented Bosnians from reading texts in Serbian or Croatian and Serbs and Croatians from reading original Bosnian texts. That indeed is the case now between Tajik and Persian. See the recent proposals in Serbia to completely abandon the Cyrillic script and the resulting national backlash (Alexander 2013, 414).

[62] Other languages perhaps faced more critical obstacles. For example, Kashmiri contains sixteen vowels, rendering the traditional Perso-Arabic alphabet almost impossible to use (Sridhar and Kachru 2000, 155).

[63] See for instance the words mentioned above written nowadays in Uyghur, a Turkic language mostly used in western China: مۇھەممەد /muhɛmmɛd/ [muhɛmmɛd] "Muhammad"; هازىر /hɑzir/ [hɑzir] "ready". The transliteration and transcription are identical, as Uyghur applies a highly shallow orthography. For orthographic depth, see Chapter Three.

[64] Though not related to Turkic or Slavic, Albanian was also using the Arabic alphabet at that time, causing similar difficulties in reading comprehension.

restructuring of modern Turkey. The Arabic script, however, has remained in use in many languages, even languages that were not written at all until recently.[65]

The Perso-Arabic example shows that script adaptation is a one-way process. There is a tendency to add required graphemes, usually based on existing characters, but on the other hand, overall, not to remove redundant ones. Moreover, lexical loanwords are usually written in their original spelling, creating de-facto logographs. How this process is executed may reveal linguistic features in the target language that did not exist in the source language, but not vice versa. Comparing the Perso-Turkish alphabet with the Arabic alphabet reveals that Persian and Turkish needed graphemes for /p/ or /g/ that did not exist in Arabic, However, this comparison cannot indicate that /t̲/ or /ẓ/ were essential for Arabic and not for Persian and Turkish, because they were still in use in the modified Perso-Turkish alphabet. We do know these phonemes are needed for Arabic because it is currently still in use, but we lack the ability to discern such features in dead languages.

2.3.2. The Japanese Script

Japan's adoption of the Chinese script shares little resemblance with the Perso-Arabic example above. Persia was taken over by the Arabs in the 7th century and was prone and vulnerable to their influence. Japan, on the other hand, was never conquered by the Chinese, nor by any other foreign power until 1945. The Chinese influence on other East Asian entities, specifically the export of its script to other languages, was strictly cultural. There is even evidence that the Japanese adopted the Chinese script indirectly; that is to say, not from China itself, but from the Korean peninsula where Chinese characters had previously been adopted for the Korean

[65] Such as the Arabic Ajami script, employed by several languages in Africa.

language (Frellesvig 2010, 13). Another point significant for the present study is that in Japan, Chinese script adoption occurred in several stages, which more directly parallels how writing developed in Mesopotamia.

In the first stage of this adoption, Chinese script was written entirely logographically, using Chinese characters (*kanji*) for words uttered in Japanese. In this stage, Japanese words were translated into Chinese to enable the use of the correct logogram. When read in Japanese, the logograms could be pronounced either in the original Chinese (*on*-reading) or as Japanese (*kun*-reading). For example, even in Modern Japanese, the sign 魚 'fish' can be pronounced [gyo], based on the original [yú] in Chinese or be read in Japanese [sakana]. It must be noted that the *on*-reading is *based* on Chinese pronunciation, but it is not itself Chinese. Obviously, the power of logograms is that they convey solid information, while their actual pronunciation is of secondary importance. A Chinese tourist in a restaurant in Tokyo, seeing the sign 魚 on the menu, may not be understood if he asks for [yú], but he can simply point to the sign and say in *English*: "Fish!" or even say nothing. Consequently, it must be noted that Japanese documents from this early stage were written entirely logographically and could potentially be mistaken for Chinese texts.[66]

The next step employed *kanji* as phonograms (*man'yōgana*).[67] The signs were assigned syllabic values according to either their Chinese phonic value (*on*-reading) or their Japanese pronunciation (*kun*-reading). For example, the sign 子 could be read /si/ (based on [zǐ] 'child' in Chinese) or /ko/ (based on [kwo] 'child' in Japanese). Adapting Chinese's complicated

[66] This may correspond to the archaic writing in Mesopotamia of the Uruk IV and Uruk III phases. For the debate whether the Archaic texts were written Sumerian or in an earlier unknown language, see below.

[67] Named after *Man'yōshū*, a Japanese poetry collection that was written this way.

phonological system to the relatively simple Japanese system resulted in multiple *kanji* signs being assigned with the same syllabic value in Japanese. The signs 都, 豆, 荳, 通, 追, 川 and 津 all represented the same syllabic value /tu/; meaning all these were pronounced [tu] in Japanese. That each character is pronounced differently in Chinese is irrelevant for Japanese speakers. While the syllabic value /tu/ is also *based* on the Chinese, neither the consonant nor its vocalic component faithfully convey the original. The *on*-reading, therefore, is not Chinese, but is rather *Japanese-filtered Chinese*. As such, it only indicates how the Japanese heard Chinese sounds.[68]

The complete *man'yōgana* syllabary contains about 600 signs representing around 70 syllables used in Japanese. At this point of development, it was possible to use *kanji* characters as phonograms to write Japanese in its fullest range of expression.

This situation changed in the late Nara period (8th century) with the introduction of pure and designated syllabic writing (*kana*). The Japanese *kana* contains two separate scripts, *hiragana* and *katakana*, with all the syllabic values needed for Japanese. Hiragana is used for grammatical elements, while katakana is mostly used for writing foreign loanwords or personal names. The signs in both syllabaries are based on simplified *kanji* forms.[69] Most of the values are based on Chinese syllabic values (*on*-reading), but there are few signs whose syllabic value is based on the first syllable of the Japanese word that has been assigned to it (*kun*-reading).[70] With nineteen consonants and five vowels, Japanese *kana* usage may potentially yield around 100

[68] To demonstrate this problem, the Chinese-American linguist Yuen Ren Chao wrote the poem 施氏食獅史 <šī-shì-ší-šī-shǐ> 'The Story of Mr. Shi Eating Lions'. Though Chinese speakers find this sequence coherent but non-Chinese speakers may hear all five sounds identically [ši-ši-ši-ši-ši].

[69] Occasionally, the *hiragana* and *katagana* equivalents derive from different *kanji* characters.

[70] Such as ミ /mi/ (based on 三 /*mitsu*/), or と /to/ (based on 止 /*tomaru*/).

signs.[71] In order to reduce that number and keep the syllabary as small as possible, *kana* uses two methods: diacritics and sign combinations (*yōon*). The first includes two marks: *dakuten* (゛) 'voicing mark' and handakuten (゜) 'half voicing mark'. These are written above basic signs to mark voicing: e.g., the basic sign か <ka>, is voiced when accompanied with *dakuten*, が <ga>. The same with *handakuten*: は <ha>, with *dakuten* - ば <ba>, and with *handakuten* - ぱ <pa>. The sign combinations add syllables not included in the basic list: e.g., combining し <ši>, and や <ya> creates the sign しゃ <ša>.[72] Importantly, unlike cuneiform, Japanese *kana* contain no VC signs, because the Japanese language does not allow consonant clusters. As for gemination, to mark doubling, the sign つ /tsu/ is attached as a gloss in lower case to the requested syllable: きっぷ <ki-っ-pu> /kippu/ 'a ticket'.

To sum up the three main steps in the development of the Japanese writing system: First, pure logographic writing using Chinese characters (*kanji*); second, initial syllabic writing, using Chinese characters as phonograms (*man'yōgana*), and finally, inventing independent syllabic systems (*kana*).

One should keep in mind that syllabic writing was never entirely inescapable, as it is technically possible to write Japanese in pure *kanji*. On the other hand, though the Japanese syllabaries are capable of writing Japanese perfectly, *kanji* characters were never abandoned. Instead, the Japanese writing system still in use today employs three scripts, depending on the nature of the words. Words of content, such as nouns or verbs are usually written in *kanji*,

[71] There are five signs for vowels only: a, e, I, o, u. but some syllables have become obsolete over the years, such as /yi/, /ye/, /wu/.

[72] Note the sign /ya/ is written in lower case (as a gloss), as it is a marker of how to read the main sign.

grammatical particles or phonetic complements (*okurigana*)[73] are mostly written in hiragana, and foreign words or personal names are written in katakana.[74]

This combination of three scripts made several scholars regard the Japanese writing system as the most complicated, even "the worst" writing system in the world (Joyce and Masuda 2018). Yet, the Japanese writing system has been used in its current form for more than a millennium. One may wonder why the earliest syllabic writing (*man'yōgana*) was invented in the first place, and why it included *kanji* characters as logograms. An answer may be found in the *kojiki*, the earliest Japanese chronicle, attributed to Ō no Yasumaro, an eminent Japanese scholar in the court of Empress Genmei (early 8th century). He writes as follows:

> However, during the times of antiquity, both words and meanings were unsophisticated, and it was difficult to reduce the sentences and phrases to writing. If expressed completely in logographic writing, the words will not correspond exactly with the meaning, and if written entirely phonographically, the account will be much longer.[75]

Yasumaro points to a functional explanation which is the economic aspect of writing in as abbreviated fashion as possible. This reason cannot be underestimated, especially in the ancient world, when texts were written and copied by hand, requiring a professional with training, and the cost of writing tools was considerable.[76] The problem of copying was partially solved with

[73] For instance, the *kanji* sign 着 <TYAKU> can be read either /kiru/ 'to wear' or /tsuku/ 'to arrive'. Therefore, a *hiragana* sign is added as a phonetic complement: 着る <TYAKU-ru> /kiru/ or 着く<TYAKU-ku> /tsuku/ (Ikeda and Yamada 2016, 161).

[74] This is a unique example of synchronic digraphia, unlike those of Serbia or Indonesia, where different scripts are used for different types of texts.

[75] Translated by Philippi 1968, 43, slightly corrected in Frellesvig 2010, 265.

[76] The basic tools used in traditional Japanese calligraphy are ink, brush, mulberry paper, stamp seal, and paperweight - all are valuable commodities, compared to the Mesopotamian stylus and clay.

the invention of *kana*, when the hundreds of *man'yōgana* signs were reduced to a few dozen. Yet, *kanji* signs are still used in the Japanese writing system alongside *kana*.

Given the multiple homonyms in Japanese, logograms may help clarify the writer's intention. For instance, the Japanese word *kawa*, if written in *hiragana* - かわ, could mean either 'river', 'skin' or 'leather'. Even though all are pronounced [kawa], using the specific *kanji* sign of each word meaning accurately clarifies the intended meaning - 川 ('river'), 皮 ('skin') and 革 ('leather').

2.4. The Cuneiform Script

Any attempt to understand cuneiform's adaptation to Semitic languages faces the following question: was this script originally created for Sumerian, or even Sumerian cuneiform a form of adaptation? This question begs yet another: were Sumerian speakers the indigenous residents of Mesopotamia, or did they arrive in the region at some point and oust the autochthonous population?

2.4.1. The "Proto-Euphratean Language"

In a series of publications, B. Landsberger observed that many Sumerian words and grammatical constructs did not appear to be of Sumerian origin, and were perhaps drawn from an earlier, unknown language, which he called "Proto-Euphratean". He assumed that an earlier population lived in Mesopotamia (possibly represented in the Ubaid culture), and completely disappeared towards the end of the fourth millennium BCE. While popular for a time, this theory has since been dismissed by several scholars who discovered that the words and constructs in question were in fact of Sumerian origin (Rubio 1999). For our purposes, we will discuss two aspects of

cuneiform writing that may point to an earlier language: the archaic pictograms, and syllabic values not based on Sumerian words.

R. K. Englund (1998, 79 ff.) argued that several pictograms in the archaic texts do not match their lexical meaning, e.g., the logogram ĜIR$_3$ 'foot' is written with a pictogram of an equid, and not with the pictogram of a foot (the sign DU). He suggested therefore, that the word /ĝir/ might have been the name of an animal in a lost pre-Sumerian language, and then this sign was used on the rebus principle for the Sumerian word ĝir 'foot'. Although this argument is based on circumstantial evidence, a further study is still required to investigate how pictograms were assigned for specific words in the early stages of writing.[77] However, one must keep in mind that the value <ĝir> for ĜIR$_3$ is drawn from evidence much later than the archaic signs. It is highly difficult to assess how many words in Sumerian at the time may have disappeared by the time we can read the signs independently. Even if we assume that archaic ĜIR$_3$ (ZATU 297) is indeed to be read <ĝir> with the meaning 'foot', the relationship between 'donkey' and 'foot' is not far-fetched.[78] As the earliest cuneiform texts were mostly economic, 'donkey' might have been understood in the extensive semantic field of commerce, i.e., 'pack animal', 'road' and 'foot', whereas the sign DU was designated for basic meanings, 'to go', 'to stand', 'to bring'. Another explanation could be that the word /ĝir/ indeed meant an animal, not in an unknown language, but in a particular Semitic language. The root <ʕyr> 'donkey' exists in several Semitic languages, such as Ar. *ʕyr* (عير), Heb. *ʕyr* (עַיִר), Ug. *ʕr*, and WSem. *ʕāru*, attested at Mari (CAD

[77] For example, the reason why the sign ŠEŠ, which clearly depicts the staff of Ur, is used for 'brother'. Although Yaḫdun-lim's inscription (Frayne 1990, 608) presents the moon god as *a-ḫu-um ra-bu-um i-na i-li aḫ-ḫi-šu* 'eldest brother among the gods, his brothers', this appears to be a late and secondary use of the epithet. Another possibility is that Sumerian šeš 'brother' is a homophone for ses 'bitter' whose Akkadian translation *murru* may be the reason for using the sign ŠEŠ, i.e., uri / (w)uri > muri > *murru*. It is rather difficult, however, to see a scenario of a basic word like 'brother' being written as a homophone for a relatively rare word like 'bitter'.

[78] For reading of archaic ĜIR$_3$, see Steinkeller 2004b.

Ḫ, p. 118). Though it may be speculative, one may suggest the /ĝ/ in ĜIR$_3$ was the uvular fricative [ʁ] or the velar fricative [ɣ], a phoneme later dropped in Akkadian (Kogan 2001; Kouwenberg 2006).[79] However, despite evidence for Semitic loanwords in Sumerian as early as archaic Uruk, this explanation is less likely, because loanwords in Sumerian were in principle written phonetically, and were usually not assigned independent logograms.[80]

2.4.2. ka-ka-si-ga readings

The other issue requiring treatment is the so-called "ka-ka-si-ga readings", that is, syllabic values with no known Sumerian words behind them. In several lexical lists, signs are assigned a syllabic reading in the left column, but in the right column, instead of providing the word's meaning, the compiler added a note, either in Sumerian (ka-)ka-si-ga 'to fill [words] into the mouth' or in Akkadian *ša tēlti* 'of pronunciation' or 'syllabogram'. See, for instance, Table 2 for the following lexical list (MSL 14, p. 259).

Table 2. (ka-)ka-si-ga readings

270	an	AN	*ša-mu-u*$_2$
271	di-gir	AN	*i-lu*
272	i-lu	AN	KI.MIN
273	a-an	AN	^{d}*a-nu*
274	sa-a	AN	*ša tel-ti*

[79] Both Kogan and Kouwenberg refer to this phoneme as a *uvular* fricative (like French r), but perhaps it was a *velar* fricative (like Arabic ġ), both are often transcribed /ġ/ (as many have trouble distinguishing between the two). See for example the god Erra spelled *Er*$_9$(ĜIR$_3$)-*ra*, while bearing in mind that this is a late OB spelling reflecting OB school interpretation. The 3rd millennium spelling is with the sign KIŠ and not ĜIR$_3$ (Steinkeller 2004b).

[80] For Semitic loanwords in Sumerian, see Chapter Four.

The left column indicates the reading of the cuneiform sign in the middle. The right column provides the Akkadian translation of the specific word, 'sky', 'god' or the god 'Anu'.[81] The last entry indicates that the sign AN can be read as /sa/[82], and it is 'of pronunciation', i.e., an independent reading of this sign, not derived from a real word in Sumerian. Based on these readings, I. J. Gelb (1960, 262-263) concluded "that the Sumerians borrowed their writing from another, presumably older, population". However, it should be stressed that these readings are all late developments, none of them was ever used in the OB. They are indeed unusual, but it is unlikely that any of them had roots in ancient times, let alone in the 4th millennium Mesopotamia. It is perhaps best to regard these readings as a product of scholastic activities and not of long-documented ancient language relics (MSL 9, p. 145-146; MSL 14, p. 150).[83]

Archaic texts do have aspects, most notably the almost entirely logographic writing, which raise the question of whether the written language is Sumerian or not. However, P. Steinkeller (1995b) has identified several Sumerian phonetic indicators in the Uruk archaic texts, suggesting that writing was not entirely logographic even at its earliest stages.[84]

Sumerian syllabic writing is still an issue. As mentioned above, we are not able to read Sumerian independently; we read it only through Akkadian. Since the language is dead and has no known relatives, all Sumerian syllabic readings must be taken with some reservation. As

[81] Particularly noteworthy are lines 271-272, which indicate that the logogram can be uttered in both the Sumerian reading (*on*-reading) and the Akkadian reading (*kun*-reading). See below.

[82] Sign lists usually number this syllabic value as sa_8.

[83] Several spellings remain obscure with no clear meaning (or even reading), e.g., PA-TE-SI for ÉNSI (Akk. *iššiʾakkum*). It is reasonable to assume the /si/ is a phonetic complement (PA-TE^{si}) for /ensi/, but the sequence PA-TE remains obscure. Some scholars read it as EN_5 (MZL 464), but there is no substantive evidence to justify this reading. See also Marchesi and Marcheti 2011, 109. The syllabic value /sa/ for AN may be a phonetic realization on the acrophonic principle of the word *šamu*, but this yet remains speculative.

[84] For an extensive discussion, see Chapter Four.

suggested by the examples above, the current reconstruction of Sumerian phonetics is likened to one who tries to reconstruct Chinese phonetics through *man'yōgana* syllabic values, or to reconstruct Arabic phonetics by the way Persian or Turkish speakers employed the Arabic alphabet. This important caveat notwithstanding, there is indeed evidence for Sumerian syllabic values which were used interchangeably in what is usually called "syllabic" or "phonetic" writing.

One of the features most associated with cuneiform is its high versatility as compared to other non-alphabetic writing systems. Cuneiform is distinguished by both *polyphony*, representing multiple syllabic values in a single sign, and *polygraphy*, with multiple graphs used for a single syllabic value. Polyphony is used in many cases in order to keep the number of signs as economic as possible, e.g., the sign ZI is used for zi 'life', zid 'to be right' and zir 'to break'. Sumerian syllabic writing operates on the polygraphic principle, which entails writing a word, not only with its specific sign, but with a different sign that allegedly sounds similar or identical.[85] This shows that there was, after all, an earlier phonetic resemblance between multiple signs, and the similarity does not only derive from later Akkadian interpretation.

The Japanese example shows that polygraphy is created when certain speakers adopt a foreign script and "hear" many of its natural sounds alike. Therefore, if cuneiform was initially invented by Sumerian speakers, and designed for the Sumerian language, polygraphy would not have existed in pre-Sargonic Sumerian. It would only appear as the after-effect of its adoption for writing a Semitic language.[86] It is fair to assume that syllabic values indeed sounded similar in

[85] This may have been attested as early as Uruk III, where the sign GI 'reed' was allegedly used for the verb 'to return' (GI_4) (Vaiman 1974, 17; Englund 1998, 76-77). Other scholars, such as P. Steinkeller (*pers. comm.*) have doubted this early attestation.

[86] The reader should be reminded here that 都, 豆, 荳, 通, 追, 川, 津 are all /tu/ for Japanese speakers, but not for Chinese speakers who see here seven completely different signs.

Sumerian. And yet, many signs that were used interchangeably were also physically similar. This points to an existing relationship between each other from the outset. The signs GI and GI_4, for example, are also physically similar (GI_4 is GI + *gunû*), which may suggest it was merely a paleographic matter. It must be emphasized that even assuming GI and GI_4 sounded similarly in Sumerian sheds no light on the signs' original sound. Sumerian ^{giš}DÚR 'board' was borrowed into Akkadian as *kiskirrum*. One may suggest reading DÚR as /kir_x/, but OB Ea clearly indicates: du-ur DÚR *ki-is-ki-ir-rum* (MSL 2, p. 150). The vocal harmony is well understood, but the sound shift d>k is unknown, and therefore, the question of the *true* pronunciation of DÚR remains open.

2.5 Writing Semitic Languages

Let us look now into the cuneiform adaptation to write a different language type, Semitic languages. The main problem this creates is that cuneiform, originally based on logograms, is built on attaching characters one to another in a row. For Sumerian, whose grammatical structure behaves similarly, attaching morphemes one to another, this works well. Semitic languages, on the other hand, are constructed on roots that serve as the word's kernel and change their positions according to the requested grammatical pattern. See Table 3 for the following comparison.

Table 3. Grammatical Structures of Sumerian and Akkadian

i_3-gar	*iš-ku-un*
ba-an-gar	*iš-ta-ka-an*
ab-gar	*ša-ki-in*

While the Sumerian verbal stem (gar) remains unchanged, the Semitic root (š.k.n.) changes often, according to the word's grammatical role. In Sumerian this verb may be expressed by one fixed sign, but in Akkadian the verb must be broken down into separate syllables in order to insert, for example, the *-ta* infix. Thus, even Sumerian needed independent syllabic values to be written more flexibly, but for writing Semitic these values were absolutely crucial.

Cuneiform adaptation to write Semitic was a long process that at least in theory, never stopped nor was it limited in time. The script saw numerous changes and improvements over time, from the very first moment it was used for writing Semitic personal names in pre-Sargonic Mesopotamia until the end of cuneiform culture.

As outlined in the introduction, we may indicate two main phases in cuneiform adaptation: The first took place in the third millennium BCE, followed by the OB reform in the second millennium BCE. These two phases were fundamentally different in both their intentions and methods. The initial adaptation was meant to solve specific problems ad-hoc. The second appears to have been a result of scholastic activities in the OB scribal schools.[87] Though its guidelines were partially established in the third millennium, the structured OB reform differed in many aspects from the initial phase.

The first phase in which cuneiform was used to write a Semitic language was done in the pre-Sargonic period, presumably by Sumerian speakers.[88] As the Semitic population of Mesopotamia increased, it became necessary to write down Semitic personal names and specific

[87] The term "OB schools" must be taken cautiously, as there is no evidence for existence of organized schools operated by the state. Most scholars agree that cuneiform teaching was mostly done in private houses by local teachers, except for Uruk where school texts were found in Sin-kāšid's temple (Brisch 2007, 34). For a brief historical background of the OB scribal education, see Kleinerman 2011; Gadotti and Kleinerman 2021, 20-22.

[88] This opinion has been repeatedly stated by P. Steinkeller (see also Hasselbach 2005, 28, n. 8), though he has never put it in print. For the opposite opinion, see Oppenheim 1977, 237.

terms or objects in economic and administrative texts. This writing was originally intended for use in Sumerian texts by Sumerian speakers, and consequently no attention was paid to the nature of the Semitic language and its phonetic needs. This somewhat deficient syllabary was indeed used for Akkadian, but presumably only as long as Sumerian was still in use and its scribal practices still preserved. Most syllabic values were based on Sumerian, with only a handful coming from Akkadian (Hasselbach 2005, 29).

The second phase started around 1900 BCE and appears to be a result of intellectual and scholastic activity by scribes in the OB period.[89] Their intention was not to solve problems in writing Akkadian; in fact, it was not related to Akkadian at all, but to Sumerian. One of the major historical developments in this period was the political center's shift from the Sumerian-oriented south, to the Akkadian-speaking north.

The onset of the Old Babylonian period saw a significant socio-political shift. Amorite dynasties established local kingdoms throughout the region, most of which were conquered and unified two centuries later under Hammurabi of Babylon.[90] This period witnessed the swift rise of Akkadian, concurrent with the total decline and disappearance of Sumerian which may have died earlier.[91] Indeed, Sumerian may have died out as a spoken language even during the Ur III period, but was retained as a written language by scribes who kept writing in Sumerian. The same was true of its successor Isin I, which imitated some of the Ur III practices. But Isin's decline and other geopolitical developments in the region appear to have led to a break with Sumerian as Mesopotamian rapidly transitioned to Akkadian, the vernacular of the time. Within

[89] For the estimated date when the OB reform took place, see Chapter Five.

[90] For the political history of the OB period, see Charpin 2004a.

[91] For a discussion regarding the demise of Sumerian, see Michalowski 2006, Rubio 2006, Sallaberger 2004, Woods 2006.

a relatively short time, Akkadian became Mesopotamia's dominant language, while Sumerian remained, by and large, a literary and sometimes liturgical tongue. It was retained in cultural memory as a prestige language, and was taught as part of the scribal training curriculum learned by elites, in similar fashion to Latin in Medieval Europe or Sanskrit in India. Because Sumerian was a language largely preserved in, and reserved for, intellectual circles, it was not active in the public sphere.[92] Akkadian, on the other hand, flourished, and reached its golden age, introducing many new textual genres, such as divinatory and medical texts, mathematical texts, and well-developed literature (Veldhuis 2014, 143 ff.).

Increased Akkadian influence occurred parallel to this political change, and with it the disappearance of the Sumerian language. For those who were charged with the preservation and transmission of Sumerian texts, it became critical to conserve the source language, retaining the meaning and integrity of the original Sumerian words. Although the schools' main objective was to supply court and religious functionaries, it is reasonable to suppose that as archivists of texts and language, they were regarded - or regarded themselves - as the respected transmitters of cultural tradition over time, regardless of socio-political changes.

The OB cuneiform shift is a unique example of adaptation in history, distinct from both the Perso-Arabic and the Japanese importations of a foreign script for their languages. Akkadian speakers never imported cuneiform to write their language, but rather continued in the same tradition of writing. Sumerian speakers and Semitic-speaking populations in Mesopotamia co-existed from the early stages of the cuneiform writing, possibly even before. This produced a hybrid culture, termed the Sumero-Akkadian culture (Steinkeller 2017, 1 ff.). As the OB reform was not necessarily focused on Akkadian, it follows that no suitable script was invented

[92] Sumerian was also used for legal and administrative texts.

specifically for the Akkadian language. The OB novelties are indeed related to cultural and historical events, but there is no evidence for an intended top-down reform by any political power. The OB reform is the assemblage of orthographic changes originating in and coming out of the OB scribal schools.

2.6 OB Syllabary

One significant result of the reform was the reorganization of the sign inventory. On one hand, the total number of cuneiform signs decreased; on the other hand, the actual use of signs increased. This contrast is mainly expressed by the language written, as the increased use of signs enabled writing Akkadian, and less signs were employed to write Sumerian. While it could be argued that this was done to enhance the reading comprehension of Akkadian, it appears more likely to be a byproduct of making Sumerian clearer to Akkadian-speaking scribes. Since Sumerian was no longer in use as a living language, and was preserved only for academic purposes, the OB cuneiform curriculum managed to curtail the required number of the Sumerian signs by merging multiple signs into a single sign. This was coupled with an attempt to make the sign inventory of "academic Sumerian" as phonetic and clear as possible for non-speakers. For example, in the 3rd millennium, the signs ŠIR (LAK 23) and NU_{11} (LAK 24) were two independent signs. ŠIR was used extensively and remained so, but NU_{11}, aside from its main purpose of writing the name of the city Lagaš (NU_{11}.BUR.LA^{ki}), was seldom used independently of this purpose and grew obsolete over time. See Table 4 for the following entries (MSL 14, p. 511).

Table 4. Readings of ŠIR and NU_{11}

89	⌜ pi? ⌝-il	ŠIR	*zi-k*[*a-ru*(?)]
90	⌜ du-ri? ⌝	ŠIR	*zi*-[*ka-ru*(?)]
91	aš	ŠIR	*ša* ^{d}[ŠIR.SIG_7 ŠU]
92	si-ir	ŠIR	*ša* [ ]
93	nu-u	ŠIR	*nu*-[u_2-*rum*]
94	geš-nu	ŠIR.GIŠ	*nu*-[u_2-*rum*]

It is not entirely clear if the syllabic value /nu/ of this sign is even authentic or is just an Akkadian phonetic realization on the acrophonic principle, projected to the sign as a gloss.[93] At any rate, this list shows the coalescence of ŠIR and NU_{11} in the OB, whether intentionally or by a mistake is less important. From the OB and on, the sign NU_{11} disappears, and the name of the city of Lagaš is written with the sign ŠIR.[94] Another example is how the signs KIŠ and $ĜIR_3$ were two separate signs until the end of Isin-Larsa period, but then coalesced (Steinkeller 1987a, 164).[95] Other coalescing signs in the second millennium are TIL and BAD (Steinkeller 1981a) or $ĜIR_2$ and UL_4 (ibid., p. 481).[96]

It was important for the scribes to understand the ancient Sumerian texts, but from this point onward, writing the original signs was presumably no longer crucial. In writing Akkadian, on the other hand, there was no particular concern for the fact that many signs now had the same reading. In this sense, not only did many useful logograms remain intact despite their identical pronunciation in Akkadian,[97] but logograms themselves were the only feature of the now-dead

[93] As seen in the list, the other word using this sign is GIŠ.NU_{11} Akk. *samānu* (tree), written also with MUL instead of NU_{11}, for *sa-mul-lum* or *sa-mal-lum* (CAD S, p. 112). See also Cohen 2006.

[94] This is the reason for the common transliteration in many publications, until recently.

[95] But remained separate in monumental inscriptions that tend to preserve archaic writing.

[96] 153. ul $ĜIR_2$ *a-ra-ḫu*.

[97] For example, the sign KAK represents /du/ in Akkadian syllabic writing (as DU_3), identically to DU. In Sumerian they may have been pronounced differently, but even this assumption is not entirely certain. See below.

language. There are only rare examples (if at all) of writing logograms syllabically in the OB.[98] Many logograms were never used as syllabograms, e.g., ĜA$_2$, used for /mal/ never /ga/. This is because their Sumerian pronunciation was irrelevant in their role as logograms; only the right spelling of the sign was still important.[99]

2.7 Lexical Lists

Let us look at the lexical material, one of the genres most associated with schools and scribal training.[100] The lexical lists, the dictionaries of the ancient world, together with the syllabaries were meant first and foremost to teach the students how to write (Veldhuis 2014). But their content may shed light on the scribes' priorities and concerns during the period under discussion. For our purposes, the most important are the syllabaries (MSL 3) and the lists Ea (MSL 14) and Diri (MSL 15).[101] The OB version of Ea, (known as "Proto-Ea", but perhaps "OB Ea" is better), is a two-column list. One is a column of signs, while the other is the phonetic reading of each sign. Later Ea copies are almost identical to OB Ea, but they often contain a third column which offers an Akkadian translation. It is easy to see that the list is arranged graphically, rather than in phonetic order, and that it follows the physical shape of the sign, not how it is read. For example, ME, LAL, PAP or KAK, IR, NI (MSL 14, p. 34-35).[102] The syllabaries, on the other hand, do

[98] Unlike the Old Assyrian, where several logograms are written syllabically, e.g., KUG.KI for 'gold'. see Chapter Six.

[99] It may resemble the custom of writing Arabic loanwords with Arabic letters regardless of their pronunciation in the target language.

[100] Aside from copies of certain compositions.

[101] Obviously, this is not a new or unique phenomenon to the OB period. These lists exist as early as the pre-Sargonic period, e.g., the so-called "Ebla Vocabulary (MEE 4). The oldest Ea copies are dated to the OB, but many of these lists are reconstructed by later copies.

[102] Though it would be expected to see NI listed before IR.

place some emphasis on phonetic values. There is no example of listing identical syllabic values one after the other, e.g., DU, DU_2, DU_3, DU_4 and so on, but several examples do demonstrate attention to pronunciation, such as the following listing shown in Table 5 (MSL 3, pp. 30-31).

Table 5. Pronunciation in Lexical Lists

233	na-ga-ar	NAGAR	*na-an-ga-ri*
234	gu-ur	GUR	*gur-ru*
235	ga-ar	QAR	*qar-ru*
236	da-ar	DAR	*da-ar-ri*
247	bu-ur	BUR	*bu-u-ru*
248	ba-ar_2	BAR	*ba-a-ru*
249	si-i	SI	*si-su-u*
250	si-i	SI+*gunû* (SI_4)	*gu-un-nu-*u_2

The last two are also graphically related, yet they also display an interest in the signs' phonetic aspect and address the problem of interpreting Sumerian sounds (especially vowels).[103] The pronunciation of the Akkadian was not necessarily paramount, as native speakers do not need phonemic (or "shallow") orthography to know how to read their language. This appears to be the reason why no new series were invented for the emphatic phonemes in Akkadian. Since phonemes such as /ṭ/ or /ṣ/ did not exist in Sumerian, there was no reason to interpret them phonetically to Akkadian speakers. For writing Akkadian, every school used its tradition to write these phonemes, e.g., the southerners used the D-series for /ṭ/, while the northerners used the T-series for the same phoneme. This orthographic choice may have influenced the Akkadian language itself (or at least its graphic representation), in the so-called the "Geers' law".[104]

[103] This problem is also related to signs whose vocalic component may change, such as ḪAR/ḪUR or DAB/DIB.

[104] F. W. Geers (1945) formulated a rule according to which an Akkadian word (or root) - unlike any other Semitic language - could not contain two empathic consonants. For the reciprocal relations Sumerian/Akkadian, see Chapter Five.

Far more than simple reference works, the lexical lists were almost expressly used as pedagogical materials. Their main purpose was to phoneticize and explain Sumerian logograms.[105] Examining the lists offers insight into the writing and reading of Sumerian signs in OB Babylonia. First, there were traditions of both writing and reading that changed from school to school and even from list to list.[106] See for instance the difference between Ea and Diri (Table 6).

Table 6. Differences between Ea and Diri

MSL 14, p. 176		MSL 15, p. 144	
še-eš	AxIGI	e-er	A.IGI
ir	AxIGI	e-eš	A.IGI
i-šeš	AxIGI	e-se-eš	A.IGI

There is evidence that reading logograms in practice may have resembled the *kanji* reading in Japanese. The left column indicates the Sumerian readings in many cases provides a Semitic reading and even artificial Sumerian-like readings. In this aspect, it corresponds to Japanese *on*-readings. For instance, see Table 7 for the following listing, which survived only in a Middle Babylonian copy (MSL 14, pp. 247-248).

Table 7. Sumerianized readings

7	i	NI	ia-'-[u]	*šam-nu*
8	li-i	NI	MIN	KI.MIN
9	$ša_2$-ma-an	NI		KI.MIN
26	i-a	NI.UD (NA_4)		*ab-nu*
27	na-a	NA_4		KI.MIN
28	za-a	NA_4		KI.MIN
29	ab-nu	NA_4		KI.MIN
30	a-ba-an	NA_4		KI.MIN

[105] As said, OB Ea contained no Akkadian translation.

[106] Since the best-preserved list for this matter, OB Ea comes from Nippur, it should be noted that many of the conventional readings in research are not absolute or "true" readings of logograms, but the specific Nippur school interpretation in the OB period (Michalowski 2011, 242). For recently proposed "new" Sumerian readings, see Chapter Three.

Line 9 shows that the sign NI can be read /šaman/, an artificial Sumerian-like reading based on the Akkadian word *šamnu*. Line 30 goes further and indicates two readings for NA_4: The Akkadian word *abnu*, and the artificial Sumerian-style reading /aban/ are based on the same Akkadian word.[107] One should distinguish between Semitic loanwords in Sumerian, such as na-gada (*naqidu*) or ra-gaba (*rākibu*), which were real words in Sumerian circulation, as opposed to artificial readings, which were lexical entries by nature, such as /šaman/ or /aban/ that were never used as words in Sumerian texts.[108] This may show a mere school exercise of "Sumerianizing" Akkadian words to resemble the original, but it can also provide information on how logograms were read.

According to this, the sign NA_4 could be read /na/ (*on*-reading), /abnu/ (*kun*-reading), or /aban/ (allegedly *on* but de-facto *kun*). It is difficult to determine if this was the common reading practice, (as in the Japanese method), or if it was only applied for specific logograms.[109] In any event, it must be admitted that the modern conception by which logograms were all normalized and read in Akkadian is probably not entirely accurate.[110]

The scholarly efforts to interpret and simplify Sumerian (and Sumerian loanwords) during the OB period have become modern scholarship's main tool for reconstructing Sumerian phonology and phonetics. To reiterate, these efforts contributed to the reorganization of the cuneiform syllabary and the Akkadian orthography. Because the Sumerian and Akkadian

[107] A similar example was mentioned above with the reading /ilu/ for AN.

[108] For the reciprocal relations between Sumerian and Akkadian, see Chapter Five.

[109] Not all *kanji* signs in Japanese have both *on* and *kun* readings.

[110] The OA texts contain logograms written phonetically, suggesting that logograms (at least in the OA context) could possibly be read in the sign's syllabic value. See Chapter Six.

phonologies are so distinct from one another, the result of this reorganization was that signs originally used for a particular sound now indicated a sound nonidentical to the original, even if based upon it. These interpretations, starting in the OB and onward, are the basis of modern research for any phonological reconstruction of Sumerian. Without the Akkadian readings it would have been very difficult, if at all possible, to read the Sumerian language. The study of Sumerian phonology is a "reverse-engineering" of Akkadian phonology and of the Akkadian interpretation of Sumerian, which means all Sumerian readings are *Akkadian-filtered* Sumerian. But as we have seen with the Perso-Arabic and Japanese examples introduced at the beginning of this chapter, script adaptation is a one-way process: one can see what the target language required, but treating the source language the same way is inherently difficult.

The highly conservative approach of the OB schools prevents us from learning much about the shift to OB beyond its orthographic aspect. When we look at the earlier orthography, we do not find the gemination or voicing that we discover in the OB orthography. This has led to the suggestion that the Sumerian language itself lacked gemination and voicing (Gelb 1961b, 31-32). However, it must be admitted that our knowledge regarding Sumerian phonology is limited and is largely based on the later Akkadian speakers who were writing and interpreting Sumerian when it was already a dead language. Furthermore, even if we were to analyze Sumerian prior to its extinction, it is doubtful whether we would learn anything about its phonology from the OAkk orthographic writing conventions without lapsing into circular reasoning.

The Akkadian language was well deciphered by way of comparison to other Semitic languages, which helped us understand Sumerian. Our understanding of Sumerian, however, lacking as it does any genetic relationship to any known language group, and our ability to read

cuneiform, depend on Akkadian interpretation. Put more simply, we can no more reconstruct Sumerian phonology from Akkadian readings than we could Chinese from Japanese.

By analyzing these orthographic idiosyncrasies according to the OB adaptation, we will discover that Akkadian distinguished voicing and gemination, unlike Sumerian. But as Akkadian is a Semitic language, these facts would have been known regardless of the OB changes.[111] It is difficult to determine whether the common defective spelling in Sumerian indicates anything about the language, or whether it is simply an orthographic matter.

As for the phonemic distinction between Sumerian and Akkadian, the evidence is also not definitive. The Akkadian phonemic inventory is reconstructed via comparative and historical linguistics with other Semitic languages, and the so-called Proto-Semitic language. But even these methods are not sufficient for establishing some phonological issues, such as the existence of the phoneme /o/ in Akkadian (Westenholz 1991).

The Sumerian phonemic inventory, on the other hand, is often speculative. To demonstrate the problem, let us use one example. The syllabic value /du/ in Akkadian was regularly written with , but  was also frequently used. Based on these, these signs are conventionally rendered DU and DU_3, respectively, in modern transliteration. However, their variable phonetic use in Sumerian suggests that neither was pronounced [du] in Sumerian. Many scholars agree that the consonantal component of DU_3 represented /dr/, is a unique Sumerian phoneme, because of the sign's repeated use as /ru/.[112] The sign DU also appears regularly as /ra/ which may point to the same phoneme. But unlike DU_3, it also stands for /ša/, which led W. von

[111] As many scholars transliterate Old Akkadian according to the later phonology, though its orthography is defective.

[112] This phoneme is specifically identified with the uniqueness of Sumerian phonology because it is not known from any other language.

Soden (1959, 51) to suggest it was a fricative trill (resembling /ř/ in Czech).[113] Aside from the question of whether there was indeed a phonetic difference behind these two signs, one must wonder what the "real" sign for [du] in Sumerian actually was, if it existed at all. In theory, it could be DU_6 or DU_9 or even TU (as du_2). But then we are left with the question: why did Akkadians choose DU and DU_3 to be their /du/ and TU for /tu/? As for the latter sign, it is the logogram for 'to give birth' in Sumerian (tud).[114] Its phonetic information derives from Akkadian, where it represented /tu/ (and /du/), but in Sumerian that probably did not distinguish voicing, and so the actual pronunciation is vague (Gelb 1961b, 31-34). Later copies (MSL 14, p. 467) even interpret TU as both *alādu* (originally TU) and *banû* (originally DU_3). It is not entirely clear if the signs sound the same or whether this is a mistake based on the semantic proximity of the verbs.

2.8 Conclusion

Although the word "reform" is used in this work for convenience, it is difficult to escape the thought that this word is a misnomer in the context of the OB adaptation process. The Oxford Dictionary defines *reform* as "change ... in order to improve or correct…", but there is no evidence that the "OB reform" was meant to improve or correct the old orthography. The main difference between the OB reform and the other reforms discussed above is the intention and starting point of this reform.

Unlike the addition of graphemes to Perso-Arabic and the creation of independent Japanese syllabaries, the OB adaptation clung to the existing sign inventory. Based on previous developments in the third millennium BCE, some signs were assigned syllabic values while

[113] For summary of all "extra phonemes" in Sumerian, see Black 1990.
[114] Due to the consistent auslaut /d/.

others became obsolete and were finally discontinued as active ongoing characters. Yet, no specific signs were added for required phonemes in Akkadian such as the emphatics, and no unnecessary syllabic values were removed. Guided by the linguistic requirements of the Akkadian language, the immediate result of the OB reform was the increased flexibility of cuneiform as it acquired more syllabic values than it started with. The Akkadian syllabic values were meant to interpret Sumerian, but in practice they merely imitated the Sumerian sounds. This evidence demonstrates that these values only properly operate in Akkadian, while the facets of Sumerian phonetics remain as yet undiscerned.

Despite these changes, logograms were never dropped. In some cases, this resulted from the scribal tendency to abide by the correct Sumerian spelling. Sumerian was transformed into an academic language, used mostly for cultic or scientific purposes.

Chapter Three: Orthographic Depth

3.1 Overview

The term "orthographic depth" refers to the degree of the script's phonemicity. A highly phonemic script is described as having shallow orthography. A lesser phonemic script is described as having deep orthography.[115] Finnish and Turkish manifest shallow orthography, while deep orthography is found in English and French.[116] Orthographic depth can result from the nature of the script itself, as was the case when the incompatible Arabic script was adopted for Persian; it can also occur when a given script preserves obsolete phonetic spelling, as it was in Russian until the orthographic reform of 1918.

The study of orthographic reforms begs the question: what role, if any, does orthographic depth play in the reformers' considerations. This question is particularly resonant with the history of cuneiform reform. Some scholars give weight to orthographic depth as an important consideration, arguing that literacy development is far easier with shallow rather than deep orthography (Gholamain and Geva, 1999). Others minimize the role of orthography in favor of a cognitive, neuroscientific approach rather than the nature and manifestation of the script itself (Wolf and Bowers 1999).

Throughout the history of language, many scripts have undergone developments in orthographic depth, whether that occurs within a large-scale framework of reform or as ad-hoc emendations that became customary over time. Orthographic reforms in literate societies are relatively difficult to implement. They are often met with resistance from various literary circles

[115] For a detailed description of orthographic depth, see Katz and Feldman 1983, Katz and Frost 1992, Schmalz et. al 2015 (with literature). Several scholars have used, however, other terms. See for instance, J. DeFrancis (1989, 56) who uses the terms "pure phonetic script" vs. "meaning-plus-sound script".

[116] See for instance the radical difference in two words sharing basically identical spelling, such as *laughter* and *slaughter* in English.

and even from the general public. Several attempts to reform the English orthography have all failed, having been met with strong opposition. Although English has seen numerous orthographic changes in the last few centuries, those took place over long time periods, usually unaccompanied by any official announcement or decision. Furthermore, many changes were not intended to make reading easier, but were executed locally for intellectual purposes. To some extent, they even made reading more difficult when compared to the earlier orthography. A noteworthy orthographic reform was carried out in the Russian language in 1918, following the Soviet Revolution that significantly changed the Russian society. This reform's changes stand out and are known to a relatively large audience nowadays, due to the large amount of literature that was written during the 19th century, sometimes still consulted today.[117]

3.2. English Orthographic Reforms

Starting in the 16th century CE, roughly the transitional period between Middle English and Early Modern English, scholars have pointed to a significant departure of the current English vernacular from the official orthography that retained obsolete archaic spellings. English orthography, whose main principles have remained intact to this day, is highly irregular and inconsistent, to the point where several words are written almost identically, but their pronunciation cannot be consistently predicted by the non-native speakers. Several attempts to reform English orthography have all failed, with the exception of cosmetic changes, made only on specific occasions.

John Hart made one of the earliest attempts to reform English spelling in his 1569 monograph, *An Orthographie*. Hart proposed a new system that sought to make English spelling

[117] Especially dictionaries or encyclopedias.

more consistent with the spoken language. His alphabet contained 21 letters to represent the 24 phonemes in English according to the principle of using one letter for one sound. William Bullokar, Hart's contemporary, suggested a new alphabet with 40 letters, including several digraphs, to represent every single sound of the English language. Other proposals were made over the years, even by Benjamin Franklin, who also advocated for phonetic writing and for flattening English orthography.

Even so, the orthographic changes that did take root in modern English writing occurred locally. These changes are to be divided into two parts. One sort of change was indeed made to flatten the orthography, such as the emendations proposed by Noah Webster (1758 - 1843). Like Bullokar and Hart, the American lexicographer was also concerned with the irregularity of English orthography. However, instead of proposing new rules, Webster suggested several specific changes that are now identified with American English.[118] Other changes were made, not so much for practical reasons, but to connect the English language with the classic languages. A noted example is the /b/ that was added to words like *doubt* or *debt*, an introduction whose function was expressly as a silent letter. Though these words derive from French *dout* and *dette*, the addition of /b/ sought to imbue in them a more direct link to Latin as if they were directly derived from Latin *dubitāre* and *dēbitum*, respectively.

In some cases, the resultant etymology is incorrect, such as the silent /s/ that was added to *island*, as if it were related to Latin *insula*, though it is an Anglo-Saxon word (Old English *īeġland*), with no relation to Latin.[119]

[118] Such as *plow* instead of *plough*, *center* instead of *centre* or *color* instead of *colour*.

[119] Latin *insula* is related to English *isle*, also received a silent /s/ at the same time (originally derives from French *île*).

3.3. Russian Orthographic Reforms

A different approach exemplifying a reform's treatment of current orthography was applied in the Russian language and its orthographic reforms. The development of Russian as a literary language took place relatively recently, beginning with the efforts of certain late 18th century figures, and with even greater vigor in the early 19th century, most notably observed in the contributions of A. S. Pushkin and his circle.[120] It is important to note that while Russian experienced radical change during the 19th century regarding its grammatical forms and neologisms, its orthography remained almost untouched.[121]

Like many other languages, Russian underwent the phenomenon of consonant coalescence that produced many obsolete graphemes in its alphabet. Scholars and critics discussed this problem, acknowledging an urgent need to reform Russian orthography, but conservative circles blocked all attempts in this direction. Some ad-hoc adjustments were made, such as removing the letter Ѵ (*izhitsa*) whose function in practice dwindled throughout the 19th century. However, by and large, Russian orthography throughout the 19th century remained highly conservative, maintaining obsolete Old Slavonic graphemes, including even absurd cases such as the hard sign (ъ) at the end of words. Already in the 19th century, Yakov K Grot, the first scholar to advocate for systemic reform, noted:

> The uselessness of the letter ъ *in word final* is so obvious that one cannot help but wish the abolition of its usage and hope that the Russian press will sooner or later free itself from this superfluous and in many respects burdensome growth.[122]

[120] For Pushkin's contribution to the Russian language, See Vinokur 2010, 108ff.

[121] Despite the great importance that Russian scholars attached to it during the 18th and 19th century.

[122] "Бесполезность буквы ъ *в конце слов* до такой степени очевидна, что нельзя не желать отмены такого употреблена ей и не надеяться, что русская печать рано или поздно освободится от этого лишнего и во многих отношениях обременительного прироста" (Grot 1873, 85).

Only in 1918, did the new Soviet regime embark on a systematic orthographic reform, as a part of their new campaign to fight illiteracy, known as *likbez* (*likvidatsiya bezgramotnosti* 'elimination of illiteracy'). The reformers, led by A. A. Shakhmatov (1864-1920), were mainly concerned by the number of graphemes in the Russian alphabet and its overly large inventory that was saddled with outdated letters reformers felt made learning the alphabet difficult. They decided to eliminate several graphemes that no longer represented sounds of their own. One may note that though reformers omitted these redundant letters – i.e., they reduced the Russian alphabet inventory and hence facilitated literacy learning - they almost completely ignored orthographic depth and its importance for learning to read and write. Although some minor changes were made, these were never part of an institutionalized reform. As such, the Russian language has remained morphophonemic until today.[123] One example of orthographic flattening should be mentioned here, because it clearly demonstrates the problems they faced and their attempt to find middle-ground solutions. Adjective endings in the genitive case (masculine or neutrum) had been -аго (after hard consonants) and -яго (after soft consonants), though pronounced even then -ого and -его, respectively.[124] The reformers adopted the previous recommendations and set the spelling to -ого and -его. Curiously, they ignored the rather bigger phonetic problem: that the г <g> in его or ого had been pronounced as [v] since at least the 15th century - yet they did not update it to в <v>. Another case of flattening orthography is by officially adding to the Russian alphabet the letter Ё /yo/ that had existed unofficially from the late 18th century as a variant of E /ye/.[125] However, it is well-known that this example of

[123] For instance, Russian orthography lacks systematic indicators in which reading can be predicted; most importantly for new students who are most challenged in determining where the stress falls.

[124] Some words were adjusted *ad-hoc* and written with -ого. This created inconsistencies in the orthography. Grot also pointed out this problem in his monograph (ibid. p. 98).

[125] This addition is usually attributed to the writer Nikolay M. Karamzin (1766 - 1826).

orthography flattening is by no means necessary for native Russian speakers, who still use the letter E for both /ye/ and /yo/ in handwriting.[126] Beginning students of Russian may find it confusing when they read a word like <все> and would not know whether the writer meant /все/ ('everybody') or /всё/ ('everything'). Yet this does not faze native Russian speakers at all, as they naturally learned how to write and read their own spoken language.[127] It appears the Russian reformers' main concern was the large number of letters, which made learning how to read and write difficult, rather than orthographic depth.[128] In some cases, they even deepened the orthography by creating new homographs, such as eliminating the letter <і> and merging it into <и>, because both graphemes represented /i/. As a result, two words: миръ 'peace' and міръ 'world' became homographs, i.e., spelled identically – мир.[129] This led to a popular myth that L. N. Tolstoy meant to call his novel *War and World* (Война и мир).[130]

Much criticism has been leveled at Russian orthographic reform from both radical and conservative circles. Conservatives were concerned with losing the etymological roots of words by eliminating some letters,[131] while radicals criticized the lack of emphasis on phoneticity. In 1929, a new committee, known as the *Glavnauki Project* (*Proyekt Glavnauki o novom pravopisanii*) was organized in order to flatten the orthography and make it as phonetic as

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[126] In fact, using Ё in handwriting (or text messages) is a clear indicator that the writer is not a native Russian speaker.

[127] The new learners taking part in the *likbez* project were all either native Russian speakers or with a good knowledge of Russian; as residents of Soviet republics belonging to the Russian Empire since the 19th century.

[128] Such as eliminating the letter Ѳ because it was pronounced exactly like Ф /f/.

[129] The hard sign (ъ) in the end of words was finally removed in the 1918 reform.

[130] This rumor, however, is baseless. Tolstoy himself referred to the book in his letters as "La guerre et la paix".

[131] For instance, the name Fyodor, previously written Ѳёдоръ was now written Фёдор, but by eliminating the letter Ѳ (Theta), the reader loses the information that this name derives from Gr. Θεόδωρος.

possible. The committee recommended several emendations, such as expression of vowel reduction in script (e.g., делаиш instead of делаешь), or the phonetic transcription of foreign names (Шылер instead of Шиллер), and remarkably, ево instead of его (Ivanova 1976, 267). Another attempt was made in 1964, this time by A. I. Yefimov. He suggested eliminating the soft sign (ь) after the hissing consonants (/ж/, /ч/, /ш/ and /щ/), because these phonemes are not palatalized after <ь>; e.g., ходиш instead of ходишь or береч instead of беречь (Klein 1964).[132] However, all attempts to flatten the Russian orthography failed, and not one of these suggestions was adopted, except for some negligible adjustments made in 1973.[133] It is worth noting the peculiar spelling -его and -ого, still in use today with the <г> being pronounced [v].[134] This causes no difficulty for Russian speakers who in fact see these sequences of graphemes (е-г-о and о-г-о) as sort of logographs, without being aware of their diachronic pronunciation, nor why they are written this way.[135]

3.4. Orthographic Depth in the OB Period

Though we do observe orthographic depth as flattened to some degree, it is difficult to see a clear programmatic policy of reform. Even if there was a connected attempt to make the orthography

[132] Yefimov was either not aware of or did not find significant how this would actually *deepen* orthography, as many feminine nouns ending with soft sign would possibly appear to be masculine (e.g., мыш instead of мышь).

[133] For example, разыскной instead of розыскной, because the stress is on the last /о/, but розыск stays intact because the stress here is on the only /о/. However, native Russian speakers do not need this emendation, and still occasionally use the old spelling.

[134] Except a few examples, such as сеголетка /segoletka/ [segoletka].

[135] Unlike other Slavic languages, such as Bulgarian that has kept the original pronunciation intact: никого means 'no one' in both Russian and Bulgarian but it is pronounced [nikovó] in Russian and [nikogo] in Bulgarian.

shallower, one cannot overlook the fact that no new signs were introduced throughout this period, except for rare examples.[136]

One intriguing case study is the sign BU, used for both /bu/ and /pu/ throughout the duration of cuneiform writing. If this created homographs, there is no evidence that any reading comprehension problems emerged from the identical spelling of *a*-BU for both *abu* "father" and *apu* "reed thicket". Even more mysterious is the complete disregard of VC signs. Throughout cuneiform's lifetime no solution was made to differentiate VC signs, between voiced, voiceless and emphatic phonemes, e.g., AD stood for /ad/, /at/ and /at/; UG for /ug/, /uk/ and /uq/ and so on. In some cases, the succeeding sign could serve as an indicator for the sign's voice, e.g., *i-ra*-AB-PA-*ad* /irappad/. There is evidence, however, for the possibility of homographs or homophones being a problem, especially for non-native Akkadian speakers. For example, see Table 8 for the following Kassite lexical list (Balkan 1954, 3-4).

Table 8. Homophones in a Kassite Lexical List

23	*tu-ru-u-na*	ša-a-ru	'wind'
24	*ia-an-zi*	*šar-ru*	'king'
25	*nu-la*	*šar-ru*	'king'
26	*ma-li*	*a-mi-*[*lu*]	'man'
27	*me-li*	*ar-*[*du*]	'slave'

The same issue is observed in a lexical list from Boğazköy (MSL 3, 53), where the scribe mistakes *ararrum* 'miller' for *arārum* 'to curse'.[137]

[a-ra] [ḪAR] [*a-r*]*a-rum* *ḫu-u-wa-ar-za-ki-u-wa-ar*

[136] Such as /qa/ for $SILA_3$, introduced in the Late OB.

[137] See HED H, p. 434, see also Cohen 2002, 826, n. 11

Another important change, obviously within the limits of the sign inventory, was the appearance of gemination, flattening orthography in practice. The OB orthography, therefore, differentiates between *a-pu* "reed thicket" and *ap-pu* "nose", but not between *a-pu* and *a-bu* or *ap-pu* and *ab-bu*. See Table 9.

Table 9. Gemination in the OB orthography

a-BU /abu/ 'father'	*a*-BU /apu/ 'reed thicket'
AB-BU /abbū/ 'fathers'	AB-BU /appu/ 'nose'
a-BU /abu/ or /apu/ 'father' or 'reed thicket'	AB-BU /abbu/ or /appu/ 'fathers' or 'nose'

A different case is seen in the phoneme /ʕ/ (voiced pharyngeal fricative).[138] It is doubtful whether this phoneme existed in OAkk, but in any event, it was not expressed in the script, rather by <A> or rarely by E_2 for /ʕa/ (Hasselbach 2005, 84). The appearance of the Amorites in Mesopotamia, with many personal names containing /ʕ/, catalyzed the need to express this phoneme in writing. While the earlier issues mentioned above are not necessarily problematic, this was more complicated. One should recall that when the phoneme /w/ was introduced in the third millennium BCE, the sign PI was chosen to represent the whole W-series, namely /wa/, /wu/, /wi/, as well as the VC part, /aw/, /iw/ and /uw/ (Gelb 1961c). This time, the whole Ḫ-series was picked to represent /ʕ/ in the OB, keeping in mind that all three VC options were written with only one sign (ḪIxNUN for /aḫ/, /iḫ/ and /uḫ/), e.g., *Ḫa-am-mu-ra-bi* [ʕammurapi], *ni-iq-mi-e-pu-uḫ* [Niqmi-epuʕ], *ia-da-ḫu-um* [Yada'um] and so on. Only in the MB period was a new sign introduced to represent the glottal stop.[139] Another phoneme introduced at the same time, /ḏ/ (voiced dental fricative), was expressed by the Z-series, e.g., DN-*ḫa-zi-ir* [ʕaḏir]. And while the

[138] The sound of '*ayin* in Hebrew or Arabic.

[139] Note that the sign itself is not entirely new, as it is also based on Ḫ.

MB period does introduce a new sign to express the glottal stop, as well as other guttural consonants; yet /ḏ/ was never assigned an independent sign.

The high number of "redundant" signs with multiple values remained in use. Even though the OB reform seems related to political developments, there is no evidence for a state-dictated comprehensive reform. Based on the current evidence in hand, we may suggest that the orthographic shift probably reflects a range of local scribal school changes that were amalgamated to become what we see now as the OB orthography.[140] The OB orthographic reform as a whole was the total of many ad-hoc and haphazard improvements, visible to us only in retrospect as an organically developed systematization or "reform" of cuneiform in the Old Babylonian period.

3.5. Transliteration and Transcription

The Akkadian language, and more specifically its phonology, is best understood by means of comparative linguistics. During the 19th century scholars analyzed Akkadian mainly by comparison with other well-studied Semitic languages, such as Arabic, Syriac, and Biblical Hebrew. This proved useful and advanced a reasonable grasp of the language in a relatively short period.[141] However, after decades of comparative study, research reached a dead end with major obstacles. Despite its obvious resemblance, Akkadian still differed significantly from other Semitic languages in many core aspects: morphology, phonology, syntax, and vocabulary. In his 1926 landmark article, B. Landsberger claimed that unnecessary comparisons can be misleading,

[140] Unlike the Ur III school system, the OB scribal schools operated largely free of political influence (George 2005, 135).

[141] Compare to our relatively poorer understanding of Sumerian, where most of our information comes by way of comparison to Akkadian.

and urged scholars to discard these methods. He encouraged instead a focus on the language in its context, what he called the "Eigenbegrifflichkeit" of the Babylonian world (Landsberger 1926). Since then, many scholars have adopted this approach, though others have criticized it and indicated its flaws.[142] In any event, we should separate between two different topics: the way modern research reads texts for pedagogical aims and convenient use, and the way we believe the ancients looked at the texts and understood their own writings. This distinction is particularly crucial for this work, which seeks to understand orthographic changes and the reasons for their initiation. In this vein, it is necessary to draw attention to a methodological error in modern research that might prevent us from understanding the way cuneiform operates.

As mentioned above, the Akkadian phonology is relatively clear because of its proximity to other Semitic languages. But precisely because of this reason, scholars have tried to impose grammatical forms on the script by reading many syllabic values to turn cuneiform as phonetic as possible. For instance, the word *liddin*, in the old orthography is written *li*-TI-*in*. Since this word represents the 3cs precative form *liddin* ('may he give'), scholars transliterate this sign sequence as: *li*-*di*$_3$-*in*, to bring the spelling closer to its phonetic rendering, in a method presented and promoted by von Soden and Röllig (1991). This habit is problematic for several reasons. First of all, it is insufficient. Transliterating *li*-*di*$_3$-*in* yields the incorrect form */lidin/, rather than the correct /liddin/. This raises the question of how this reading is helpful, other than clarifying the root for beginning students. More problematic is the arbitrary imposition of values on signs, which obscures the distinction between spellings. Even if we assume that OAkk and OB pronunciations were identical, it must be emphasized that language (or to be precise, its phonology) works on principles and with criteria that are completely independent of

[142] See a recent discussion and criticism in Sallaberger 2007.

orthography. Indeed, shallow orthographies demonstrate a close relationship between the phonology and orthography, but it is not the case with deep orthographies, where the script provides fewer directions as to the typical pronunciation of a given word. There is no reason to doubt that *li*-TI-*in* was indeed pronounced *liddin* – but this fact has nothing to do with transliteration, as script and language are two separate issues. In other words, the sign TI, in this specific word, may have stood for its voiced counterpart /d/ in the old orthography, but the sign itself is TI and has no voiced "value".[143]

The most distinctive feature of the old orthography is its (alleged) adherence to Sumerian phonology, i.e., indistinction of voice in writing Semitic languages.[144] One cannot read all voiced signs with voiceless readings, and vice versa, to match the obsolete Sumerian phonology – this misses the innovation of the OB orthography. This method of transliteration gives the appearance of modern scholars actively intervening as "reformers" themselves, ascribing values to signs to improve ease of reading. Script users may reform their orthography (successfully or not), but modern research must only look at textual material as it is, or, to paraphrase F. Schleiermacher's words, to bring the reader close to the writer and not vice versa.

In a detailed criticism of this method of transliteration, I. J. Gelb (1970a) pointed to the fundamental difference between transliteration, i.e., reading sign-to-sign and transcription or normalization, the actual (or estimated) pronunciation of words.[145] Transliteration is intended for convenience only, as it is easier to read Akkadian (or Sumerian) in Latin letters rather than in

[143] The grapheme X in English may be pronounced as voiced (e.g., *exam*) or voiceless (e.g., *extension*), but this has nothing to do with the grapheme <x> being anything than /x/.

[144] For the reciprocal relations and language contact between Sumerian and Akkadian, see Chapter Five.

[145] Gelb emphasizes that no writing system is phonetic, only phonemic. Note that since the late 19th century when the IPA was first introduced, no language has adopted it as its main script.

cuneiform.[146] It can be done in any non-Latin script to make it easier for the reader, but it has nothing to do with pronunciation or phonetic rendering. See the following example of transliteration vs. transcription:

Table 10. Transliteration vs. Transcription

כוכב	kwkb	koxav
сгуб	sgub	zgup
محمد	mḥmd	Muhammad
կարդալ	kardal	kartal
	*li-ti-in*	liddin

As it stands, current scholarship tends to confuse transliteration with transcription, flattening the Akkadian orthography in the process.[147]

3.6. Sign Values

The question of how to read the cuneiform script and its signs has gone largely ignored by scholars in recent years.[148] As mentioned above, the closest writing system to cuneiform is the Japanese script. Despite the value in their comparison, the two scripts do bear substantial differences, the most outstanding of which is the polyphonic principle, whereby one cuneiform sign can be read with multiple syllabic values. Both Labat's *Manuel d'épigraphie* and Borger's *Mesopotamisches Zeichenlexikon* list cuneiform signs with all their possible readings, some of them with numerous values, such as UD, while others are monophonic such as ŠE. The sign KAL, for example, is listed with the values /kal/ and /dan/, while TI is listed with /di$_3$/, /de$_5$/, /ṭi$_3$/

[146] Many publications, especially in the early stages of Assyriology were copies only, to be read by scholars in the original. Recently, even Arabic editions are published in transliteration to Latin characters.

[147] But there are still a few who adhere to Gelb's opinion, and insist differentiating between orthography and phonology. See for example Steinkeller 2021b or Milano and Westenholz 2015.

[148] Serious studies were made almost fifty years ago. See Civil 1973a, Reiner 1973a.

and /ṭe$_6$/. However, one must differentiate between these two examples. While polyphony does mean signs can have multiple syllabic values, such values are never arbitrary.[149] All syllabic values are based on either Sumerian words or on the acrophonic principle, reading of the first syllable of the Akkadian equivalent of that word.[150] For example, the sign KAL has the reading /kal/ because this is the sign for Sumerian kal 'precious', as well as the first syllable of Sumerian kalag 'strong', and /dan/ because it is the first syllable of Akkadian *dannu* 'strong'. Some cases may be less clear than others, but in any event, there are no sign values without lexical reason.[151] Of note is UR which as early as Abu-Salabikh, stood for /lik/.[152] R. D. Biggs (1981, 123) claimed that /lik/ was an independent reading, not based on Sumerian. Though not fully clear, it may have been based on /nig/ (Sum. 'bitch'), which can also be written with the sign UR alone, instead of the more common SAL.UR.[153] This is not the case, however, of TI read as /di$_3$/ or /de$_5$/ or GA read as /ka$_3$/. These readings are not based on specific words; rather they originate in the projection of modern scholarship and an attempt to adjust orthography to phonology. The sign TI may have been pronounced in practice with the sound /d/, but by no means did it have any value but /ti/. This rendering is a phonological issue, unrelated to orthography.

The way we read cuneiform today is based on the endeavor of interpreting signs in the OB schools. The students learned how to read and pronounce words of a language whose

[149] But see Falkenstein 1936, 29 ff.

[150] Besides phonetic complements or glosses, the earliest syllabic writing in Sumerian exists already in the archaic texts, where the sign GI 'reed' is used as a syllabic /gi/ for GI$_4$ (Vaiman 1974: 17).

[151] For the so-called ka-ka-si-ga readings, see 2.4.2.

[152] For example, *il-su$_3$-ma-lik* (UR) (Biggs 1974, no. 513).

[153] This may have been the original writing of /nig/ since gender was not marked in pre-Sargonic Sumerian. The standard writing SAL.UR for /nig/ may be interpreted as ^{SAL}UR, SAL being a semantic indicator. See below Reading Indicators. For the change n > l, see Jagersma 2010, 50.

phonology was completely different from their native language. The OB Ea and Diri lexical lists, for instance, are school exercises used by students practicing Sumerian. They are the main tool we have for reading signs, though they only represent the reading customs used at Nippur. It is only natural that native speakers of one language hear the sounds of second language through the "ear" of their own.[154]

This leads us to many signs with multiple readings based on the same consonant component (henceforth, multi-vocalic signs). Examples include mostly CVCs, such as ḪAR/ḪUR DAB/DIB, DAR/DIR$_2$ and ŠIR/ŠUR$_3$ but also the CV SI$_4$/SU$_4$. It must be noted that although these CVCs behave as CV$_x$C, they are not CC, that is to say, they never represent a sequence of two consonants (Streck 2003-2005, 139).[155] This phenomenon is related to the Sumerian phonology which is still by and large unclear. Throughout the years, scholars have proposed several unique Sumerian phonemes, such as /dr/ or /gb/, but the Sumerian vowel system itself remains largely obscure (Black 1990; Keetman 2005; Smith 2007).[156] Some scholars have suggested that /o/ also existed in Sumerian (Lieberman 1979), but even this has not been conclusively established.[157] It is possible that Sumerian contained vowels and sounds unknown to us, such as mid-vowels (e.g., German /ö/) or central vowels (e.g., Russian /ы/), but that cannot be detected in cuneiform at this point. The original Sumerian signs may not have

[154] See for instance the German city Nürnberg written in English Nuremberg but נירנברג /nyrnbrg/ in Hebrew, or Urgench, written Ургенч in Russian but Урганч in Uzbek and گرگانج /grganj/ in Persian.

[155] For example, the sign ŠIR may stand for both /šir/ and /šur/, but never for /šr/, that is to say, *pašru* will never be written *pa*-ŠIR-*u*.

[156] The extensive polyphony in cuneiform suggests that, similar to *man'yogana* created by the multiplicity of vowels in Chinese compared to Japanese, Sumerian also had many more vowels than the four of Akkadian (/a/, /e/, /i/, /u/). Note that some consonants have signs for both /e/ and /i/ (e.g., MI and ME; ŠI and ŠE), while others have only one sign (TI for both /ti/ and /te/; KI for both /ki/ and /ke/) which must have been rooted in Sumerian rather than Akkadian phonology.

[157] Unlike the case of Hurrian, where /o/ clearly existed (Wilhelm 2008).

been multi-vocalic; rather they represented a certain unknown vowel that Akkadian speakers later interpreted, and which is now seen as multi-vocalic.

Take, for instance, the sign . It is clear what this logogram indicates ('red'), but its exact pronunciation in Sumerian may never be known. The only information we can ascertain is how Akkadian speakers read it, and they interpreted it as both /su/ and /si/. One may reasonably speculate it was a rounded vowel (like /ü/ in German), which the Akkadian speakers tried to convey in this way, because this sound did not exist in their own language, but this assumption lacks concrete evidence.[158] Projecting these readings back to pre-Sargonic Sumerian is methodologically flawed, because Sumerian speakers presumably read this sign as neither /su/ nor /si/.

3.7. Morphographmic Writing

I. J. Gelb introduced Assyriology to the concept of morphographemic writing over the course of several articles (1955, 99; 1961c; 1970b) which were expanded by works of M. Civil (1973) and E. Reiner (1973a; 1973b).[159] Morphographemic writing is characterized by morphological elements appearing in writing even though the word's pronunciation is different, in contrast to phonetic writing, which adheres to pronunciation even at the cost of losing the morphological elements. For example, the spelling of Ru. выбраться 'to get out' retains the root выбрать plus the reflexive suffix -ся, even though the word is pronounced [vibrə͡tsa]. On the other hand, the Belarusian spelling of the same word is выбрацца, reflecting a more faithful version of the word's pronunciation, but disguises the morphological elements.

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[158] The same is true for the logogram 'city', whose pronunciation may be either uru or iri; both are attested phonetically.

[159] P. Steinkeller (*pers. comm.*) prefers the term *morpho-analytical* writing.

Gelb argued that cuneiform displayed both morphographemic and phonetic spellings, and that both forms should be understood as a graphic matter, without any relation to language. For example, the spelling <šu-ba-at-su> represents the same word as <šu-ba-as-su> /šubassu/, and by no means indicates the artificial word /*šubatsu/.

As mentioned earlier in this chapter, it is necessary to distinguish between transliteration and transcription, which requires us to recognize the difference between the sequence of signs on the clay tablet and the reconstructed grammatical form. One cannot transliterate or "read" the sign AT as <as$_x$> to adjust it to the grammatical form /šubassu/, because the sign AT has no value of /as/. It is rendered with the sound [s] due to the phonological rules, but those have nothing to do with script. The Cyrillic grapheme <б> is to be transliterated as /b/ only, regardless of the phonological rule of devoicing in the end of words, which causes the word <хлеб> to be pronounced [xlep].

Most languages are written either phonemically (shallow orthography) or not (deep orthography). There are, however, some examples of both forms of spelling coexisting in one language. In Turkish, for example Mehmed and Mehmet are used equally, and both are pronounced the same [Mehmet]. Mehmet is a phonetic spelling of Mehmed, the morphographemic version that keeps the original Arabic form.[160]

The form /šubassu/ is merely a reconstructed form. It cannot shed light on the *real* pronunciation of the word, as script and language are two separate issues.[161] Though we can observe widespread use of morphographemic spellings in Akkadian alongside phonetic forms,

[160] Note that in Ottoman Turkish this name was written محمد /mḥmd/, just as in Arabic; though pronounced as in Turkish. In other words, the Ottoman spelling employed an Arabic *logograph*, and the same is true for other non-Semitic languages using the Arabic script (Perry 1997, 4). See Chapter Two.

[161] See Lambert 1967, where the morphographemic form *bul-luṭ*(DUG)-*sa-ra-bi* is transcribed as Bulluṭsa-rabi, instead of Bullussa-rabi. One can also find an LB form of *bul-lut-ut*-TU-*ra-bi* (ibid. p. 128).

these indicate scribal habits more than phonetic shifts. One may suggest that the form *šu-ba-at-su* indicates the scribe's knowledge of the language, as if to show the etymology of the word (šubat+šu = šubassu). But these forms appear also in Syria and even in Hatti, where scribes mostly used conventional and standard forms learned in school.[162]

3.8. OB Logograms

In recent years, scholars have debated whether sign values in Sumerian may relate to the relationship between OB period logograms and original Sumerian words. The term "Sumerogram" is a common term in the scholarship, as these are signs based on Sumerian words. But one should wonder how logograms were perceived in writing Akkadian in the OB period, and if Sumerian pronunciation had any significance for the Akkadian readers who were using logograms. The same question might be posed regarding whether OB readings of Sumerian are relevant for transliteration of logograms, and more so, the reading of Sumerian itself, let alone pre-OB Sumerian.[163]

P. Attinger, followed by other scholars, has recently suggested that updating many traditional readings in Sumerian would create a more accurate consensus-based system of readings signs in Sumerian.[164] Most of these readings are based on two main tools: the phonetic spelling of specific words or personal names, and the OB Ea and Diri lexical lists. For example,

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[162] See for instance the common spelling DINGIR-*LIM* (occasionally -*LUM* or -*LAM*) in Hittite texts, employing Akkadograms as "phonetic complements", not necessarily in the match with the grammatical rules of Akkadian. For discussion of this phenomenon, see Weeden 2011, 188 ff.

[163] For comparison with logograms in OA, see Chapter Six.

[164] Attinger proposed this method already in 1998, but has further justified it in several publications, including Mittermayer 2006, Attinger 2011 and recently Attinger 2021, 57 ff. For other scholars who adopted this method, see for instance, Keetman 2010, 26 n. 50.

since the early stages of Assyriology the word for 'Amorite' has been transliterated MAR.TU; though usually kept in capital letters, as the reading has not been fully clear (Edzard 1987-90, 433 ff.). Attinger suggests reading MAR.TU as ĝar.du$_7$, based on several attested phonetic readings such as MAR-DU, MAR-DU$_8$, MAR-DU$_{10}$, ĜA$_2$-AR-DU, and KAR-DU, all pointing to original [ĝardu] (Attinger 2011). He appears to believe that syllabic spellings should determine the *reading* of the signs themselves, e.g., the sign URU should be read as IRI; DUL$_3$ as DIL$_2$ and GIM as GEN$_7$. Personal names such as Šulgi, king of Ur, should be pronounced Sulge, because the signs ŠUL-GI are to be read sul-ge; the combination ABxKU$_6$ is to be pronounced Našše instead of traditional Nanše, and many other suggestions.[165] Though Michalowski (2011, 242-243) agrees with Attinger's premise that cuneiform readings are inconsistent, he has criticized this method. Michalowski notes that not only is OB Ea to be understood in the OB context, but it should also be considered only regarding Nippur. It cannot shed much light on pronunciations in other regions where different syllabaries existed with different values. Attinger (2011, 62) replied that his readings were not derived from phonetic realization, which is only secondary in his considerations. Rather, his aim is to set consistency and standardization of sign readings, as he already noted (1998, 164-165) in his first contribution concerning the matter: "L'important n'est pas que nos translitérations soient phonologiquement exactes (elles ne le seront jamais!), mais seulement qu'elles soient conséquentes …"

As Assyriology further developed, new information accumulated improved our understanding of both Akkadian and Sumerian, prompting many readings to be updated and corrected. Some well-known cases are the reading of Gilgamesh, corrected to GIŠ-GIM$_2$-MAŠ instead of the wrong IZ-DU-BAR, Ninurta instead of Ninib; Šulgi instead of Dungi and many

[165] For a comprehensive glossary of the new readings, see Attinger 2021.

others. Other readings remain obscure for now, awaiting possible renditions when new evidence arrives. For example, the reading of the Kassite god Ši-ḪU as Šihu or as Šipak.[166] These corrections are justified and more importantly, crucial to philological inquiries because they demonstrate how signs are interpreted and understood.[167] They are essentially different from the new readings which seem to be, by and large, phonetic adjustments of well-accepted readings.

One cannot ignore the vast difference between correcting DUN to ŠUL and correcting ŠUL to SUL. The latter has nothing to do with consistency or standardization; rather it seeks to reach the alleged phonetic origin. Throughout the last century, publications have used the traditional readings, and many continue to do so. Although Attinger and proponents of his reform intend these updates to create greater standardization, it is likely that replacing old readings with new ones would create even more inconsistency.[168]

More important is the methodological fault of confusing transliteration and transcription. It is possible that the name of King Šulgi was pronounced with [s], as seen in syllabic forms published decades ago.[169] But this is not related to the *reading* of the sign ŠUL as anything else than /šul/. For the sake of accuracy, one may read ŠUL-*gi* and normalize it [Sugi] or [Suge], although the usefulness of this procedure is also questionable. Reading the sign ŠUL as SUL or SU_x to meet the phonetic rendering of the king's name is a misunderstanding of the cuneiform

[166] For discussion, see Brinkman 1968, 150 n. 901; Brinkman 1976, 258; Zadok 1976, 65 n. 38.
[167] See for instance the recent logographic reading update of Lagaš, NU_{11}-BUR-LA, instead of ŠIR-BUR-LA; since the first sign was originally not ŠIR (LAK 23) but NU_{11} (LAK 24). In later periods these two signs coalesce into one sign (ŠIR), but in the third millennium they were still two separate signs, and the reading should be updated.

[168] Let alone the databases that now contain several readings for identical signs, which causes difficulties to untrained students who are not aware of the "old" readings. Changing readings of common logograms, such as GIN_2 to GIG_4 will create obstacles in future qualitative research.

[169] E.g., su-gi. see Klein 1981, 42.

concept, especially the logographic writing in cuneiform.[170] Logograms are not *signifiers*, but only *signified* markers; that is, they denote ideas that can be uttered in any language, depending on the context, region, period and other variables. Logograms by themselves are empty of any phonetic content; they contain only conceptual or semantic substance. The sign  'is rendered in modern transliteration as <e_2>, but one must keep in mind that this reading is for convenience only. It does not have the *objective* value of /e/ or any other value; it is merely a *signified* marker denoting the idea of 'house' or 'temple'. It can be read *bītu* in Akkadian, *parn-* in Hittite, and theoretically can also be used for modern languages, as with 'house', 'maison', 'дом' and so on. Furthermore, the original Sumerian word could have been pronounced [a] or [ha] due to syllabic spellings of a_2-mi_2 for e_2-mi_2 'household' (Falkenstein 1949, 23-24).[171] It may also have been pronounced [wa] or even [va] due to syllabic forms of $\hat{G}A_2$, later interpreted as /ma/ or /ba/ (Civil 1973b, 60).[172] But all this information is less relevant for transliteration, and by no means suggests that the *reading* of E_2 should be anything other than <e_2>.[173]

3.9. Conclusion

One of the most outstanding results of the OB orthographic reform is its impact on Akkadian orthography depth. In a relatively short period of time, writing Akkadian transformed to become more phonemic compared to its previous orthography. There is no evidence for a specific

[170] This is true even in the case of the phoneme /ʕ/ written with the Ḫ-series. It is clear the signs of this series stand for this phoneme, but it is unnecessary to transliterate the sign HI as ʕVx; e.g., *mu-ša-ar-ʕi$_x$-ib*, though the word is clearly mušar'ib and not *mušarḫib, or to transliterate ^{d}UTU-ʕa$_x$-ḏi$_x$-ir, to meet the Semitic root ʕḏr.

[171] Note a_2 in this context could also carry some semantic content.

[172] Given that E_2 and $\hat{G}A_2$ referred to the same word. Jagersma (2010, 48) suggests that E_2 was pronounced /haj/.

[173] Therefore, readings such as <a_{14}> for E_2, which are intended to adjust to a hypothetical phonetic origin, must be rejected.

concern or focus on orthographic depth. In fact, the Akkadian orthography remained only partially phonemic in many aspects. While the new OB syllabary was enlarged, all the newly added phonograms were in fact existing signs, mostly used in Sumerian for other purposes. To thus employ them required the reinterpretation of these signs as phonograms. This must be perceived as an OB interpretation or at least as a Semitic interpretation. By no means does it reveal or determine the original Sumerian phonetic rendering.

Chapter Four: Akkadian and Sumerian

4.1. Overview

From the early stages of Assyriology, it was already determined that a non-Semitic population lived in Mesopotamia alongside the better-known Semitic population.[174] The many logograms with syllabic values unrelated to Akkadian prompted scholars to infer that these signs were originally used for another language, probably non-Semitic.[175] For many years to come, the relationship between the Semitic and the non-Semitic populations and the contact between their languages remained unclear. Even the nomenclature used to identify these populations was not agreed upon until the late 19th century, when Assyriologists decided to call the Semitic population "Akkadians", and the non-Semitic population "Sumerians". These populations did co-exist for some time, but many historical questions were left unsolved.[176] The general assumption was that the Sumerians were the indigenous population of Mesopotamia, and that the Akkadians invaded the region at a later stage. The reciprocal relations between these two groups continued to be controversial going into the early 20th century, and even reflected in contemporary politics.[177] The discovery of Ebla, and the excavations at Abu-Salabikh, demonstrated that Syria and Mesopotamia held Semitic populations before the Akkadian Empire. This compelled a further differentiation between the terms "Akkadians" and "Semitic populations".[178] The

[174] The initial assumptions about Semitic populations were based on the biblical descriptions, and the Classical accounts from Herodotus and onward.

[175] For example, even in NA texts, written in the most abstract stages of cuneiform, the logogram for 'hand' 𒁕 is still recognizable as being based on a drawing of a hand. Why this sign had the phonetic value /qat/ was understood, but the value /šu/ could not be explained.

[176] J. Halévi even doubted the Sumerian's very existence, and suggested that it was a cryptolect, used by Babylonian priests.

[177] See for instance several articles by Th. Jacobsen (1939, 1943) challenging earlier assumptions widespread in Europe in the first half of the 20th century.

[178] Steinkeller (2017, 121) uses the term "Proto-Akkadians" for these populations.

complex problems regarding the ethnic constitution of Mesopotamia, and its relevance to language and to the ancient world in general, led research circles to view these populations as "Sumerian speakers" and "Semitic-language speakers".[179] Sumerian speakers co-existed for hundreds of years in Mesopotamia with Semitic-speaking populations, and the consequent results of this prolonged contact are evident in both the Akkadian and the Sumerian languages.[180] This contact prompted a shift in writing and orthography, both in the early stages of writing and during the great changes of the early OB Period. This chapter deals with two reciprocal relations: between the languages themselves, Sumerian and Semitic; and between language and script, regarding this mixed Sumero-Akkadian language and the cuneiform script.

4.2. Sumerian-Semitic Contact

The contact between the Sumerian and Akkadian languages is not dissimilar to the abovementioned examples of lexical and structural context. However, our picture of the linguistic contact between Sumerian and Akkadian is conditioned by our understanding of script, for two reasons. First, the only materials we have to pursue this understanding are the textual remnants of these languages, clay tablets inscribed with cuneiform script. Secondly, a logographic script is more porous than an alphabetic one, influencing and being influenced by the languages that use it. Thus, logographic scripts like cuneiform differ from alphabetic scripts, which are by and large disconnected from the written text. Any analysis of Sumerian-Semitic linguistic contact must begin with an understanding of the uniquely complex interrelationship

[179] This terminology is intended to avoid the claim that there is a complete overlap between the speakers of a particular language and their ethnic affiliation. See Fink 2021 with literature.

[180] Some scholars during the 20th century suggested that Mesopotamia's original indigenous population was neither Sumerian nor Semitic. For a summary of this discussion, see Rubio 1999.

between these two languages. One must remember that Sumerian is among the earliest languages ever written, and may thus express itself in ways that predate later conventions.

The main indication for the Sumerian-Akkadian contact is seen in the multiple loanwords between the languages, both Sumerian loanwords in Akkadian, and Semitic lexemes in Sumerian. This contact can be seen even in the confusing phenomenon which bears the misnomer "reborrowing", i.e., Semitic lexemes first borrowed into Sumerian and were later borrowed or translated into Akkadian.[181]

A significant difference in the contact occurring before and after the early second millennium BCE must be acknowledged. Pre-OB Sumerian, as early as the Uruk archaic texts, is replete with Semitic loanwords, whereas Old Akkadian and other third-millennium Semitic dialects have almost no Sumerian loanwords. This situation changes at the beginning of the OB, when many Sumerian words now creep into the Akkadian vocabulary, to the point when they make "a little above 7%" of the entire Akkadian vocabulary (Edzard 2003, 178). OB Akkadian differs from Old Akkadian to the degree that one. may wonder if it is even a later development of the same language. The developments and changes in OB Akkadian can be observed especially in Mesopotamia's cultural and political core: the large Mesopotamian cities, with their long tradition of writing and the scribal school system, which exhibit novelties rarely seen in the periphery.

Cuneiform writing becomes highly professionalized; it also becomes the medium by which OB Akkadian - if it is indeed a descendent of OAkk - was transformed from a local dialect to an almost monolithic Sumero-Akkadian language. One of the most remarkable exercises set

[181] The term "reborrowing" may imply that the word was borrowed from Akkadian and then entered back into Akkadian, but in fact the word was not borrowed from Akkadian, a language that did not exist at the time, but from some Semitic language in the region.

by the scribal school system was to invent many artificial logograms and to shape them as if they were real Sumerian words, though they were never used in Sumerian circulation. The orthography becomes more systematic and organized; spellings are conventionalized, and even the physical tablet shape becomes more standardized.

The reciprocal relationship between Sumerian and Akkadian is crucial to cuneiform development, just as cuneiform is crucial Mesopotamian language development. To understand this reciprocity, one must trace the origins of the cuneiform script; one must also trace Sumerian's close relations with regional Semitic dialects. These relations shaped cuneiform from its earliest stages until its mature form, becoming the ruling script in Mesopotamia and beyond. Sumerian's initial contact with Semitic might have been one of the main catalysts for the transformation of cuneiform from a logographic-based script to a more versatile logo-syllabic script. The death of Sumerian at the end of the third millennium, on the other hand, was one of the main catalysts for the opposite action: Akkadian transformed from a language written in a relatively simple and mainly syllabic way to a sophisticated language that incorporated Sumerian elements and perhaps even claimed to be an iteration of the original Sumerian.

4.3. Logograms and Phonograms

For the purpose of this discussion, a pure "logogram" will be defined as a cuneiform sign that only conveys semantic information and it is devoid of any phonetic value. The earliest stage of writing contains logograms, empty of any phonetic content. At this stage, logograms have no readings, and can only be called after their pictographic representation, e.g., HEAD, TREE, WATER. At this stage, logograms are completely separated from language, and can technically be read in any language. The logogram WATER may stand for /water/, /mayim/, /woda/ and so

on. Let us also assume that even in the earliest phase of writing, logograms stand not only for their pictographic representation, but also for the semantic environment around the pictogram.[182] Therefore, WATER can also stand for /wet/, /trinken/, and even /ważny/, but probably not for /lampa/ or /stół/.

Phonograms are the exact opposite of logograms. They are signs that convey phonetic value, but with no semantic meaning. Though they derive their phonetic value from the original logogram, they are now separated from their physical shape, enabling their use in any language, and therefore are identical to logograms in this sense. In the context of English, the logogram WATER will stand for /water/ or just /wa/ on the acrophonic principle. It may also compose words not related to the semantic field of water. The logograms WATER-LETTUCE, for example, may compose the word 'wallet', though the physical shape of the pictograms shows 'water' and 'lettuce'.

In the context of the ancient world, it seems there were no independent phonetic signs, that is to say, none of the signs had a phonetic value that was not based on original logographic reading. All phonetic values are, or at least are supposed to be, based on the pronunciation of the initial pictogram, though the origins of several phonetic values in cuneiform are not known.[183] Most cuneiform signs in circulation were both logograms and phonograms, used in different contexts for different purposes. As we shall see, in many cases, the use of cuneiform was neither logographic nor phonetic. Therefore, it is important to make a clear distinction between *using* cuneiform for a variety of purposes and the *writing* of Sumerian and Akkadian as practiced in

[182] Although, at least in the case of Mesopotamia, there is no clear evidence to support this assumption.

[183] Such as the phonetic value /bi/ for BI.

Mesopotamia. The long and steady contact between two different populations and the mixture of their languages shaped cuneiform writing during the lives of the Mesopotamian civilizations.

It is difficult to determine when this contact began. Current evidence indicates it was in the earliest stages of documented Mesopotamian history, and perhaps even earlier, in prehistoric Mesopotamia. As this work deals with text and script, the physical contact between the two populations will not be discussed.[184] For our purposes, we note that regarding the lingual contact, the lexical reciprocity was mostly unidirectional throughout the third millennium, and only changed in the OB period.

This is shown by S. J. Lieberman's documentation (1977, 2) of 529 Sumerian loanwords in OB Akkadian, of which only four had been attested in Old Akkadian. More notably, about a fifth of these 529 words were purely lexical, that is to say, they were never used outside the school context. It is supposed that OB logograms are based on Sumerian words, yet many of them were used in OB Akkadian or otherwise mentioned in lexical lists; this means that these logograms were in fact the artificial product of scholastic OB scribal activity. The increase of Sumerian loanwords and artificial logograms coincided with significant changes in general Akkadian orthography, a constellation of events which strongly suggests a connection between the two phenomena.

4.4. Early Contacts

The contact between Sumerian and Semitic goes back to the earliest Mesopotamian textual records, the archaic texts of Uruk IV and Uruk III/Jemdet Nasr. These records demonstrate the presence of Semitic loanwords in at least one case, and likely in several others. Semitic

[184] In any event, it is almost impossible to trace down ethnic contacts in such an early period.

loanwords in Sumerian are typically detected through etymological study, in this case establishing convincing linguistic relationships between the loanwords and the Semitic language family. However, despite decades of debate on this topic there is no scholarly consensus on the matter. Some scholars see a substantial Semitic influence already in the early periods, as well as in the third millennium BCE, while others minimize instances of this phenomenon as haphazard occasions of lexical borrowing, or even completely deny the existence of Semitic loanwords in Sumerian.[185] Maximalist scholars may grasp any faint hint as evidence, often with no ability to prove their position besides the vague resemblance, while minimalists would deny any evidence, however prominent it may be.

In any event, alleged similarities between parallel lexemes cannot serve as the sole evidence of lingual borrowing. Several remarkable and allegedly related similarities between Russian lexemes and Hebrew roots actually have no relationship, as the extant etymological information in both languages is sufficient to prove their lack of connection. For example, Ru. *kvashenij* (e.g., *kvashenaja kapusta* 'sauerkraut') is not related to Heb. *kavush* (e.g., *kruv kavush* 'sauerkraut'), since *kvashenij* derives from PIE *kwh$_2$et- "to ferment", while *kavuš* comes from the Semitic root k.b.š. "to press". The same with Ru. *shtat*(*sja*) 'to roam', clearly unrelated to Heb. *šotet* 'to wander', and many other examples of this sort. However, Sumerian lexicography is far from being satisfactorily delineated, and therefore it must be considered whether phonic similarity between Sumerian words to some Semitic roots or any other languages is enough to establish an etymological connection. The similarity between Sumerian dingir and Turkic *tengri* is indeed noteworthy, yet it is highly questionable if it provides a reliable etymological connection between Sumerian and the Turkic family. Many Sumerian words can also be

[185] For a summary of opinions, see Emelianov 2014 with literature.

associated with English, Russian, or any modern language. Nonetheless, no one will seriously associate Sumerian kuli ‘friend’ with Eng. *colleague* or kuš ‘skin’ with Ru. *koža*.

It is necessary, therefore, to locate a different way to detect the Semitic loanwords in Sumerian. Let us now consider the script - the only relic from antiquity that can be objectively studied. Unlike language, which is studied through etymology and comparative linguistics, the script is a source that is learned in its original context without external interference. Although Akkadian and Sumerian have been adequately deciphered, there is evidence that Akkadian roots do not completely correspond to the roots known from other Semitic languages.

Sometimes there is even a contradiction between the Semitic etymology and the script (MSL 8/2, p. 25).

uḫ	*še-lep-pu-u*$_2$
niĝ$_2$.bun$_2$ (KAxIM).na	MIN

Holma (1914, 156) interpreted *šeleppû* as ‘turtle’, based on the resemblance between this word and Ar. *slḥfah* ‘turtle’, and this has been the accepted translation (CAD Š/2, p. 271). However, close examination of the script shows uḫ ‘spittle’ and niĝ$_2$.bun$_2$.na ‘blown thing’. Taken together, these two entries suggest the meaning of this word was not turtle, but rather a toad.[186]

It is well-known that etymology in many cases is not identical between languages, specifically not in Semitic languages. This is particularly true of Akkadian which differs is in many aspects from the other Semitic languages. Etymologically related words are often not identical; they can be on a close semantic field (e.g., Akk. *amāru* ‘to see’ vs. Heb. *ʔmr* ‘to

[186] The same animal is interpreted as *bit-ra-mu* ‘speckled’ (Hrůša 2010, 399), probably referring to the unique skin of the toad. The word for ‘turtle’ seems to be bal-gi (Akk. *raqqu*, Iraqi Arabic *ragg*), mentioned in Ninurta and the Turtle (Alster 1972b), as a ‘good’ animal identified with Enki which fits figurative depictions in Mesopotamian art. On the other hand, niĝ$_2$.bun$_2$.na is mentioned in the fable The Heron and the Turtle (Gragg 1973), where is physical depiction may seem like a toad. The same animal is mentioned as being eaten (BAM 3, 248 iv. 25) which makes the toxic toad less likely, but consider the text is medical, one may see this passage as literary more than practical.

say'),[187] or reflect the exact opposite (e.g., Akk. *kūṣu* 'winter' vs. Heb. *kayiṣ* 'summer').[188] It is better to analyze lexemes in their context, and therefore to favor the script as a source over the Semitic etymology.[189] In this case, the script also helps to reconstruct *šeleppû* as originally **šelenpu*(*ḫ*), lit. 'puffer/puffed'. From here it can be shown that the Arabic word somehow changed and cannot be used as a reliable etymology for our purposes.[190]

4.5. Writing Loanwords

The method employed by a modern logographic-based script to represent loanwords could serve as an indication as to how it was done in the ancient world. The closest parallel to cuneiform script still in use today is the Japanese writing system. In the course of its nearly millennium-and-a-half lifetime, Japanese has borrowed many loanwords from the languages of cultures which came into contact with Japan. There are two general groups: ancient loanwords from neighboring languages, such as Korean or Sanskrit, and modern loanwords from Western languages interacting with Japanese since the early modern period, such as Portuguese, and later

[187] Albright (1954, 229 n. 47) suggested the original meaning of the root was 'to show', split at a later stage to 'to see' and 'to say'. See Dombrowski 1984, 37 n. 41 regarding literature. see also the recent Amorite-Akkadian phrasebook, showing the root in Amorite meant 'to say' (George and Krebernik 2022, 126-127). The same phenomenon occurs in modern languages, where etymology can be more easily reconstructed. E.g., Ru. *shvets* 'tailor' and Pol. *szewc* 'shoemaker', both derive from Proto-Slavic **šiti* 'to sew' (REW, III p. 383; Derksen 2008, 488). Other examples are more difficult to reconstruct, such as Eng. *orphan* and Ru. *rab* 'slave', both derive from PIE *h_3erb^h-, though the latter's meaning is not entirely agreed upon. See Melchert 2010, 185-187.

[188] The latter is well known in Semitic languages, first studied by Nöldeke 1910. Arabic shows a specific case of words with two opposite meanings, a phenomenon recognized by Arab grammarians as *iḍdad* (e.g., Ar. *jawn* 'black' *and* 'white'). This phenomenon exists also in western languages, e.g., Eng. *cleave* ('to split' *and* 'to adhere'), or words bearing the opposite meaning of their etymological origins, Eng. *egregious*, from Lat. *egregius* 'excellent'.

[189] Note that even modern languages see connection between the toad and the turtle (e.g., Ger. *Kröte* and *Schildkröte*, respectively).

[190] This may raise the question of how the Arabic word turned out to be 'turtle'.

German and English. As the methodology of borrowing appears not to change over time, for the sake of convenience, the more recognizable Western loanwords will be used as examples.

Some Japanese *kanji* characters (logograms), called *kokuji*, were invented in Japan for words that did not have a sign in China, but were required in Japan.[191] Loanwords did not receive new *kanji* characters, but were rather written phonetically to indicate the specific foreign word, or semi-logographically with existing *kanji* characters. Every word had to be written phonetically to indicate that this specific foreign word was written. Loanwords, therefore, are not just linguistically, but are also graphically distinct and easily recognized.

Original Japanese words are written with a limited number of signs. In some cases, even one sign represents multisyllabic words, e.g., 志 <kokorozashi> "will, ambition". In marked contrast, loanwords as a rule are all written phonetically. Currently, they are written in *katakana*, the Japanese simplified syllabary used for writing foreign words. But until the late 19th century, and in some official contexts even today, they were often written in *ateji*, which are *kanji* signs used on their phonetic values.[192] Writing *ateji* shows that traditional phonetic writing in Japan was often partially phonetic and only rarely "purely phonetic". In many cases, the signs are still somehow connected to their logographic meaning, even though the connection is artificial, as the written word is borrowed and certainly not related to the original sign in its role as a logogram. This process does make writing logical for scribes, and perhaps even helps them to memorize the correct spelling. The assemblage of *ateji* characters shows that pure phonetic spellings exist, but they are not the majority of loanwords written in *ateji*.

[191] Such as specific types of local trees or fish in Japan.
[192] This practice of phonetic writing resembles in many aspects the Old Japanese *man'yogana*. See Chapter Two.

Examples for phonetic writing are found in:

1. *kohi* ‘coffee’, written 珈琲 - a compound of 珈 <ka> ‘a jewel added to hair’ + 琲 <hi> ‘string of many jewels’.
2. *gasu* ‘gas’, written 瓦斯 - a compound of 瓦 <ga> ‘tile’ + 斯 <su> ‘this’.

Here the logograms are completely separated from the meaning of the word written and can be described as “phonetic”.

But other examples show that the logographic component, or the *semantic* value of the sign, is considered, and not the original pronunciation, that is to say, loanwords are written semi-logographically using existing logograms to create the new word.

1. *biru* ‘beer’, written 麦酒 - compound of 麦 <mugi> ‘barley’ + 酒 <sake> ‘liquor’
2. *tabako* ‘tobacco’, written 煙草 - compound of 煙 <kemuri> ‘smoke’ + 草 <kusa> ‘grass’

Here the combinations create the loanword, but they are composed of signs with similar semantic meanings. The original phonetic pronunciations of ‘barley’ and ‘liquor’ are of less importance, but their meaning makes sense, i.e., “barley liquor” is ‘beer’.

The most interesting type of *ateji* writing are signs with phono-semantic matching, meaning that the signs evoke both the pronunciation and semantic field of the original signs.

1. *kurabu* ‘club’, written 倶楽部, compound of 倶 <ku> ‘group of people’ + 楽 <ra[ku]> ‘to enjoy’ + 部 <bu> ‘department’.
2. *katarogu* ‘catalogue’, written 型録, compound of 型<kata> ‘type, model’ + 録 <roku> ‘record’.

There is no etymological connection between the Japanese words *kara* and *roku* to *catalogue*, but they sound similar, and their meaning is not far from that of the loanword.

This may seem merely anecdotal, but there is robust evidence for the practice of phono-semantic matching in Japanese. As a sociolinguistic phenomenon, it has been extensively discussed since it was first defined (Zuckermann 2003).[193] Modern Hebrew, for instance, has translated the English term *dubbing* as *dibuv* on the Semitic root d.b.b. 'to speak' (cf. Akk. *dabābu*), even though there is no etymological relationship between the two.[194] But Japanese has another aspect: the graphic, which may create a special case of phono-semantic matching.

It is difficult to project these terms back to the third millennium BCE and to determine how scribes then saw loanwords or approached the problem of writing them. Yet while modern suggestions may be speculative, it is reasonable due to the scriptural and language adoption parallels to suggest that ancient cuneiform and related languages treated the adoption of foreign words not much differently from how Japanese scribes approached loanwords in the early modern period. As a working hypothesis, let us postulate that borrowing into Sumerian was done similarly to the Japanese *ateji*.

In this sense, it is to be argued that Semitic loanwords in Sumerian could either be written phonetically, or semi-logographically. The latter method combined existing logograms to create a new word, whose source is non-Sumerian. Therefore, words written with a specific logogram (i.e., their original pictogram) will not be considered loanwords. Even so, this statement as it stands is problematic, and cannot at present be decisively proven.

[193] Examples exist in many languages. see for example Sapir and Zuckermann 2008.

[194] Other examples are *mekhona* for *machine*, based on biblical *mekhona* 'stand' (1 Kings 7:27), or *masekha* for *mask*, based on Biblical *masekha* 'molded image' (Exodus 32:4).

4.6. Semitic Loanwords in Sumerian

The earliest attested Semitic loanword in Sumerian is likely MAŠ-GAN$_2$ 'settlement', already attested in the Uruk archaic texts. Steinkeller (1995a, 704) notes: "If MAŠ-GAN$_2$ … is in fact a distinctive sign-group, we would find here both the earliest example of a purely syllabic/phonetic spelling and the earliest unequivocal occurrence of a Semitic loan-word (*maškanu*) in Sumerian".

If the theory posited above is correct, these two phenomena are intertwined, and cannot be separated. In fact, it is difficult to find archaic pictograms and logograms in general that may be suspected as loanwords.

But first, let us see how Semitic loanwords were written in Sumerian in practice. There are three types of writing which correspond to the Japanese example above. The first type is pure phonetic writing, where the signs had no relation to the written words besides their phonetic aspect.

1. DARI *dārû* 'eternal', written DA 'side' + URU 'city'
2. ḪAZIN *ḫaṣṣinnu* 'ax', written KU$_6$ 'fish' + ZI 'life' + IN 'straw'

Semi-logographic writing is the exact opposite, with signs that bear only a semantic connection to the written word, but sound different.

1. SAGI *šāqû* 'cup-bearer', written SILA$_3$ 'cup' + ŠU 'hand' + DU$_8$.[195]
2. IBILA *aplu* 'heir', written DUMU 'child + NITAḪ 'male'.

The third type is phono-semantic spelling matching between the semantic meaning of the sign and its phonetic value. Here, the examples should be presented carefully to avoid anecdotal evidence.

[195] The compound verb šu … du$_8$ appears to be a phonetic version of the verb šu … du$_3$ 'to hold', which may be attested as šu … du (Finkel 1980, 40 ii. 11) or šu … du$_8$ (Civil 1967, 28 i. 36).

In Sum. ragaba (Akk. *rākibu*) ‘runner’, the consistent spelling with ra_2(DU)-gaba may have been intentional, containing meaning apart from its phonetic value as /ra/.[196] It is difficult to escape the conclusion that this sign had a *semantic* importance due to its basic logographic meaning DU ‘to go’. It should be pointed out that the verb *rakābu* ‘to ride’ was not written with DU but with U_5(ḪU.SI), that is to say, the sign DU was not used here as a logogram, rather selected because of its value as /ra_2/ *and* its semantic proximity.

The same can be said about sa-gaz … ak *šaggašu* or šu-bal … ak *šupêltu* (Steinkeller 1989a, 156).[197] In other cases, the matching is not entirely clear, while others seemingly only offer partial matching. Other examples remain as open questions as to whether the spelling relates to the written word or not: Is there any meaning to PAŠEŠ *pašīšu* ‘priest’, being written PAP ‘first and foremost’ + ŠEŠ ‘brother’?[198] Why is MAŠGAN *maškanu* ‘settlement’ always written with GAN_2 ‘field’, and never GAN or GA-AN?

These questions are valid to many of the Semitic loanwords and cannot be easily answered. Some logograms are not easily interpreted in compliance with the rules presented above. The logogram LIBIR *labāru* ‘to last, (to be) old’ is written IGI.$EŠ_2$, which appears to be a legitimate logogram at first glance, but then one may wonder how IGI ‘eye’ and $EŠ_2$ ‘rope’ are related to LIBIR. It may be preferable to see this spelling as (semi-)phonetic lim-ĝir_{15}, though why these specific signs were joined together to compose the logogram LIBIR remains not entirely clear. However, it must be stated that to assume these signs were merely arbitrarily

[196] This is the common spelling, though it is also written phonetically in some cases with RA.

[197] Steinkeller explains that the Sumerian verb ak ‘to do’ was used as an auxiliary verb in Semitic borrowings; e.g., dam-ḫa-ra … ak, lit. ‘to do battle’.

[198] Note that ŠEŠ is also the sign for the city of Ur and its deity, the moon god, which may be noteworthy, given the earliest example of pa_4(PAP).šeš is attested in archaic Ur (UET 2, 27 rev. col. II, line 9). See also Krispijn 2004.

selected is inconsistent with how cuneiform operates. It is arguable that LIM *līm* 'thousand' had a semantic meaning in LIBIR, considering that *līm* originally meant 'many/much'.[199] The other component, ĝir$_{15}$ 'native' is a bit more problematic in our context. It may have been a homophone to gid$_2$ 'length', hence lit. 'much length'.[200] But the insistence on using the sign EŠ$_2$ and not BU (gid$_2$), suggests that the phonetic component was also important, hence the use of libir and not *libid. Either way, the logogram for LIBIR represents an example of a mixture between the logographic and phonetic aspects of the sign. It may be called "learned writing", "pseudo-logographic" or "pseudo-phonetic", but the best term for this phenomenon is I.J. Gelb's "logo-syllabic writing".

One of the difficult words to interpret this way is URU 'city', usually accepted as a Semitic loanword, with a specific logogram. The logogram for URU already appears in archaic Uruk (ZATU 597), but it is not certain that it stood for 'city' then (Michalowski 1993, 123). As Michalowski points out, the word 'city' at this point of writing may have been written with the sign UNU. If this is the case, the sign URU previously meant something else - only its *phonetic* value /ri/ or /ru/ led to its selection as the sign for 'city'.

On the other hand, though ALAN is outwardly similar to *ṣalmu*, it does not seem to be a Semitic loanword, since the specific logogram is attested already in archaic Uruk (ZATU 25), and its consistent reading /alan/ (de Maaijer and Jagersma 2003-2004, 354).[201]

[199] Corresponding to other Semitic languages (see AhW, p. 553).

[200] See CAD L suppl. *labiriš* 'for a long time'.

[201] In any event, initial dropping of the emphatic /ṣ/ also seems unlikely. See Emelianov 2014, 489.

4.7. Reading Indicators

Reading indicators are scribal instruments, that were employed since the earliest days of writing. One main type was used for signs, and another was used for words. The first was mostly employed in sign-groups, where a sign was accompanied by another (small) sign, sometimes called *mater lectionis*, to indicate the main sign's correct reading. For example, the sign PIRIG, when accompanied by a small ZA (PIRIGxZA) should be read AZ 'bear', or as a phonogram /az/. The other type was intended for words, i.e., logograms followed or preceded by another sign to indicate their reading, though they could stand by themselves for this reading. For example, the sign TUR, is often followed by DA to indicate its reading as $BANDA_3$ 'young', though, at least in theory, even without this indicator, TUR independently stands for $BANDA_3$. The sign DA, which frequently appears as a phonetic indicator for TUR, has become somewhat of a convention. As a result, some scholars transliterate the sign TUR in this case as BAN_3 to present this spelling as if it were purely phonetic, but this misses the semantic content of the sign, and is therefore unnecessary.[202]

The sign ZA in PIRIGxZA is not related to 'bear', nor DA in $BANDA_3^{DA}$ is related to 'young'. They can each therefore be considered "phonetic indicators". But the phenomenon in general also contains semantic indicators, usually known in Assyriology as "classifiers" or "determinatives". Classifiers function the same as phonetic indicators do. They indicate the correct reading of the main sign but accomplishing this by evincing its *semantic* field. For example, ^{DINGIR}IM indicates reading the sign IM as 'the storm god' and not /im/.

[202] This is part of the tendency to read logograms as if they were written phonetically, such as *en*$_5$-*si* instead of $ENSI_2$ (PA.TE.SI), or *pu*$_3$-*zur*$_8$ instead of $PUZUR_4$(KA.GAN@t+ŠA).

Phonetic indicators are phonograms that indicate how to read adjacent logograms, whereas semantic indicators are logograms indicating how to read adjacent phonograms. Sometimes signs are accompanied by both semantic and phonetic indicators: $^{DINGIR}IM^{UB}$; the first sign indicates the semantic field, i.e., name of a deity, while the other sign indicates the phonetic reading /teššub/ rather than /iškur/ or /adad/.[203]

Some signs stand for multiple readings either by themselves or accompanied by phonetic or semantic indicators, although the basic sign stands for all the sub-signs of its group.

The sign KA stands for kag 'mouth', inim 'word' or dug_4 'to speak'; it can also be accompanied by phonetic indicators: nundun (KAxNUN)[204] 'lip' and eme (KAxME) 'tongue', or by semantic indicators: gu_7 (KAxNINDA) 'to eat', naĝ (KAxA) 'to drink' or immin (KAxUD) 'thirst'.[205] But in fact, indicators are not crucial for the reading; KA on its own should stand for the readings above: nundun, eme, gu_7, naĝ and immin. The standard readings have become conventional, but one should find, at least in theory, examples of KA for eme (read eme_x) or naĝ (read $naĝ_x$).[206]

The essence of the term "indicators" as a scribal phenomenon and as a practical tool, both in writing signs and words should be examined. If these are all functional tools indicating reading, why is the goddess Lisin always written $NE^{SI}{}_4$ to indicate /lisin/, and never *NE^{SI}? Since SI_4 is nothing but a variant of SI itself (SI+*gunû*), one must wonder why the basic sign SI was not used for such a simple purpose. Can we see SI_4 in this context as a phonetic indicator in the

[203] See examples in Schwemer 2001, 84.

[204] NUN is a gloss indicating the reading nundun, regardless of its meaning as a logogram for 'prince'.

[205] UD (more correctly: $ḫad_2$ 'dry') is a gloss indicating the semantic field, lit. 'dry-mouth', hence immin 'thirst'.

[206] See DIM for MUN (Gadd and Kramer 1963, t. 44 l. 20) instead of standard DIMxŠE or DIMxKUR; ŠE or KUR being semantic indicators, but they are by no means crucial for the reading. See below 4.10.1.

basic meaning of the word? Or should we perhaps seek out the reasons as to why the sign for 'red' was used as a phonetic indicator for this goddess? The obvious conclusion may be that SI_4 is not a "phonetic indicator" in the spelling of Lisin's name, but a "phono-semantic indicator". This does not prove that Lisin was necessarily 'red', but rather that the scribes who used the sign SI_4 as a reading indicator for Lisin were not unaware of its semantic meanings and that they used it on purpose.[207] This can also be seen in the example above of the sign KA: $uš_{11}$ ($KAxUŠ_2$) 'poison' and sum_4 (KAxSA) 'beard' should be seen as written with phono-semantic indicators, though KA by itself should stand for $uš_{11}$ and sum_4.[208]

Therefore, reading indicators are to be categorized into three types: phonetic indicators, semantic indicators (classifiers) and phono-semantic indicators, which combine both aspects (Table 11).

Table 11. Reading Indicators

	Logogram	Word
Phonetic indicator	KAxNUN = nundun 'lip'	$BANDA_3^{DA}$ = banda
Semantic indicator	KAxUD = immin 'thirst'	^{d}IM = iškur
Phono-semantic writing	KI.NE[209] = gunni 'stove'	NE^{SI}_4 = lisin

Some logograms contain an indicator that functions as a "multi-tasking" indicator for different readings, e.g., LAGABxIM can be read as bún, when IM ('wind') is a semantic indicator, or dilim 'bowl'; IM being a phonetic indicator, and even $dilim_3$ 'oven' when IM is a phono-semantic indicator.[210]

[207] For the connection of this goddess with fire, see Geller 2016, 310. See a similar case of the god Gibil, written BIL.GI, but should be interpreted as NE^{GI}, considering this deity's role as the god of fire.

[208] $UŠ_2$ 'death' functions both as a phonetic indicator for /uš/ and as a semantic indicator: lit. mouth-death = 'poison'; SA 'net' indicates the logogram's pronunciation /sum/ but also provides semantic information: lit. mouth-net = 'beard'. The latter's interpretation is confirmed by the ED form KAxKID lit. 'mouth-lattice' = 'beard'. See Steinkeller and Postgate 1992, 19-20.

[209] The spelling KI.NE may be interpreted as purely logographic, ki-izi 'place of fire' or phonetic for gunni, which must have been a Semitic loanword (Akk. *kinūnu*, Ar. *kānun*).

[210] Considering the bellows is part of the oven.

This technique was not only limited to the scribal tradition in the south, but also existed in the so-called "Kišite" tradition, which was influenced by Semitic well before the OB orthographic reform. A typical example can be seen in ABxAŠ$_2$ *šibūtu* 'witness', a common Kišite logogram, written with the phono-semantic indicator AŠ$_2$ which stands for both *ṣibūtu* 'wish, desire' and *arratu* 'curse'.[211] The former provides the phonetic information, *ṣibūtu* for *šibūtu*, while the other conveys a semantic content of 'curse' for those who bear false witness.[212]

4.8. A New Diagnosis of Cuneiform Development

True phonetic writing is when the phonetic value of the character is completely disconnected from the physical shape of the character. The practice of systematic phonetic writing is to be found only in alphabetic writing, where the characters completely lost their connection to their pictographic origins. The English word *table* is written t-a-b-l-e, separately from the original meaning of <t> 'bow', <a> 'ox', <b> 'house', <l> 'goad' and <e> 'praise'. The spelling *table* merely denotes a piece of furniture with a flat top and one or more legs; it has nothing whatsoever to do with 'bow-ox-house-goad-praise'.

This is not the case, however, with logo-syllabic systems, such as the Japanese writing system or the cuneiform script. Logo-phonetic (or phono-semantic) spelling does have the element of phoneticity, but by no means can it be separated from the semantic meaning of the sign itself. This appears to be the original phonetic writing in cuneiform, starting from the writing of loanwords. The concept of phonetic writing, let alone "purely" phonetic writing, as a

[211] See de Maaijer and Jagersma (1997-1998, 284) who wonder if these two meanings originate from the same word.

[212] The Kišitie scribal tradition is a broad and complicated topic which cannot be discussed in detail in this work. A further study will have to address its aspects and dimensions vis-à-vis the scribal tradition in southern Mesopotamia.

scribal practice is a late phenomenon, arguably unknown to the original use of cuneiform. While one cannot safely argue that phonetic writing appears in cuneiform solely due to contact with Semitic speakers and borrowed Semitic lexemes - it is still necessary to regard this event in its chronological and historical context and consider whether it was an important catalyst for this innovation in cuneiform writing (Michalowski 2004).

One might observe cuneiform development as a linear process with three phases: logographic, logo-phonetic, and phonetic, but this scheme is not entirely accurate. The existence of pure phonetic spelling in cuneiform's early stages cannot be ruled out; nor can the sporadic recorded evidence, especially in the form of phonetic indicators, be denied. We should be careful of making any assumptions about the archaic writing, as it is very difficult to trace the reasons for choosing one sign over another, when even the identification of the signs themselves is disputed. The development of cuneiform should be seen, therefore, as logographic-*oriented* and then logo-syllabic-*oriented*.

Here we should highlight the difference between the *use* of cuneiform for specific purposes and *writing* cuneiform as a practice to convey information in general. Scribes writing inflectional endings or grammatical particles could use pure phonetic spellings, but in writing words or unique terms they tended to use a more logographic spelling.

As outlined above, the Japanese writing system has three different scripts, for different purposes: *kanji* is used for words with meaning, while *hiragana* is employed for grammatical particles and *katakana* for foreign words. Cuneiform, on the other hand, is one script, used for all purposes, but operates on the same rules as Japanese. When the purpose is to write grammatical patterns, it operates like *hiragana* and employs pure phonetic writing; when the purpose is writing words, especially words with further meaning and importance, it operates like *kanji*.

Generally speaking, we see the writing technique changes according to the content and its meaning. This will be referred to henceforth as the logo-syllabic scale, in which (1) represents pure logographic writing and (10) is pure syllabic writing. Pure logographic writing entails the use of signs with zero phonetic content, while pure phonetic writing means using signs with zero semantic content. This scale does not shift in parallel to the chronology of cuneiform's lifetime, as its "needle" moves on the scale back and forth depending on many variables such as textual genres, physical contexts, and others which still require interpretation. At the same time, we do see some correspondence between the logo-syllabic scale and the timeline. There is a tendency towards phoneticization, especially when scribal innovations become traditions with established conventions.

Conventions present what may be viewed as a paradox. On one hand, scribes insisted on using the spelling they were trained to write, even though they were not necessarily aware of the reasons for this orthography. For that very reason, they allowed themselves occasional deviations from convention. Scribes of the innovative generation did not do so, because they were aware that the orthography had another meaning besides the phonetic utterance of the sign. As a working hypothesis, let us say that though the needle goes back and forth on the logo-syllabic scale, as a general rule of writing, there is a tendency to seek the ideal (5).

Let us define the historical minute before Uruk IV as (1) and the minute after the transition from cuneiform writing to the alphabet as (10). Here are the two ends of this scale: pure and systematic logographic writing (1) functioned with cuneiform signs devoid of any phonetic content. These only indicated the drawing in the pictogram and perhaps also its

semantic environment. Pure and systematic phonetic writing (10) appears only with the advent of the alphabet, in which English *table* is entirely unrelated to 'bow-ox-house-goad-praise'.[213]

The earliest beginnings of archaic Uruk (or even before) can be described as (1). At this point, it is doubtful if it even existed in the textual record, as signs had no readings at all. For example, ZATU 88 was not /dug/, but VESSEL, ZATU 219 was not /alim/, but AUROCHS, and ZATU 271 was not /ka/, but HEAD.[214] However, Steinkeller (1995) has shown that archaic Uruk was never completely logographic, because phonetic indicators did exist in some logograms, that is to say, not entirely (1) on our scale.[215] ZATU 38 was not only BEAR, but also /az/, ZATU 215 was not FIRE, but /gibil$_6$/ and ZATU 360 was not TIARA, but /men/.

4.9. Writing Names of Gods

4.9.1. Nergal

Over thirty years ago, P. Steinkeller and W. G. Lambert famously argued about how to read the name of the god Nergal (Steinkeller 1987a; 1990, Lambert 1990a; 1990b).[216] The point of contention was how to perceive the spelling; either purely phonetic, as Lambert favored, ^{d}Ne$_3$-eri$_{11}$-gal; or as logographic accompanied by phonetic indicators, as Steinkeller suggested, ^{d}KIŠ-$^{iri_{11}\text{-}gal}$. One of Steinkeller's main arguments was that the first sign written was not ĜIR$_3$, as is still

[213] And it must be said right away that a distinction must be made between 'phonetic writing' and 'phonetic script'. Gelb had already observed that *scripts* are almost never phonetic, but phonemic. Some alphabet scripts, at least in the past, kept even logographic elements, such as the Aramaic heterograms in Persian. The term 'phonetic' is used here only to denote the practice of disconnection between the meaning of the alphabetic letter itself (which is by and large nothing) and the information it delivers in different contexts.

[214] For discussion regarding this phase in cuneiform, see Michalowski 1993.

[215] Unless it is proven that there were two phases in Uruk IV, and the first was purely logographic.

[216] See Steinkeller's final remarks in Steinkeller 2004b.

erroneously transliterated by many scholars, but rather KIŠ, and that in any case, the phonetic value /ne$_3$/ belongs to neither of them, but to PIRIG.[217]

While a later assessment (Wiggermann 1999, 215) sided with Steinkeller, yet one briefly mentioned point has not received enough attention in the research. Steinkeller (ibid. 55-56), wondered whether the phonetic complements iri$_{11}$-gal, had anything to do with the logogram urugal (Akk. *qabru*) 'grave' which is somehow related to Nergal, the god of death. He noted that the question was what came first, the phonetic complements or the logogram. His personal suggestion was that the logogram urugal may have been "a learned term, which was derived from the archaic spelling of Nergal's name" (ibid.).

The key to solving this problem is the understanding that, particularly in the early stages of writing, and of writing such significant words as the names of deities, there is no *real* concept of "phonetic writing". Spellings of deities' names are either logographic or logo-phonetic, and only rarely phonetic.[218] It is certainly true that when the sign EN is used for the syllable /en/, "at the end of certain verbal forms", to use Lambert's example (1990a, 46), it is phonetic and unrelated to EN 'lord', but this fact was never doubted. The question is not whether there is phonetic *use* of cuneiform signs for some specific required purposes, but whether *writing* as a whole, as a learned practice of professional scribes, as a tool for conveying lingual information, consistently stands apart from the pictorial or semantic meaning of the written signs as is the case with alphabet.

Regarding the sign EN; is this *purely* phonetic when it is used as an indicator in the sign MEN (ĜA$_2$xEN) 'tiara', or does it perhaps carry further information, semantic content, separate

[217] The signs coalesced only in the later OB period, but the original writing is KIŠ. See 4.10.1.

[218] Notably Dagan, always written *da-gan*, and even *da-ga-an* (e.g., MDP 28, 524, 6, Sargonic).

from its basic phonetic reading of /en/? The answer to this question is not as simple as it may initially seem. It is difficult to get into the minds of ancient scribes and accurately reconstruct their methods and habits. But the current evidence is too strong to ignore the fact that cuneiform writing contains many layers of information and meaning. Whether it is in word plays, double entendres, learned readings, homophones, homographs, or cultural and religious references, the evidence shows that cuneiform was not simply a tool to convey lingual information. Therefore, the purely phonetic writing of the name of Nergal would have been *Ni-ir-ga-al or other variations, such as *ne-ri-gal and *nu-ri-gal$_2$ and so on. In this case, we could have argued that Nergal's name is spelled with no connection between the script and the word; that is to say, it is purely phonetic writing. Consistent spellings suggest that signs had further meaning, which begs the question: why were they chosen over other signs with similar phonetic values? Even if these signs had the phonetic values of the given word, the consistent spelling still requires explanation. Let us, for the sake of the argument, accept Lambert's proposal that KIŠ indeed had the value /ne$_3$/, and therefore, KIŠ.UNU.GAL can be transliterated as *ne$_3$-iri$_{11}$-gal*.[219] This would not make the writing of Nergal's name purely phonetic, because these three signs still contain semantic content embedded in this specific spelling. The consistent writing of Nergal suggests that these three signs, even if read **ne$_3$-iri$_{11}$-gal*, are not disconnected from their original semantic meaning. In this case, the sequence of these three signs cannot be considered merely "phonetic" in the proper sense of the word. We should keep in mind that the *real* spelling of Nergal was neither *ne$_3$-iri$_{11}$-gal*, nor KIŠ$^{\text{-iri}_{11}\text{-gal}}$, but simply . Modern scholars are entitled to transliterate these signs as they please; yet this will not change the fact that these three signs had

[219] Note that Lambert (1990a, 43) accepted Steinkeller's basic point about the sign being KIŠ and not ĜIR$_3$ but insisted on the reading /ne$_3$/ for this sign.

a specific meaning in the context of writing the name of Nergal.[220] Furthermore, the allegedly phonetic indicators must be explained, especially the phonogram iri_{11}(UNU), a rare phonetic value that was used almost solely for the name of Nergal. In response to Steinkeller's question as to what came first, the phonetic complements or the logogram, the answer may well be neither. It is perfectly reasonable and even logical to assume that the signs iri_{11}-gal were selected as phonetic indicators precisely because of their logographic capacity. At the same time, these two signs composed the logogram urugal, precisely because of their phonetic value; especially the value iri_{11} of the sign UNU. The phonetic aspect of the sign cannot be separated from its semantic environment.

Delineating the reasons this specific sign UNU was used to write the name Nergal as /iri_{11}/ is a Mesopotamian religion issue beyond the scope of the present discussion. The important point here is that in order to understand the reasons for certain spellings, we must consider the meaning of the word. No philological research can be limited to the language; it must also consider the script. To illustrate the methodology suggested thereof, two case studies will be discussed below.

4.9.2. Ištar

The goddess Inana/Ištar appears already in the archaic Uruk texts, written in the logogram $MUŠ_3$ (ZATU 374). The first syllabic spellings for Semitic Ištar appear in all ED III important sites, such as Fara, Abu-Salabikh and Ebla, and slightly later also ED Nippur and Pre-Sargonic Mari. W. G. Lambert (1985, 536 n. 24) documented the early attestations and noted that the earliest

[220] Steinkeller (2004b) provides two reasons for the connection between KIŠ (originally ALIM) and the god Nergal: The animal depicted, aurochs, is "a fitting metaphoric image of the god of death, war, and destruction", and the translation of ALIM to Akkadian *kabtu* fits one of Nergal's epithets.

spelling was *aš-tar*$_2$, but the sign AŠ, though mostly horizontal is sometimes diagonal or vertical (DIŠ). Later in Ur III, the spelling changes to U+DAR, a spelling, already attested at Mari, that would be extensively used in the OB period.[221] Lambert tried to explain the different spellings, by comparing the phonetic spellings with documentation of this goddess in other languages, such as Hebrew, Phoenician and Greek.

Much has been written about Ištar, her relationship with the West Semitic deity ʕaṯtar, and the obscure etymologies of both.[222] The only noted attempt to analyze the root has been a questionable proposal by Krebernik (1983, 31) who suggested the Semitic root *ʕṯr* 'reich sein'. This dissertation's primary argument is that the graphic point of view must lead-off any study or analysis of Ištar's origins, considering first and foremost the spelling of the deity's name and the possible reasons for this choice. Early documentation shows consistent spellings of AŠ.DAR or DIŠ.DAR and slightly later U.DAR. These may all have belonged to one single spelling, only changed for paleographic reasons. But even if we assume these are three separate spellings, they are usually transliterated as *eš*$_{18}$(U)-*tar*$_2$ or *eš*$_4$(DIŠ)-*tar*$_2$. These transliterations are not justified, as they miss a crucial aspect of reading cuneiform.[223] There appears to be a tendency among modern scholars to assist the ancient records in matching the expected phonetic form. We must look at these examples of the written name of Ištar, as neither logographic nor phonetic.

[221] It should also be noted that the early attestations are all written without the classifier for deities, a phenomenon seen in the later OB period with Amorite gods.

[222] See recently Steinkeller 2021a, 260 n. 6.

[223] One can find levels of absurdity in modern publications such as assigning infinite readings, (e.g., /aš$_{10}$/ or /uš$_9$/ for DIŠ), to the point where there is a feeling that the written sign has no more meaning and every sign ever recorded will automatically be assigned the same phonetic value in order to match the requested word and to create an unnecessary sense of uniformity.

When compared with the consistency of DAR, the variable spellings of the first sign (AŠ, DIŠ and U) raise questions about the meaning of this orthography.[224] If the analysis presented here is correct, we should perceive the early spellings as ^{AŠ}DAR, ^{DIŠ}DAR, and ^{U}DAR, when AŠ, the earliest example and the only certain reading, is a phonetic indicator of DAR - Ištar. For now, it is difficult to assess whether the other two are merely paleographic development of the first, or also phonetic indicators by themselves, i.e., $^{(D)IŠ}$DAR and ^{ŠUŠ_4}DAR, respectively. As emphasized above, this is not logographic writing: although DAR does offer phonetic information, but at the same time, it is also not "purely phonetic". The sign DAR was not chosen by chance, but with a clear awareness of its semantic meaning as it related to the written word.

What, then is DAR, and how is it related to Ištar? The sign appears already in the Uruk archaic texts, showing a bird with *gunû* lines on it, interpreted as 'colorful bird' (Deimel 1922, 9). It is analyzed in modern transliteration as ḪU+*gunû* and read either DAR or GUN_3.[225]

Let us assume that DAR in archaic Uruk only meant 'colorful bird' of no particular importance, i.e., a specific object that was in the temple's use or something of this sort. During the third millennium the sign stands for either dar 'to split' or gun_3 'to be colorful'.

If writing the name of Ištar with DAR had any meaning, as suggested here, one must wonder if this goddess had anything to do with colors, birds, or both, i.e., Ištar is 'the colorful bird'.[226] This is a complicated question more within the remit of Mesopotamian religion studies.

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[224] It is possible that the change between AŠ and DIŠ is paleographic, but as Lambert points out, OB Ea shows (MSL 14, p. 259) both options are possible.

[225] M. W. Green identified two separate forms: one regular, and one with a wedge or two added, which in a sense look like a phonetic indicator. The basic ḪU+*gunû* is transliterated GUN_3 (ZATU 245), while the other, with the alleged phonetic indicator, is DAR (ZATU 69). Green was not decisive about the phonetic indicator, noting that it was either AŠ, TAB or TAR.

[226] Either way, one can see a graphic play on the sign DAR, with its phonetic reading /dar/ or /tar/ for the name of Ištar and its semantic meaning *gunû* 'colorful'. This can be seen in the reading u-gu-nu for U.DAR, and the sign GAŠAN, itself written U+*gunû*, both stand for Ištar (MSL 14, p. 259, 285).

While there is no decisive evidence for Ištar as 'the colorful bird', this goddess is definitely related to both colors and birds. The bird forms of Ištar are represented in at least two different birds, *eššebbu*, probably 'owl' (Steinkeller 2022, 17), and the *girgilu* bird (CAD G, p. 86). Ištar is also associated with the combination of red/carnelian and blue/lapis lazuli which also represents specific aspects of her personality (Barrett 2007). Ištar's temple at the court of Mari, the e_2.gun_3.a 'the colored house' (George 1993, 97) is clear evidence of the connection between this deity and colorfulness. The simile of bird is also mentioned in a reference to Ištar in The Descent of Ištar myth (l. 10) and Gilgameš (Tab. VII, l. 189).

As for a 'colorful bird', there is a reference in the Epic of Gilgameš for *allannu*, the colorful (*bitrum*) bird, translated as either 'hoopoe' or 'roller'. The *allannu*-bird, however, is not exactly Ištar, but Dumuzi who was hurt by Ištar. It is possible that the aspect of a 'colorful bird' originally represented Ištar itself and was only later associated with Dumuzi, but the evidence, especially in the early periods, is too scant to be definite.

The best evidence for Ištar as a colorful bird (or 'the colorful bird') can be found in a recently published OB love poem (George 2010, 50-53). Unlike the SB Gilgameš, this text depicts the *allannu*-bird as a female. Her lover is referred to as *na-ṭi-il šu-na-tim* 'dreamer of dreams', which seems, at least at first glance, to be a reference to Dumuzi, the dreamer.[227] If correct, this could be first true reference for Ištar as the *allannu*-bird, that is to say, the colorful bird.[228]

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[227] For the myth "Dumuzi's Dream" (with other references to Ištar as a bird), see Alster 1972a.

[228] The text mentions Ištar in l. 16, but the line is too fragmentary to understand what it says.

But all this evidence is mentioned solely to bolster the argument that signs are never used randomly, and at least in the early periods, they always had semantic meaning. Even without definitive evidence that Ištar was related somehow to colors, to birds or to 'the colorful bird', the argument presented here is that Ištar *must* be related to something in the semantic field of these concepts. Otherwise, one will have to explain why the name of Ištar was consistently written with the sign DAR 'colorful bird'.[229] Simply identifying Ištar with 'colorful bird' is not innovative at all; on the contrary, it is a conservative approach that strictly adheres to the script and the meaning of the archaic pictograms.[230]

The conclusion drawn here is that the spelling, AŠ.DAR is neither truly syllabic nor logographic, but *logo-syllabic*.

4.9.3. Sîn

The earliest attestation of this deity is in archaic Uruk, written ŠEŠ^{NA} (ZATU 388), NA being a phonetic indicator for Nanna. Slightly later, the spelling changes to ŠEŠ.KI, probably due to paleographic reasons, as the sign KI looks almost the same as NA (Szarzyńska 1987-1988, 12-13). Archaic Uruk may yield the earliest example of the well-known spelling EN.ZU for Sîn, though it is yet unconfirmed (Krebernik 1993-1997). The well-known spelling with a divine classifier (^{d}EN.ZU) is attested at Fara (Cavigneaux 2020, 244 obv. v. 5) and Abu-Salabikh

[229] Such as proving that the sign DAR is not 'colorful bird' or connecting Ištar to the verb dar 'to split', which technically can also be related to Ištar.

[230] Whether Ištar is indeed related to 'colorful bird' or not is beyond the scope of this study, and must be either accepted or dismissed in a further examination within the framework of Mesopotamian religion study.

(Biggs 1974, no. 41 ii. 7), and the earliest phonetic writing is found in Ebla vocabulary: *su₂-i-nu*.[231] The etymology of Sîn is unclear, and the logographic writing is not helpful in this case.[232]

One of the epithets of Sîn is 'the pregnant cow', a clear pun between *arḫu* A 'moon' and *arḫu* B 'cow' (CAD A2, p. 259, 263). But there is another *arḫu*, listed in the CAD as *arḫu* C 'half-brick' (ibid. 264).[233] The logogram to this word is SIG$_4$ which is the same logogram for the name of the third month in the Mesopotamian calendar, *Simānu*, known in Hebrew as *Sivan*. Is it coincidental that the month named Simānu, so similar to the word Sîn, is written with the sign SIG$_4$, also the sign used for *arḫu* 'half-brick', a homophone of *arḫu* 'moon'? Is it possible that *Simānu* is the month of Sîn? The answer, at least in Assyria, is yes. It is seen in a passage from a *lipšur* litany (Wiseman 1969, 177)

itu.sig$_4$.ga. *lip-šur ša$_2$* ^{d}30 DUMU *reš-ti-e ša$_2$* ^{d}BAD

'May the month Sivan, of Sin, foremost son of Enlil, absolve'

A similar reference mentioning Sîn as the son of Enlil can be found in Sargon's inscription (Frame 2021, 229) -

i-na ^{ITI}*ṣi-i-taš* ITI *bi-in* ^{d}DAR$_3$.GAL KUD-*is* EŠ.BAR-*e mu-šak-lim ṣa-ad-di* ^{d}ŠEŠ.KI AN-*e* KI-*tim qar-rad* DINGIR.MEŠ ^{d}EN.ZU *ša i-na ši-mat* ^{d}*a-nim* ^{d}EN.LIL$_2$ *u$_3$* ^{d}*e$_2$-a* ^{d}*nin-ši-ku$_3$ a-na la-ba-an* SIG$_4$.MEŠ *e-peš* URU *u$_3$* E$_2$ ITI ^{d}SIG$_4$ *na-bu-u$_2$* MU-*šu…*

In the month Ṣitaš (III) - the month of the son of the god Daragal, the one who renders decisions (and) reveals (ominous) signs, the divine light of heaven and netherworld, the hero of the gods, the god Sîn - which by the decree of the gods Anu, Enlil, and prince Ea was called the month of the god Kulla, (the month appropriate) for making (and) building citi(es) and house(s)…

[231] ^{d}EN.ZI = *su$_2$-i-nu*; ^{d}EN.ZU = *su$_2$-*^{r}*i*^{1}-[*nu*] (Pettinato 1982, no. 799a, 799b).

[232] Krebernik (1993-1997) notes that EN.ZI, the other logographic writing from the Ebla vocabulary cannot be interpreted as 'the right lord', as it must have been a folk etymology.

[233] Cf. Heb. *ariakh*, first attested in Mishnaic Hebrew.

The god Kulla (^{d}SIG, lit. 'the brick-god'), a minor deity whose identity is not well documented, is mentioned in the bilingual Astrolabe B, as follows (Kolev 2013, 154-155) -

> 26. iti.sig$_4$ mul.gu$_3$.an.na aga an.na.ke$_4$ 27. mul bi KAxNE ba.an.sa$_2$ 28. iti u$_3$.šub lugal.ke$_4$ 29. lugal u$_3$.šub sig$_4$ KID 30. kur.kur e$_2$.ne.ne mu.un.du$_3$.a 31. iti gul.la kalam.ma.ke$_4$ 32. ITI.SIG$_4$ *is-le-e a-gi* ^{d}*a-nim* 33. [MU]L BI ^{d}BIL.GI *ša-nin* 34. ITI *na-al-ba-an* LUGAL 35. LUGAL *na-al-ba-na i-la-bi-in* 36. KUR.MEŠ E$_2$.MEŠ-*ši-na ip-pu-šu$_2$* 37. ITI *kul$_2$-la ša ma-a-tim*
>
> *"Brick": Bull of Heaven, crown of An. That star equals fire (in brightness). Month of the king's brick-mould. The king places the brick in the mould, all lands build their houses. Month of Kulla of the land. Simānu: Jaw of the Bull, crown of Anu. That star equals Girru. Month of the king's brick-mould. The king moulds the brick, the lands build their houses. Month of Kulla of the Land.*

The references to the moon god are clear, but the relationship between Sîn and Kulla is not explicit. Could Kulla be the terrestrial aspect of Sîn, or even his epitome on Earth? The answer to this question is beyond the scope of this work. Nevertheless, it seems likely that the word Sîn and Simānu derive from the same origins, unless we have a case of folk-etymology.

Even determining the etymology of *Simānu* is not an easy task. It may tentatively be attributed to *šamātu* 'to mark'. This seems at first glance related to be related to Heb. *smn* 'to mark', but the Hebrew dictionary is not conclusive about its etymology and suggests Greek origins (σῆμα 'to mark'). Despite this, a Semitic origin of the Greek word itself cannot be excluded.[234] Either way, the multiple spellings of Sîn with all vocalic possibilities raise the suspicion that the word Sîn may have been originally non-Semitic.[235]

Finding a Sumerian etymology for Sîn, if this name was indeed Sumerian, is a near-impossible task. Due to the various spellings and the dubious relationship with Simānu, one may

[234] Several Greek words are well-known as Semitic loanwords, e.g., χρυσός 'gold' from Semitic *ḫrṣ* (e.g., Akk. *ḫurāṣum*).

[235] Such as OA *si$_2$-in*, *su$_2$-in*, *su$_2$-en*, Ugarit *si$_2$-ni* and *sa$_3$-an*, and the rendition of Sîn-aḫḫe-erib in Gr. Σαναχάριβος and Masoretic Bible *Sanheriv*.

reconstruct his name back in its Sumerian rendition as /suwun/ or /sumun/. Considering that sumun 'cow' (also read sun_2) is an animal associated with Sîn, it is not particularly far-fetched to reconstruct Sîn's name in this phonetic environment. It may also have originally been sumun 'old', a pun on the word sumun 'cow', the same way *arḫu* 'moon' and *arḫu* 'cow' correspond in Akkadian. Either way, the best method of investigating this question is to examine first the archaic signs for sun_2 (GUL, ZATU 242) and sumun (TIL, ZATU 644).[236] But in light of this discussion, the spelling EN.ZU and EN.ZI cannot be perceived as logographic in the proper sense, because both also deliver phonetic information. It is neither phonetic writing, nor logographic, and therefore again the best term to use for this spelling is *logo-syllabic*.

4.9.4. Marduk

The same can be said about the spelling AMAR.UTU for Marduk. It is not logographic, because Marduk was never "the calf of Šamaš", nor did he have anything to do with calves or with the Sun god, but is also not phonetic. It can ostensibly be read phonetically, mar_2(AMAR)-duk_x(UD = dag_2), but this will miss the original orthography. The spelling of Marduk was originally neither AMAR.UTU nor mar_2-duk_x, but only . It conveys phonetic information, playing on the real pronunciation of this god, but at the same time keeps its allegedly logographic content. Marduk's spelling cannot be described as neither wholly "logographic", nor "phonetic". Hence, it might be more properly referred to as "phono-semantic" or "logo-syllabic".

To summarize the problem of logographic versus phonetic writing, it can be argued that just like KIŠ.UNU.GAL, neither AŠ.DAR is phonetic, nor are EN.ZU or AMAR.UTU

[236] Contrary to Green who identified this reading in ZATU 606, see Steinkeller 1995a, 711. For further discussion regarding the sign and its readings, see Steinkeller 1981b.

logographic. They are all logo-syllabic; each contains both semantic and phonetic information, two inseparable aspects of the cuneiform writing system.

4.10. Towards the OB Orthographic Reform

The contact between Sumerian and Semitic languages takes on a new form following the political changes that take place in Mesopotamia in the last third of the third millennium BC. The rise of the Akkadian Empire also marks the accompanying rise of the local Semitic dialect of Akkade and its surroundings. This is now justifiably called the Akkadian language, and it gradually transforms into the dominant language of Mesopotamia. Although Sumerian completely disappeared only a few centuries later, giving way to Akkadian, these linguistic changes begin to be registered in script as early as during the Akkadian Empire, and even more vigorously from the onset of the second millennium BCE and thereafter. Two graphic phenomena will be discussed in this context, the replacement of sign readings and the so-called lexical re-borrowing.

4.10.1. Orthographic Changes in Signs

Throughout the lifetime of cuneiform in Mesopotamia, some logograms saw orthographic changes, either in their accompanying indicators or in their main reading. The name of Nanna was written ŠEŠ.NA in archaic Uruk, but later changed to ŠEŠ.KI; Nergal was written with KIŠ/ALIM, later changed to ĜIR$_3$, and specific signs, such as MUN changed from DIMxŠE to DIMxKUR[237], GUN$_3$ from ḪU+*gunû* to SI+*gunû*, SUM$_4$ from KAxKID to KAxSA, and GURUM$_2$ from IGI.GAR to IGI.ERIN$_2$, among others. The change from DIMxŠE to DIMxKUR

[237] Archaic MUN was written DIM+*gunû* (ZATU 368b; Steinkeller 1995a, 704).

appears to be paleographic, but the change from KAxKID to KAxSA may have been intended to add the phonetic information of /sum/, and the change from ḪU+*gunû* to SI+*gunû* may have had even a deeper meaning.[238]

A specific phenomenon that will be discussed is the change in the orthography of signs due to the contact between Sumerian and Semitic/Akkadian. This occurred in tandem with the rise of Akkadian and the subsequent switch, in Mesopotamian scribal schools, from Sumerian-based interpretation of signs to an Akkadian-based approach. Each of these developments and changes ushered in the orthographic reform of the early second millennium BCE.

4.10.1.1. UG

The sign UG is already attested in archaic Uruk (ZATU 428).[239] It is written PIRIGxSU, down to the end of the 3rd millennium, but starting in the second millennium, its spelling permanently changes to PIRIGxUD.

Three questions should be asked:

1) What is UG?

2) Why was its logogram written this way in the third millennium BCE?

3) Why was it changed in the early OB period?

[238] Bearing in mind that SI+*gunû* is originally SI_4 'red', then merging the meanings 'red' and 'colorful' may have been conceptual (perhaps 'colorful' was basically considered 'red'), or the emerge was due to the phonic resemblance between $DARA_4$ 'red' and DAR, the basic reading of GUN_3. Note also giš-lal_3-dar-ra = *nu-*ur_2*-mu-u* (MSL 5, p. 107), translated by Powell (1987: 148) 'honey dripper (?)', but it can simply be 'red honey', referring to the pomegranate juice. Another reason is that the original meaning of GUN_3 ('colorful bird') lost its usefulness at some point, while SI+*gunû* had perfect etymology of 'to fill *gunû* (to gunify)', used in scribal schools for pedagogical aims. For the change IGI.GAR to IGI.$ERIN_2$, see Powell 1974, 399.

[239] See Steinkeller's comment (1995, 707).

Many languages have multiple synonyms for lion. Hebrew, for example, has six different words and Arabic has many more.[240] Akkadian and Sumerian were probably no different, and had many synonyms for this animal. The problem is the multiple words for felines, both in Sumerian and Akkadian, and the lexical equations between them. Lexical lists show several Sumerian words (or names) equated with several Akkadian translations, but it is not clear if this reflects multiple synonyms to the same animal or the compilers' misunderstanding of the original word.[241]

Table 12. Felines

PIRIG	*lû*, *lābu, nēšu*, *rīmu*
UG (PIRIGxSU / UD)	*nimru*, *nēšu*, *mintenu* (only Boğ.)
PIRIG-TUR	*nimru, lābu*
UG-TUR	*nimru*
PIRIGxKALAG (only Boğ.)	*nimru* = parš[anaš]
UŠUM-GAL	*ušumgallu*
UR-MAḪ (var. UR)	*nēšu*, *urmaḫḫu*
UR-ŠUB$_5$ (ZI&ZI.LAGAB)	*mindinu*, *dumamu*, *larandu*
UR/PIRIG.GUN$_3$	(see below)

It is important to note that at least until the Ur III period, only ur-maḫ was used in documents, while pirig, ug, and even ušum-gal were used as poetic synonyms in literature.[242]

B. Landsberger (1934) discussed the animals mentioned in the lexical list ur$_5$-ra = *ḫubullu*, including the felines. He was skeptical about the identity of UG, citingug [sic] kas$_4$" from

[240] Compare to English with a single word 'lion'. On the other hand, English has multiple words for 'dog': hound, pup, bitch, cur, mongrel, mutt, pooch etc., while Hebrew has a single word *kelev*.

[241] Also, starting in Ur III and on, PIRIG may stand for phonetic /ug/ (as ug$_2$) (Steinkeller 1987b, 93 n. 2).

[242] The literal meaning of ušum-gal is 'great snake'. The connection between lions and snakes can be located in UR-MAḪ *ša$_2$ qaq-qa-ri*, lit. 'Lion of the Earth', mentioned in the Epic of Gilgamesh (Tab. XI, l. 314), which apparently refers to a snake. George (2003, 897) notes that "lions and snakes were more of a kind than one might think, for they held an equal terror for the Babylonian traveller". Note that Akk. *nēšu* is etymologically related to snakes (Cf. Heb. *nakhash*, Ug. *nḥš*), but perhaps also to lions (Cf. Heb. *layish*, Ar. *layṯ*). The etymological source probably derives from the Semitic root *n/l.ḥ.š* 'to hiss, to whisper, to murmur' (Cf. Akk. *luḫḫušu* 'to whisper, to murmur'), which may correspond to both snakes and lions. See also Militarev and Kogan 2005, nos. 147 and 159.

Gudea's Cylinder A (col. vii, l. 20), which he suspected to have been a cheetah.[243] The copy, however, clearly shows the sign PIRIG and not UG.[244] It is also not clear if kas$_4$ is an adjective related to the animal there.[245] As for PIRIG, he speculated that it might be a general word for "predator", but left the whole discussion in question.

Following the argument above, PIRIG should stand on its own for all the sub-signs of its group (UG and AZ), and therefore, Landsberger's interpretation is conceptually accurate.[246] However, the necessity to create a specific sign to UG, a variant of PIRIG, as if to differentiate it from the main sign, suggests that the two words were not the same; though it is clear they were both felines, unlike other variants of PIRIG, such as AZ. Another reason is a passage from Enmerkar and Ensuḫkešdana, mentioning PIRIGs fighting UGs and vice versa, suggesting that these two were different animals.[247]

As for the reading, P. Steinkeller (1987c, 93 n. 2) has suggested the SU in the third millennium spelling (PIRIGxSU) is a phonetic indicator for /ug/: PIRIG$^{(S)UG}_6$. C. Mittermayer (2005, 17), dismissed this proposal, but she did not provide an alternative explanation for the SU.

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[243] It is reasonable to assume, however, that the ancients indeed recognized the cheetah as the fastest feline.

[244] Landsberger himself may have collated the cylinder, but he says nothing about it. It seems like a typo, though collation is required in any event.

[245] Edzard (1997, 73) reads and translates as follows: 20. ŠUL.UR$_3$-bi pirig kas$_4$-e pa$_3$-da 21. im-ma-ši-la$_2$-la$_2$ "He harnassed [sic] to it stallions, the lions-summoned-for-running".

[246] By the same token, the sign KA should be interpreted as "(issues related to the) mouth".

[247] The passage reads as follows (Wilcke 2012, 50-51):
82. ug-e pirig [i]m-sar-re
83. pirig-e ug [im]-sar-re
84. ug-e pirig im-[sa]r-re-da-bi
85. pirig-e ug im-[sa]r-re-da-bi
One should keep in mind, however, that synonyms can be mentioned on purpose in literary texts, such as the Biblical passage (Job 4: 10-11): "The roaring of the *aryh*, the voice of the *šḥl*, and the teeth of the *kfirim* are broken. The *lyš* perishes for lack of prey, and the cubs of the *lvy'* are scattered". All five words in italics are synonyms for 'lion'.

Steinkeller's analysis seems likely, but it must still be explained why the sign SU, with its difficult reading, was selected to indicate /ug/, and not easier and clearer signs, such as GU or GA.[248] The reason for this is twofold. First, there is a problem with the word PIRIG ending with /g/. Any phonetic indicator based on the consonantal component /g/ could have led to the assumption, as if the gloss indicated the word PIRIG. Spellings such as PIRIG^{GU} or PIRIG^{GA}, let alone PIRIG^{IG} would have misled the reader to see only a PIRIG variant and not a separate word.[249] It was decided then, to emphasize the vocal component /u/ and thus make it clear that this is a separate sign, to be read UG. Secondly, the sign SU (sug_6) was intentionally chosen, and no other C*ug* signs that might have been clearer to the reader, such as DUG or ḪUG ($EŠ_2$), because SU had semantic content somehow related to the word UG. SU therefore provided an additional advantage that DUG or ḪUG could not. It is difficult to determine what this was, and any suggestion might be speculative.

Nevertheless, the sign SU may have been chosen because of its value as KUŠ 'skin', something that was related and identified with UG specifically.[250]

This returns us to the question of the identity of UG. If this proposal is correct, the sign SU was a logo-phonetic indicator providing both phonetic information - $(s)ug_6$ (the reading /ug/), and also semantic information to highlight this animal's skin. In other words, it says 'lion (known for its) skin'. This may point to a leopard, which is the most likely big feline other than the lion relevant to the geographical context of Mesopotamia.[251]

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[248] Compare PIRIGxZA = AZ; IGIxRI = AR; ŠE.NI = IN.

[249] This may have been the case in the following Sumerian proverb passage (Alster 1997, 288): ḫi-is-ur-bar-ra^{sar} geštin(?)-ka$_5$-a^{sar}-ke$_4$ $^{u}{}_2$ug $^{u}{}_2$pirig(?)$^{gi(?)}$.

[250] See the KUŠ section in MSL 7, p. 122 ff., listing hides of many animals one after another.

[251] The other option is cheetah (*Acinonyx*), but this seems less likely (Landsberger ibid. 84-85).

Finally, the third question mentioned above, is why the spelling of UG changed in the early OB from PIRIGxSU to PIRIGxUD. It should be suggested that this happened because UD stood for *nimru* 'light', a homophone with *nimru* 'leopard'; while keeping its phonetic value as /ud/ (or /u$_4$/) to indicate the reading UG.[252] This change exemplifies the fundamental shift in the Mesopotamian school system, from Sumerian-based learning to Akkadian-based sign interpretation.[253] It must be emphasized that this change reflects only the pedagogical and scholastic interpretation; it by no means had any functional importance. Active scribes mostly concerned themselves with the sign's logographic and phonetic values. They attached little if any importance to the deep meaning of the sign and what it consisted of.

Lexical evidence shows UG as both *nēšu* and *nimru*, but PIRIG, though equated with multiple words, is never *nimru*.[254] In many cases *nimru* is written PIRIG.TUR, but a lexical list from Boğazköy shows PIRIG.KAL as *nimru*, a unique local spelling (MSL 3, p. 63).[255] This may shed light on the way scribes working in different traditions might have seen same animal, which possibly stemmed from the different species across different regions. In Mesopotamia, it may have been the Arabian leopard (*Panthera pardus nimr*), the smallest leopard subspecies, while in Anatolia, it is uncertain whether the scribes meant pirig-kal 'precious/rare lion' which seems

[252] One may recall Steinkeller's proposal (1995, 697) that the sign DARA$_3$ may have had the reading MAŠDA$_x$. This in turn may explain its Eblaite gloss *ar-'a$_3$-num$_2$*, a homophone of *arwiu* (MAŠDA) 'gazelle' (see below).

[253] This may have been the original reason for the lexical equation UD = PIRIG and the artificial beast's name *Ugalmaḫḫu*. See Wiggermann 1992, 169.

[254] See the table above (CAD N2. s.v). But in any event, PIRIG can stand for all the sub-readings, as mentioned above.

[255] The Hittite translation *par$_2$-š*[*a-na-aš*] and its clear Indo-European etymology confirm that it is indeed leopard and not a misinterpretation.

plausible in the Anatolian context, or pirig-kalag ‘strong lion’, which refers to the Anatolian leopard (*Panthera pardus tulliana*), one of the largest leopards.[256]

If this reconstruction is accurate, UG and PIRIG.TUR are both synonyms for ‘leopard’, whereas their combination as UG-TUR should be interpreted as a pleonastic spelling, attested only lexically.

To conclude this discussion, let us return to another animal, UR-MAḪ-GUN$_3$ (var. UR-GUN$_3$) or PIRIG-GUN$_3$, which appears to be one animal.[257] Steinkeller (1982, 253-254; 1987c) translated this as ‘spotted/speckled lion’ and suggested it was a leopard. But on further inspection, it becomes clear that this animal is never mentioned in any lexical list, and its Akkadian translation, if existed, is unknown. It is possible that this was another synonym for PIRIG.TUR, and according to the reconstruction above, also UG.[258] However, the rare attestations of UR/PIRIG-GUN$_3$, and especially its association in one case with Meluḫḫa,[259] makes the leopard identification less likely, as leopards were not exceptionally rare or exotic in Mesopotamia. Another problem is with the adjective gun$_3$ which is usually translated ‘speckled’.[260] One may recall that in the context of cuneiform writing, *gunû* means to add lines to the sign. e.g.,  <ḪA> and <ḪA+*gunû*>.[261] The Sumerian word gun$_3$ is written with the

[256] The former weighs around 30 kg, while the latter is around 90 kg. It is still significantly smaller than the average lion, but one should keep in mind that lions are not native to Anatolia. The Anatolian leopard was presumably the biggest feline they knew, and therefore was perceived as ‘strong lion’.

[257] The first is mentioned as an animal, while the latter is a nickname for a stone (that probably looked like the animal). This is the only animal not mentioned in Ur$_5$-ra = *ḫubullu*, and therefore not discussed by Landsberger.

[258] If their equation with *nimru* is indeed authentic. Besides its perfect Semitic etymology, a passage from Lamaštu elaborates: *kīma nim-ri tuk-ku-pa ka-la-tu-ša* ‘The small of her back is speckled like a leopard’ (Farber 2014, 100, 169). See also Landsberger 1934, 77.

[259] ur gun$_3$-a Me-luḫ-ḫa^{ki} ‘Dog/lion of Meluḫḫa’ or ‘Meluḫḫan dog/lion’ (Steinkeller 1982).

[260] See ePSD, s.v.

[261] For the connection between gun$_3$ and *gunû*, see Edzard 1957-71; Gong 2000, 31-32.

logogram DAR, usually translated as ‘speckled’; but it can also be written with GUN_5 (LUM)  which points to lines.[262] Lexical lists equate Sumerian gunu with *barmu* ‘speckled’, and *e-qu-u* (MSL 14, p. 342). The CAD (E, p. 252) translates the latter as a verb, ‘to daub’, but the word is likely related to *qû* ‘thread, string’ or ‘line’.[263] The verb *eqû*, therefore, should be translated ‘to line’, composed like similar biradical nouns, verbed by adding /e/ in the beginning.[264] This translation is well-suited to the quoted attestations in the dictionary.[265] Considering that gunu is equated with *barmu*, a clear adjective, the word *e-qu-u* in this context is also an adjective *eqū* ‘lined’ or ‘striped’.[266] Hence, UR-(MAḪ)-GUN_3 or PIRIG-GUN_3 should be translated as ‘striped lion’, that is to say, ‘tiger’ (*Panthera tigris*).[267] This will explain well the association with Meluḫḫa, and the rare attestations of this exotic animal in Mesopotamia. This

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[262] Though the sign itself means ‘stream’, it is easily understood why it was also associated with decoration, as the zigzag model is well documented in Mesopotamia since Ubaid times.

[263] See CAD Q, p. 285; better AhW, p. 924 ‘Schnur’. Note the clear Semitic etymology, Heb. *qav* and Aram. *qava* ‘line’.

[264] Compare *zû* ‘excrement’ / *ezû* ‘to defecate’.

[265] The CAD (E. p. 253a) explains: “Differentiated from *pašāšu* ‘to smear’, *eqû* is a term for application of salves, mostly to the eyes. The translation ‘to daub’ seems to fit best, especially since the prescriptions sometimes specify ‘with the finger’” [end of quote]. In light of the discussion here, one may interpret this verb as ‘to line’ the salve, i.e., to apply the salve with the finger *in lines* over the eyes. *pašāšu*, on the other hand, probably meant ‘to smear’ or ‘to anoint’ in circles (‘to massage’), related to Heb. p.s.h ‘to spread’ or Ar. f.š.h. ‘to spread’ (Wehr, p. 714). see also *tēqītu* (CAD T, p. 347).

[266] The Sumerian adjective gunu should then be translated ‘decorated’, which can be either ‘spotted/speckled’ (*barmu*) or ‘lined/striped’ (*eqū*). See also še-gu-nu, referring to specific barley patterned with green-white stripes (Steinkeller 2021a, 260 n. 13).

[267] Translating Sumerian gun_3 as ‘line’ will explain the uncertain compound verb kas_4 … gun_3, attested in Šulgi A (l. 73) $šag_4$-la-la-gal_2-la-mu kas_4 ḫu-mu-ni-gun_3-gun_3. Klein (1981, 199) translated: “With my heart full of joy, I ran onward[?]”, and commented (ibid., 214): “The translation of the compound verb … is a guess based on the context”. Klein’s translation is now established, if kas_4 … gun_3 is to be translated ‘to run in line(s)’, hence ‘to run straight’ or ‘to run directly’.

word was either a synonym or the earlier word of UR-ŠUB$_5$ (Akk. *mindinu*), the better-known word for 'tiger'.[268]

To sum up, there were many synonyms for different felines in Mesopotamia. According to the analysis here, 'leopard' was either UG or PIRIG.TUR; 'tiger' was either UR-ŠUB$_5$ or UR/PIRIG.GUN$_3$, while 'lion' had multiple synonyms, as demonstrated earlier in table 12.

4.10.1.2. MAŠ/MAŠ$_2$

The signs MAŠ and MAŠ$_2$ appear already in the Uruk archaic texts (ZATU 355 and 357, respectively). The former represents 'goat', while the latter, a derivative of the same sign, denotes 'male goat'.[269] Later in the ED period, as cuneiform gradually developed and simplified, MAŠ included a new, allegedly sub-sign MAŠ.DA$_3$ 'gazelle'. Interestingly, no clear sign for 'gazelle' has been documented in the Uruk archaic texts. P. Steinkeller (1995b, 697-699) proposed the sign DARA$_3$ (ZATU 70) had the value /mašda$_x$/, based on the same sign being accompanied by MA as a phonetic indicator for this reading (ZATU 26).[270] According to Steinkeller, this reading can explain why one of the sign's replacements (LAK 262) had the Eblaite gloss *ar-'a$_3$-num$_2$*, as it may have been a homophone of *arwiu* (MAŠDA) 'gazelle'.

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[268] UR-ŠUB$_5$, literally 'sedge dog', points, as Landsberger argues, to a tiger. The Akkadian rendering must have been a foreign word, especially considering its multiple variations, *a-ma-an-di-en*, *mi-in-di-a-am*, *mi-di-ni*, *min-di-na-aš*, *mi-in-te-mu*, *ma-an-di-nu* (note the version with *-aš*, probably a foreign grammatical case), which confirm that this is a foreign animal. No convincing etymology has been suggested to this word. If it is indeed 'tiger', originally from the Indus area and eastward, it may have been in a Dravidian language. The Dravidian Etymological Dictionary (p. 433) lists the word miṇḍṇ/muṇḍṇ 'promiscuous, lascivious', and even 'animal passion'. One may speculate it is somehow originally related to 'wild' (?), but it is still quite far-fetched to connect ancient Mesopotamian words with loosely related Dravidian lexemes whose antiquity we cannot judge.

[269] It is probably composed of MAŠ + ŠIR 'testicle' (Steinkeller 1995a, 704).

[270] Green (1987, 174), for her part, proposed that ZATU 26 was a different sign, ALIM, with MA functioning as a phonetic indicator for /alim/. See Steinkeller's criticism (ibid.).

At some point, around the mid-third millennium BCE, the MAŠDA sign-group began to be accompanied by phonetic indicators MAŠ+DA$_3$ (MAŠDA$^{\text{MAŠ+DA}_3}$) or only by DA$_3$ (MAŠDA$^{\text{DA}_3}$).[271] The earliest example is attested at Ebla: DARA$_3^{\text{MAŠ-DA}_3}$ = *ṣa-ba-a-tum* (VE 1191 / MEE 4, p. 327). The phonetic spelling later became the standard conventional spelling for 'gazelle', MAŠ.DA$_3$ or less frequently MAŠ$_2$.DA$_3$.[272] In several cases, however, the sign MAŠ alone is clearly 'gazelle', and this seems to have been the earlier spelling of the word as an independent logogram (Alster and Oshima 2007, 11).[273] One must be careful not to project this value back to archaic Uruk, as it is almost certain that Uruk's MAŠ/MAŠ$_2$ did not stand for 'gazelle'.[274] Starting in the mid-third millennium and on, the sign MAŠ represents both 'goat' and 'gazelle'. The latter, however, is frequently accompanied by the sign DA$_3$, like the spelling that had already been attested at Ebla and Abu-Salabikh. But should 'gazelle' indeed be attested in archaic Uruk (ZATU 26), the change in its orthography should be interpreted as a change of the phonetic indicator from MA to DA$_3$. This change takes place only at Ebla and Abu-Salabikh, which may lead to the conclusion that DA$_3$ was a phonetic indicator (MAŠ$_2^{\text{DA}_3}$), at least originally, to express the emphatic /ṣ/ of *ṣabītu* (or *ṣabatu* in Ebla),[275] rendered in cuneiform as

[271] The sign DA$_3$ is KAK .

[272] Compare to LULIM, previously written $^{\text{LIM}}$KIŠ$^{\text{LU}}$ (LAK 250), and later phonetically LU.LIM. In Ur III, DARA$_3$ and MAŠ.DA$_3$ denote different animals ('wild goat' and 'gazelle', respectively) (See e.g., BDTNS 022850). Note that DARA$_3$-MAŠ-DA$_3$ (or more often DARA$_3$-MAŠ) remained in circulation, mostly lexically and in some literary contexts, but meant a different animal - *na-a-lu* or *a-a-lu* 'roe deer' (Landsberger ibid. 98-99). Particularly noteworthy is the 7$^{\text{th}}$ king of Sealand I dynasty, Peš-gal-dara$_3$-meš whose name was later hypercorrected in the Babylonian King List B to Peš-gal-dara$_3$-maš. The Synchronistic King List, reading Peš-gal$_2$-dara$_3$-meš, was thought by Landsberger (1954, 69) to have been mistaken, as he was not aware of the primary Sealand texts. For further discussion, see Hershkovitz 2017.

[273] There is plenty of lexical evidence for MAŠ equated with *ṣa-bi-tu*(*m*). See CAD Ṣ, p. 42.

[274] Signs with abstract forms seem to have been reserved for writing domesticated animals only, because of their extensive use in everyday writing. That 'gazelle' at that time would have been written in the simple drawing of 'goat' is unlikely.

[275] Which may have been pronounced as a velarized voiced dental fricative, like Classical Arabic <ظ>.

/d/.[276] This phonetic indicator was later conventionalized as MAŠ.DA$_3$ or MAŠ$_2$.DA$_3$ 'gazelle'.[277] And though the sign MAŠ was used for both 'goat' and 'gazelle', the sign MAŠ$_2$ alone stands mostly for 'goat', and only rarely for 'gazelle', as the latter is now written accompanied with DA$_3$, the phonetic indicator that became conventionalized.[278] See Table 13.

Table 13. MAŠ/MAŠ$_2$ and MAŠ/MAŠ$_2$.DA$_3$

MAŠ	'goat', 'gazelle'
MAŠ$_2$	'goat', 'gazelle'
MAŠ.DA$_3$	'gazelle'
MAŠ$_2$.DA$_3$	'gazelle'

Starting in the Ur III period, MAŠ$_2$ is used as a logogram for 'interest' (Akk. *ṣibtu*). Besides this meaning, the same sign stands for several homophones of this word, such as *ṣibtu* 'part of the liver, increment' (CAD Ṣ p. 161) and *ṣibtu* 'seizure' (ibid., p. 163), both derive from the root *ṣabātu*, and are not etymologically related to *ṣibtu* 'interest' which derives from *waṣābu* 'to increase'.[279]

[276] The phoneme /ṣ/ was regularly written in Akkadian with the Z-series, but this is an orthographic choice in writing Akkadian, quite different from how Semitic loanwords were (allegedly) rendered in Sumerian. Compare to *gal-zu* = *kaš-ši-i* (Balkan 1954, 2-3), suggesting the demonym's original name was /gaʒu/ or /kaʒu/, rendered in Akkadian as *kaššu* and in Kassite as *galzu* (occasionally also *galdu*) a form mostly preserved in personal names that tend to be more conservative (Hershkovitz 2017). D.O. Edzard (1964) already noted that volume Ṣ of the CAD contained no Sumerian loanwords, as Sumerian lacked this phoneme (except for the lexical *zib$_2$ Akk. *ṣibbu* 'color', whose etymology is questionable). But a few Semitic words with /ṣ/ were borrowed into Sumerian, showing that /ṣ/ was occasionally rendered in Sumerian as /d/, e.g., dala *ṣillu* 'thorn' (but also hazin *haṣṣinnu*). One may speculate that initial /ṣ/ was rendered as /d/ (as also the case of *ṣabītu*), but it requires a further study. Noteworthy is dab as *ṣabātu* 'to seize', but Steinkeller (1989a, 156) observed that "Sumerian does not otherwise show any loanwords borrowed overtly from Akkadian infinitive".

[277] Even if ZATU 26 is indeed gazelle, the reading /mašda$_x$/ is not necessarily justified. The phonetic indicator MA may have indicated the reading /maš$_x$/.

[278] But as argued above, all signs accompanied by reading indicators have the same readings even without these indicators (e.g., KA itself stands for /eme/, /nag/ and so on). This argument is confirmed in the exotic animal maš$_2$ Ma$_2$-gan 'oryxes', which suggests that maš$_2$ had the meaning of 'gazelle' on its own (Lauersen and Steinkeller 2017, 55).

[279] See also Steinkeller 1981a, 140 n. 75.

But why did MAŠ$_2$ 'goat' stand for *ṣibtu* 'interest'?

Steinkeller (1981a) has proposed, based on parallels from other languages, that 'interest' resembles 'goat', as it is new capital added to the fund every year, like a new goat born to the herd every year. Though this proposal appears plausible, the reason for this choice may have been simpler. This chapter suggests that the sign MAŠ$_2$ was chosen because *ṣibtu* 'interest' was homophonous with *ṣabītu* 'gazelle'.[280] One may ask why was MAŠ$_2$ chosen over MAŠ, a clear logogram for *ṣabītu* to be a homophone with *ṣibtu*.[281] The reason for this may have been that MAŠ was very often used - especially in economic texts - to convey 'half' and therefore could not also be used for the specific meaning of 'interest'.

If this explanation holds true and DA$_3$ had the phonetic value /ṣa$_x$/ for *ṣabītu*, it will also explain the reason why DU$_3$ was rendered as 'to hold' in Ur III economic tablets.[282] There is no clear-cut evidence for DU$_3$ (or DA$_3$) being *ṣabātu*, though a NA list does read: DU$_3$.ŠU$_2$ = *ṣa-bi-it kiš-ša$_2$-ti* (CAD Ṣ, p. 6). The origin of this reading may have been another shorthand form, common in economic texts, based on the homophonic resemblance between *ṣabātu,* and *ṣabītu*.[283] One may wonder why the sign GAG was chosen to express /ṣa/ in MAŠ$_2^{DA}{}_3$ *ṣabītu*, and not a clearer sign, such as ZA or even DA. The reason is found in the semantic meaning of the sign, beyond its phonetic component. Though not directly related to animals, the sign GAG stands for *qarnu* 'horn': ^{giš}GAG^{da}-a-gigir = *qar-nu* (Civil 1968, 8), that is to say, MAŠ$^{DA}{}_3$ 'a goat

[280] As a shorthand form of MAŠ.DA$_3$ to denote the specific meaning 'interest'. The natural tendency to brevity and shorthand, especially in economic texts is well recognized in research, specifically in the context of Ur III economic tablets.

[281] And palaeographically easier if it has any significance.

[282] For an exhaustive discussion, see Steinkeller 1989a, 52-60; also Wilcke 2003, 48 who reads this verb as ru$_2$.

[283] Keep in mind that in Ebla 'gazelle' itself is *ṣa-ba-a-tum* (see above). For a different problem of confusing the logogram of gazelle with the logogram to *muškēnu*, see Steinkeller and Postgate 1992, 20.

(known for its) horns' = 'gazelle'.[284] In this sense, the sign GAG/DA_3, if indeed stood for /ṣa/ in this context, was not a phonetic indicator, but a phono-semantic indicator.

This leads to the problem of Semitic loanwords in pre-Sargonic Mesopotamia that are usually considered Semitic only if there is a similar Akkadian equivalent, this despite the questionable relationship between pre-Sargonic Semitic and Akkadian, the local dialect of Akkade and the region. The problem is well demonstrated in the so-called re-borrowings, i.e., Semitic words that entered the Sumerian vocabulary and were later translated into OB Akkadian. Borrowing Sumerian words into Akkadian shows a unique methodology of OB scribal schools.

Not only were Sumerian words borrowed to Akkadian, but many Akkadian words were also assigned artificial logograms, to graphically look as if they are Sumerian words, though they were never used in Sumerian circulation.

4.10.1.3. $\underline{MA_2 > ME}$

The sign MA_2 is already attested in archaic Uruk, showing a clear drawing of a ship or boat (ZATU 339). Around the mid-third millennium, MA_2 is written in a more abstract shape (LAK 529) which looks like a variant of SI (LAK 83), probably not derived from archaic MA_2 (Table 14).[285]

[284] Even without this list, note that GAG 'nail', stands for several words related to 'pointed', either phonetically such as dur_{10}-gag 'ax'; sag-gag 'triangle' (lit. 'pointed head'), or semantically, dala ($^{(giš)}$IGI.GAG); henbur (GI.GAG) 'stalk'.

[285] The resemblance between the signs appears to stem from the Semitic value of SI as *malû* or SI.A as *ma'du*. Archaic SI (ZATU 447) shows what should be interpreted as 'horn'.

Table 14. MA_2 vs. SI

	MA_2	SI
Archaic Uruk		
Fara		

MA_2 is only rarely used as a phonogram, mostly known from its use in written instances of the toponym Magan (*ma₂-gan*), where it probably functioned as a phono-logogram.[286] In the earlier orthography MA_2 is used as a phonogram for personal names with the component *iš-ma₂*-DN ("DN has heard"), or with verbs of this sort, *it-ma₂* or *u₂-ma₂*. This may suggest that MA_2 in the old orthography was a CVC sign /maʕ/ (Gelb 1961b, 27; Hasselbach 2005, 64; Krispijn 2012, 186).[287] This is further confirmed by the syllabic form *iš-maḫ*-GI (BDTNS 031830, l. 2) which points to the same conclusion.[288] It is hard, however, to ascertain whether this guttural was ever phonetically realized or whether the spelling was just meant to preserve the Semitic etymology. There are examples of the same component written *iš-me* alongside *iš-ma₂* already in the third millennium BCE,[289] a somewhat rare example of alternating two different orthographies to write the same word. Writing MA_2 preserved the Semitic etymology while ME should be considered as phonetic writing.[290] The OB reform did not present any novelty in this case, but merely fixed

[286] Magan, identified as what is now present-day Oman, was known as a distant land to which one had to travel by ship.

[287] Gelb prefers to read MA_2 as <maº> to express release in the end, either ma' or mā; Hasselbach interprets it as <ma+G> (G = guttural).

[288] Cf. *iš-ma₂*-GI (MVN 3 83:6, Sargonic). See also Hilgert 2002, 262 n. 8.

[289] E.g., EDIIIa tablet from Adab reading *iš-me-lum* (BIN 8, 15). For other examples of pre-Sargonic *iš-me* see Di Vito 1993.

[290] One must recall that the value /ma'/ is phonemic and not phonetic, i.e., it can be phonetically realized in more than one way. Cf. Eng. /u/, realized differently in *p**u**t*, ***u**nder* or *beautif**ul***. The change a>e. however, may show a shift in the Akkadian phonology at some point, perhaps vowel harmony under the influence of Sumerian, unlike Semitic languages. Indeed, vowel harmony occurs in the southern dialects, while Assyrian retained its Semitic

the pre-existing phonetic version.[291] The only novelty was that from now on writing /maʕ/ was no longer expressed by MA_2, but by MA-AḪ. For example, one son of Šamši-Adad I bore the Akkadian name *iš-me-da-gan* while the other had an Amorite name *ia-as$_2$-ma-aḫ*-^{d}IŠKUR. Both had the same predicative component "to hear" (Sem. š.m.ʕ.), one in Akkadian and the other in Amorite. The spelling of these two names suggests that the final guttural was pronounced in Amorite but not in Akkadian. The OAkk MA_2 that represented phonemic /maʕ/ was replaced by ME for Akkadian. But it did not retain its value for the Amorite, where at least in theory phonemic /maʕ/ was indeed pronounced [maʕ] but was instead written phonetically MA-AḪ. As the form *iš-me* had already existed in the third millennium BCE, the change MA_2 > ME in Akkadian did not express a phonetic shift in Akkadian from OAkk *išma*ʕ to OB *išme*. It was rather perhaps meant to distinguish Akkadian from the Amorite where the phoneme /ʕ/ was more crucial.[292] This leads us back to the old orthography and the question of why MA_2 was used in the first place, considering that writing Semitic at the time was functional per-se.[293] If Sumerian speakers used this specific sign for specific Semitic phonemes, we see attention paid here to phonetics, in contrast to the scribal habits of the old orthography of ignoring phonetic realizations. This suggests that the sign MA_2 was not used *ad-hoc* for /maʕ/ in Semitic languages, but already had the pharyngeal fricative aspect in Sumerian, though whether it was

vowels. Note that MA_2 was used for /ma'/ only in certain cases, especially in end of words. See for example writing *ma'ādu* in OAkk, never with MA_2 (CAD M1, p. 24).

[291] See also the obscure *iš-me-ma$_2$* (Gelb and Kienast 1990, 324), which may be analyzed as a gloss *iš-me*^{ma_2} or *iš-*^{me}ma$_2$.

[292] If indeed this was the case. See some occasions where Yasmaʕ-Addu's name is written *ia-as$_2$-ma-*^{d}IŠKUR (ARM 1, 37), or the multiple spellings for Yadiʕ-abum of Terqa: *ia-di-ḫa-bu-um*, *ia-di-iḫ-a-bu-um*, *ia-di-a-bu-um*.

[293] In other words, if /ga/, /ka/ and /qa/ could be all written in one sign, why was /ma'/ written in two signs, MA_2 and ME.

voiced /ʕ/ or voiceless /ḥ/ is hard to tell.[294] This would also explain why MA_2 was no longer used for /maʕ/ in OB, since the Sumerian language completely disappeared, leaving its cuneiform signs understood only once it had filtered through an Akkadian lens.[295]

4.11. Lexical Reborrowing

Many Semitic roots have a similar meaning or are on the same semantic field. For example, ḥ.t.k. and q.t.ʕ. are both 'to cut', n.w.m, y/w.š.n and r.d.m are all related to 'sleep', and so on. Two questions should be asked: is it technically possible that a Semitic lexeme was first borrowed into Sumerian and was later borrowed (or translated) into Akkadian, but into a different Semitic root? Was there any connection between OB Akkadian borrowing words from Sumerian to the ancient origins of these roots, nearly a millennium earlier?

There is no reason the believe that the Akkadian translators of Sumerian made any effort to adhere to the original Semitic root. Indeed, there is no evidence this was even considered. Even if they were aware of linguistic affiliations and the contrast between Semitic and Sumerian, there are no indications these were issues. Sumerian words were not "borrowed", let alone "borrowed back" into Akkadian - they were not seen this way by the ancients. The relationship between the Semitic language(s) that borrowed lexemes to Sumerian and the Akkadian language is highly obscure, if it existed at all. For this reason, it is possible that reconstructing Semitic loanwords in Sumerian on Akkadian basis inheres serious methodological flaws. The Akkadian roots should be consulted for convenience and comparative purposes only.

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[294] A further study should investigate the relationship between MA_2 (/maʕ/) and MAḪ in Sumerian, considering the above-mentioned *iš-maḫ* and the lexical evidence MAḪ = *ma-du-um*; *ma-'-du*; *ma-a-du* (CAD M1, p. 20). see also SI = *ma-du-um*; *ma-a-'-du* (ibid. p. 24).

[295] For the chronological and regional aspects of this change, see 5.8.4.1.

Based on two lexical entries equating gud.maḫ and gud.alim with *a-lim-bu-u*$_2$, A.L. Oppenheim and Hartman (1945, 170, n.150) suggested that the latter was "a learned loan-word from a Sumerian alim/alip, which itself is an Akkadian loan-word in that language ('Rückentlehnung')". This interpretation appears to be correct, but the word "Akkadian" may have been inappropriate. The lexeme *ʔlp* for a large bovid exists in many Semitic languages (e.g., Akk. *alpu*, Pheo. *ʔlp*, Heb. *aluf*). There is no reason to assume that Sumerian borrowed this word from Akkadian, not yet an independent language when ALIM first appeared in archaic Uruk.[296] Akkadian later translated ALIM as *ditānu*, *kusarikku* or *kabtu* and never *alpu* which was, in turn, associated with GUD.

Therefore, considering Sumerian words as Semitic loanwords only if a similar or identical word is attested in Akkadian is a tendency that should be discarded. Semitic loanwords in Sumerian should be studied independently, regardless of the later Akkadian documentation that should be considered as a usable secondary source for reference.

While the pattern *ʔlp* > alim > *alimbû* cannot advance the detection of Semitic words, there is a word offering an important key and starting point to philological study.

The Sumerian word DAM-GAR$_3$ Akk. *tamkāru* 'merchant' is a Semitic loanword, deriving from m.k.r., a clear Semitic root (e.g., Heb. *maḵar*). However, Akkadian never used the same root for this meaning, but rather employed a series of other verbs.[297] The Akkadian verb *makāru* B 'to do business' is documented only in OA and Ugarit, indicating a possible West-

[296] But it is not certain if it was pronounced /alim/ back then. The phonetic indicator LIM for ALIM appears only at Fara (LAK 249).

[297] Usually verbs such as *šâmu*, *nadānu* or *lêqu* to express ideas of "doing business".

Semitic root.[298] Despite this, most scholars agree that DAM-GAR_3 is a Semitic loanword, due to this striking etymology and the prefix *ta-* which points to Semitic origins.

4.11.1. Pattern of Semitic Loanwords in Sumerian

M. Civil (2007) mapped the Semitic loanwords in Sumerian. He sketched the pattern $C_1V_xC_2V_xC_3$, that is to say, PARAS, PIRIS or PURUS which he believed were potentially built on the trilateral Semitic root. He collected 257 words and offered etymologies for some of them but left most of the words an open question as to their potentially Semitic origin, with no clear evidence to support this claim. For the framework of this study a single special case of Civil's pattern will be discussed.

In a recent article, P. Steinkeller (2016) studied the epithet AŠ-im_2/im_4-babbar, one of the names of the moon god.[299] M. Lambert (1962, 73-74) interpreted this name as the 'white solitary runner'. The description of the moon god as 'solitary' is plausible due to independent evidence supporting this characteristic of the moon god (Steinkeller ibid. 621-622). However, due to phonetic attestations di-li, the reading of AŠ has been established as /dil/, hence dil-im_2-babbar (Alster 2004). M. E. Cohen (1996, 11 and n. 20), proposed to interpret dil-im_2 as a phonetic writing of dilim (Akk. *itquru*), usually written with the sign LIŠ ($dilim_2$). He thus translated Nanna's epithet as 'the white bowl', an image referring to the crescent moon, which Steinkeller also accepted.[300] Though in agreement with this basic interpretation, Steinkeller pointed out that

[298] But it is possible that the root m.k.r. did exist in Akkadian as *magāru* 'to agree', a verb on the same semantic field but not having the same meaning and use; or even *maḫāru* 'to receive', which may be an interesting case of orthographic spirantization.

[299] Note im_2 (DU+*šeššig*) 'to run'; im_4 (or im_6 according to Borger. See MZL 350) is DU, a clear allograph of the same sign.

[300] In Ur III sources, the word is written A_2.GAM (read *id-gur*$_2$. See Powell 1987-1990, 503), a phono-semantic spelling, offering an alleged Sumerian etymology (hand + *gur* unit).

dilim itself was actually a Semitic loanword *tilimtu*, which may cause difficulties in this interpretation.

We now face two different questions: 1) What is DILIM/*tilimtu* (*itquru*) and why is this object identified with the moon god? and 2) Given that this deity's epithet is dilim-babbar, why is it always written phonetically dil-im$_2$ and never with the logogram LIŠ?

The CAD translates *itquru* as either 'spoon' or 'bowl' but following the archaic pictogram LIŠ (ZATU 331), which clearly depicts a bowl, Steinkeller concluded that dilim was 'bowl' and not 'spoon'. However, upon further examination, *itquru*'s literal meaning may be neither 'spoon' nor 'bowl'. Since the word is built on the pitrus form (von Soden 1995, 83), and given similar words, such as *itguru* from *egēru* or *itpušu* from *epēšu*, it would be more appropriate to associate *itquru* with *aqāru* 'to be precious' (CAD A2, p. 205). Hence, *itquru* is literally 'a precious object', either spoon, bowl or anything else.[301] M. Civil (2007, 23; 2008, 76) has argued that several objects: dilim$_2$(LIŠ) *itquru*, silim$_2$(KAL) *hupšašû*, ti-lim-(da) *karpatu*, and ^{ti}silim(DI), despite their different Akkadian translations, are all the same object.[302] If this holds true, we see further evidence for the translation offered here, as silim$_2$ is written with the

[301] Spoons in the ancient world may have looked like small bowls, without the long handle associated with modern spoons. Cf. Gr. κοχλιάριον 'spoon', derived from κοχλίας 'shell'. The relationship between 'bowl' and 'spoon' can be seen in Heb. *qᵉa'rah* 'bowl' and *kaf* 'spoon', attested in several cases together (e.g., Gen. 25:29. See already KJV's translation), but the original meaning of *kaf* appears to be simply 'a small bowl'. See for instance, *kaf*/*kappot mō'znayim* 'pan(s) of the scales' (Mishnaic Hebrew and on), where *kaf* cannot be interpreted as a spoon in the modern sense, but as a small bowl. See also Akk. *kappu* B 'bowl' (CAD K, p. 188), perhaps better translated 'a small bowl' used by hand (*kappu* A). This is corroborated by the logogram LIŠ which is also used for *kusaptu* 'bite, small repast' (CAD K, p. 583).

[302] It is equally possible that these four words do not represent the same object, but four objects that are all referred to by the same appellation - d/s/tilim.

sign KAL ‘precious’. Another option is that the sign KAL alludes to Akk. *kalu* ‘whole’, referring to the reading /silim/, by itself a loan word from *šalāmu* ‘to be complete’.[303]

Let us now look at the alleged Sumerian word dilim, which is in fact a Semitic loan word *tilimtu*. Given the Akkadian translation *itquru* ‘precious’ alongside additional evidence of KAL (silim$_2$) for the same object, we may assume that dilim is also to be understood as ‘precious’ but it can also be ‘whole’, ‘complete’, ‘perfect’. Fortunately, *tilimtu* is also attested as *tirimtu* ‘a container for beer’ (CAD T, p. 425). The grammatical pattern suggests this word is to be associated with either *râmu* A ‘to love, to cherish’ or with *râmu* B ‘to present, to grant’. That results in *tirīmtu*/*tilīmtu* offering a translation of ‘precious object’ or ‘present/gift’.[304]

Let us take this a step further. In the specific context of the moon god, dilim (*tilīmtu*) ‘precious object’ or ‘gift’ is to be interpreted as a calque on niĝ$_2$-de$_2$-a, which is both ‘(marriage) gift’ (CAD B, p. 219 under *biblu* A) and ‘day of the disappearance of the moon’ (ibid. p. 221 under *biblu* B).[305] The epithet dilim-babbar, therefore, means ‘the white precious one’, a reference to the New Moon, which appears anew to the world every month.[306]

Returning to the basic spelling of dilim-babbar, let us take note that it is always written as either dil(AŠ)-im$_2$/im$_4$, never with dilim$_2$ (LIŠ), because it is a *phono-semantic* spelling. Thus AŠ-im$_2$ is to be understood as both dilim/*tilimtu* ‘the precious one’ and dil-im$_2$ ‘the solitary

[303] In contrast to another vessel, written with the same logogram: ur-ru-ub KAL *ur-ru-up-pu* (MSL 14, p. 368), where the reading urrub is clearly related to *erēpu* ‘to be dark’, and the logogram KAL is used because of its phonetic reading /rib/.

[304] Cf. Heb. *truma* ‘gift, donation’; Ug. *trmt* ‘offering’.

[305] See also the spelling niĝ$_2$-DU for the same word at Ebla (Sjöberg 2003, 528).

[306] See Jacobsen 1976, 121 who already speculated the same interpretation but with no evidence to support it. Note the pun between *râmu* B ‘to present, to grant’ and *râmu* A ‘to love’, as Nanna is known to have been ki-ag$_2$-dingir-re-e-ne ‘the beloved of the gods’ (Sjöberg 1960, 70-71).

runner', both are conceptually inseparable. One must also note that AŠ-DU can stand for aš-ša$_4$ 'perfect' which recalls the interpretation above for dilim as related to silim 'perfect, whole'. In this case, dil-im$_2$.babbar may play on the meaning of aš-ša$_4$.babbar 'the white perfect one', an epithet to be associated with the Full Moon.

None of this refutes the idea of 'bowl', if this is the original pictogram for dilim$_2$ (LIŠ), which seems likely, since the image of the bowl is clearly reminiscent of the moon, as explained above. Instead of choosing between specific word definitions, the combination of reading and image provides association with a concept, and all the various possibilities offered indeed have a basis expressed in different contexts.

To sum up the problem: Dilimbabbar is one of the moon god's names whose pronunciation is established thanks to the syllabic writing di-li. However, the spelling AŠ-DU(+*šeššig*)-babbar contains several meanings embedded into the script: dil-im$_2$-babbar 'the white solitary runner'; dilim-babbar 'the white bowl'; dilim-babbar 'the white precious one' and aš-ša$_4$-babbar 'the white perfect one'. Each one of these can refer to a different phase of the moon.

Having established that the form *tipristu* is built on the prefix *ti* + *pristu* in a middle-weak root, we can now also tip the scales in favor of W. von Soden who analyzed *terīqtu* from *riāqu*/*râqu*, against the CAD (T, p. 354) *teriktu* A 'unplanted, uncultivated area', adding following note: "Probably derived from *tarāku*; the plural *terkētu* speaks against a derivation from *rêqu* 'to be empty'".

Once it is established that DILIM is indeed a Semitic word, we can see that the Sumerian form $C_1V_xC_2V_xC_3$, given that C_1 = /t/ or /d/, is built on the *tipris* (or *tapras*) form, and therefore, likely to be Semitic. Therefore, *teriktu* A should be reconstructed back to Sumerian as DIRIG (=

DIRIG > *tirīqtu* < *râqu*). Indeed, in lexical lists, DIRIG is understood as 'to become loose, to fall out', which suits our example; however, DIRIG is never equated to *râqu*, but rather to *qâpu* (MSL 15, p. 12). Admittedly, it may simply be due to a lack of documentation. But as stated above, it appears that Semitic loanwords rendered in Sumerian, (either as real verbs or just as a logogram in Akkadian), did not necessarily correspond to the Akkadian translation of the same logogram. This may indicate that different sources were used as pedagogical tools in the OB scribal schools; it could also be that in the early periods, Sumerian loaned roots or lexemes from Semitic languages other than Akkadian.

It should be noted that the meaning 'to fall out' for DIRIG never existed in Sumerian. The word DIRIG is first documented in pre-Sargonic, but with the meaning 'to exceed, to surplus'. The interpretation of DIRIG as 'to fall out' demonstrates a scribal practice, devised in the OB period to *Sumerianize* Akkadian roots based on the structure of actual Semitic loanwords borrowed by Sumerian, as if they were genuine Sumerian words.[307] As mentioned earlier, Lieberman (1977) documented more than a hundred "Sumerian" words loaned to Akkadian, though they were never used outside a scholastic context. In other words, the OB correspondence between Sumerian and Akkadian stemmed from a pure scholastic activity which was not entirely reflected, if at all, in the contemporary Mesopotamian vernacular.

If we return to Civil's pattern, we may note that the Sumerian DIRIG 'to exceed' was by itself also a Semitic loanword whose etymology is revealed in an identical word, *teriktu* B 'a reed object' (CAD T p. 354). This word had a completely different meaning, and it was by no

[307] Logograms, therefore, cannot be called "Sumerograms", as many of them were never Sumerian, but simply "Akkadian logograms", identically to Japanese *kokuji*, *kanji* signs that were invented in Japan, and were never used in China.

means related to *râqu* 'to be empty'. The Diri list (MSL 15) equates DIRIG with many verbs, one of which may have been *arāku* 'to be long, high, extend',[308] which suits the meaning of *tīriktu* B 'a reed object'.[309] Note that original DIRIG never had the meaning of *arāku*, and this was only written in the OB school material as an artificial logogram. Due to the power of phono-sematic matching, it made sense that DIRIG was related to *arāku*, though it was never the case. This "logogram" never functioned as a logogram in real documents; it was merely a tool to interpret Sumerian to Akkadian speakers.

4.12. Conclusion

Over the course of its history, cuneiform was directly related to the mutual contact and relations between two completely different languages. At its outset, cuneiform was used for one language, Sumerian. However, even from its very conception, cuneiform was never the sole expression of a "pure" language without foreign linguistic influences. For our present discussion, it is theoretically possible to reconstruct Sumerian in the period of pre-Uruk IV as a language free of any Semitic influences, and it could have been written purely logographically. However, Semitic loanwords appear at the earliest stage of Sumerian writing, and with them phonetic writing. They probably appear at the same time because the Semitic loanwords and phonetic writing were interrelated. Once script was usable for phonetic writing it became more sophisticated and versatile to the extent that it could express information that would be difficult to articulate in pure logographic writing. Ancient phonetic writing appears in reading aids with phonetic

[308] The text, based on a single manuscript, reads: *a-la-ku*, corrected in light of the evidence presented here to *a-ra*$^{!}$-*ku*, either a paleographic-based or phonetic-based error. The tablet should be collated at any rate.

[309] The connection between reed and a metaphor to length, is seen in AbB 6, 52 (quoted in the CAD A2, p. 284a): 1 *šūši* GIŠ *ašuhi ša qana ša* 2 *qana arku ša* 1 SILA$_3$ *ša* 2 SILA$_3$ *ka-ab*(!)-*ru* "sixty fir trees which are one or two 'reeds' long and one or two silas thick…".

indicators alongside semantic indicators. Yet, as this chapter seeks to demonstrate, phonetic writing in cuneiform was not limited to the pure notation of sound with no connection between signifier and signified. Cuneiform signs were indeed sometimes used as pure phonetic signs for specific purposes, but as a rule, the script preserved the ancient writing rules by displaying a script-text connection. As Sumerian receded from daily use as a living language and later ceased to be used even as a written language, scribal schools continued to use well-known Sumerian patterns to create the so-called "Sumerian" words; that is, words with an apparent Sumerian morphology which were in fact based on Semitic roots. This is how the development of the cuneiform script appears as a circular process. It started as a pure logographic script, gradually adopted phonetic methods throughout the third millennium, mainly born out of the need to write Semitic lexemes. When Sumerian completely died out as a spoken language, new "logograms" were created in the scribal schools to maintain and continue recording traditions in the new cultural context.

Chapter Five: The Old Babylonian Orthographic Reform

5.1. Historical Background

Mesopotamia's historical circumstances in our focus period, the early second millennium BCE, are far from clear. The early OB period saw several geopolitical developments that radically changd Mesopotamia. The presence and political influence of the Amorites elicited changes that manifested in language and in its physical representation of writing and spelling. One must distinguish between two Amorite phases: During Ur III and Isin period the Amorites appeared in Mesopotamia, gained power, and finally established their own kingdoms. This phase is somewhat monolithic; especially because at least the early Isin period is characterized by the preservation of some Ur III traditions of which first and foremost is writing in Sumerian.[310]

The second phase of Amorite presence in Mesopotamia roughly begins after the decline of the Isin I kingdom, giving way to Larsa and later to northern powers, particularly the kingdom of Babylon. The detachment from the Sumerian writing tradition of Ur III and the transition to writing practices in Akkadian, created the need to establish a new bureaucratic system that would specialize in reading and writing Akkadian. These can be detected in scribal schools and the training of young scribes, the future mechanism of the developing state. The question is what exactly played the key role in the massive changes in cuneiform writing, and whether the political changes influenced the new curriculum, the mechanism that created the script developments in practice.

[310] Albeit Išbi-Erra himself, the founder of Isin I dynasty may have seen things differently (Michalowski 2005). See for instance an early OB short text (Alster 1997, 86) which appears to criticize the kings of Ur III. Successive dynastic kings basically saw themselves as the Ur III direct successors. The Ur-Isin Kinglist, written during the the last Isin king's reign, Damiq-ilīšu, presents the kings of Ur III and Isin I consecutively, as if they belonged to the same dynasty (Grayson 1980-83, 90).

These changes, particularly the orthographic changes, may have simply been pragmatic, intended to facilitate reading and writing for foreign, non-native Akkadian-speaking populations. Certainly, a functional aspect of the OB reform cannot be excluded.

But if we examine it more closely, the OB reform gives the impression that, despite conspicuously visible OB orthographic changes, they were almost completely executed within the limits of the earlier orthography sign inventory. Put another way, the OB orthographic reform was far less radical than one would expect.

5.2. Interpreting Sumerian

Despite the absence of clear evidence, the political transition in Babylonia appears to have heralded the emergence of scribal schools throughout the region. Sumerian may have died earlier as a spoken language,[311] but it remained the main written language in Ur III and its successor Isin I. With this transition, the new scribal schools faced the problem of how to transmit Sumerian texts faithfully to students who no longer spoke Sumerian, now that the previous scribal traditions of Ur III and Isin I had disappeared. Although Akkadian was gradually replacing Sumerian, the latter still retained its central prestigious and religious position.[312] Religious texts continued to be written in Sumerian, including many new compositions in Emesal, such as hymns and laments, which played a significant role in the social life of Babylonia (Delnero 2020). A large portion of these texts were performed by priests who were required to pronounce the texts with maximum accuracy. Thus, a significant need arose to preserve the knowledge of the Sumerian language and how it was originally sounded. The OB period is the first time that a

[311] For discussion regarding the end of Sumerian, see Michalowski 2006, Sallaberger 2004, Woods 2006.

[312] This can be seen in the following Sumerian proverb: dub-sar eme-gi$_7$ nu-mu-un-zu-a a-na-am$_3$ dub-sar e-ne 'A scribe who does not know Sumerian, what kind of scribe is he?' (Alster 1997, 54).

clear syllabic spelling can be found for countless signs that had never been written syllabically before. Many literary works, written in Sumerian and Emesal in the most phonetic form, provide the modern scholar, as they did for the Akkadian speakers of the OB period, with valuable information about the dead Sumerian pronunciation. Aside from the question of whether these are useful for modern studies, they were certainly useful to the ancients, whether it was the students in the scribal schools who copied these works, or the very Emesal chanters who used these texts for their own purposes. There was also the additional need to explain the Sumerian itself to Akkadian speakers. The lexical lists were designed for this purpose, not only to explain Sumerian in its phonetic form, but also in phonetic Akkadian, with an aim to convey Sumerian as accurately and faithfully as possible to pupils who included future bureaucrats and Emesal chanters.

This is the background for the appearance of lexical lists such as OB Ea (MSL 14) and Diri (MSL 15), which were designed to explain simple and complicated logograms, respectively. The differences between the Sumerian phonology and the Akkadian phonology created problems, especially in light of the Akkadian's insistence in continuing the same writing system even though it was incompatible for writing Semitic languages.

Take for instance the following entry from OB Ea (MSL 14, p. 97, 198, 4).

si-la  *su₂-lu-um* 'street'

The Sumerian word and the Akkadian word are certainly the same, although the etymological source is not entirely clear. But curiously, the logogram is interpreted in Sumerian as *sila* while in Akkadian it is *sulûm*. The problem of interpreting Sumerian vowels to Akkadian ears undoubtedly challenged the OB school system.

5.3. Orthographic Reform

When we examine a series of cuneiform tablets from the earliest fourth millennium examples to the very latest tablets dating from the first century CE, significant differences can be easily discerned between texts that supposedly represent the same language, either Sumerian or the later Akkadian. In this sequence, there are obvious physical differences, such as tablet shape and paleography. But the reader will also notice significant orthographic differences, that is, differences in the spelling and in the usage of cuneiform signs. A sign that previously represented a certain value will at some point begin to represent new values. A specific syllable that was previously written with a certain sign will now be written using a different sign. Since cuneiform is a mixed system, employing both logograms and phonograms, another shift could evince itself in phonetically written words now being written logographically, or vice versa.

As discussed before, orthographic changes can occur either within the framework of a comprehensive reform or as a series of local changes which may evolve out of intellectual circles. The Mesopotamian example suggests something more similar to the latter process. Even so, one cannot discount the possibility that these changes were influenced by the subtler pressures of the general political climate and its demands on society. Once both the main paleographic and orthographic cuneiform changes are reviewed, a pattern emerges whereby such changes occur in near simultaneity with the historical changes and developments in Mesopotamia. First and foremost among the political catalysts of these changes are the adjustments induced by the arrival of new or altered regimes of power.

For example, the fall of Babylon, the historical event marking the end of the OB period and the transition into the Middle Babylonian period, is undoubtedly a significant event in the Mesopotamian annals. Most scholars agree that the aftermath of this fall was an intermediate

period (a so-called "Dark Age") with no textual records produced for several decades, perhaps even a century. When the curtain finally rises on the MB period, though the chronology is not yet sufficiently established, significant changes that are unmistakably identified with the new period begin to appear.[313] Scholars must seek to fill the gap between these periods, tracking down the origins of each of these orthographic changes which lie at the core of our present discussion. As it stands, forerunners and examples of orthographic attestations appear during the OB or early MB that are usually identified with the later MB, such as mimation or writing /m/ for /w/ (Gelb 1961c).[314] Yet it must be stated that we currently cannot discern the missing link or links between the periods and the questions of origins remain unsolved.[315] Furthermore, no specific king can be associated with these orthographic changes, which, as explained, means these changes may have indeed occurred over a long period of time, emerging from "bottom-up" influences in the field and not necessarily dictated at a specific point.

The OB writing reform does share some similarities with other orthographic changes, but it differs in one important aspect. Usually there is a specific event (sometimes break) marking the end of the old orthography and the beginning of the new, such as in Šulgi's 20th year reforms or Šū-Sîn's 3rd year reforms. One must justify an approximation of the change or the initiation of the process. The safest method for testing such a theory involves locating these changes within

[313] Such as the drop of /w/ in beginning of words (*arādu* instead of *warādu*), the change w>m after vowels (*amīlu*/*amēlu* instead of *awīlu*) or the change št>lt (*ultapras* instead of *uštapras*).

[314] A similar case is in the writing reform that was a part of the Ur III state reorganization in the Šulgi's 20th year (Steinkeller 1987b). In spite of the evidence collected by Steinkeller, other scholars have indicated earlier developments that may or may not have been related to the same writing system reform (Waezoldt 1991, 638). Orthographic changes (or reforms) seem to have taken place also later. For instance, the Semitic word *apāru* 'lead' was rendered a-bar$_2$ in Sumerian until Šū-Sîn 3, and from this year and on a-gar$_5$ (de Maaijer and Jagersma 1997-1998, 280). For this reform, see Veldhuis 2012.

[315] See for instance the mimation in Kadašman-ḫarbe I's *kudurru* inscription, allegedly dated c. 1400 BCE (Paulus 2014, 296ff.). Some words show mimation while other do not, which may indicate a transition period, but in fact, it is a late inscription written intentionally in archaic orthography (Brinkman 2015).

Akkadian texts dated to a specific OB king and work outward from there. Among the textual genres at our disposal, the economic and administrative texts are most easily dated by year name formulae. Royal and votive inscriptions are also dated by the king named therein, although caution is required here because, in some cases, these inscriptions can be either later copies or otherwise deliberately written in an archaic fashion.[316] The epistolary texts are either royal letters, which are dated like royal inscriptions, or private letters that are more difficult to date. Scholarly texts are probably the most difficult to date, as they contain no clear chronological markers. In many cases, these texts are dated by comparison with other texts, both paleographically and orthographically. Finally, the genre of OB literary texts, specifically laments or even royal hymns are of less importance for our discussionm since these were written almost solely in Sumerian, and in any event are dated to the OB's later phases and not when the bulk of orthographic changes occurred.

The early OB period, specifically the early Isin period, yields a large number of administrative texts dated with year-names, but all written in Sumerian. Akkadian mainly appears now in personal names and in some Semitic lexemes, mostly not attested later.[317] One possible exception is BIN 9, 475, a single example of a letter written in both Akkadian and Sumerian.[318] The text allegedly belongs to the Turam-īli archive, dated to the Ur III's terminal phase in parallel to Išbi-Erra's earliest years.[319] A person mentioned in this letter, Šu-Eštar s. of

[316] For example, in the above-cited Kadašman-ḫarbe I's *kudurru* inscription, some words show mimation while others do not. That feature might be taken to indicate a transition period, but in fact in this case it is a late inscription intentionally written in archaic orthography (Brinkman 2015).

[317] And therefore, may be seen as closer to OAkk than to the Akkadian of the OB and onwards, such as *takširum* (CAD T, p. 88) or *zamirītum* (CAD Z, p. 39).

[318] 1. *a-na puzur*$_4$*-ki-iš* 2. *qi*$_2$*-bi*$_2$*-ma* 3. 2(aš) 2(bariga) gur SI-*na-am* 4. *šu-bi-la*$_2$*-am* 5. ki *tu-ra-am-i*$_3$*-li*$_2$ 6. *šu*-U.DAR 7. šu ba-ti. Seal: 1. *šu*-U.DAR] 2. dumu *puzur*$_4$-[^{d}IŠKUR] 3. dam-gar$_3$.

[319] Given that Ibbi-Sîn 8 = Išbi-Erra 1.

Puzur-Adad, might be the same person mentioned in administrative texts dated to Ibbi-Sîn 1 (= 2028 BCE, Garfinkle 2002, 41-42) and Išbi-Erra 20 (= 1997 BCE, BIN 9, 40). However, given the Akkadian, Van de Mieroop (1984, 7) dates this letter much later, and argues that Šu-Eštar and Turam-īli were different people from the Ur III individuals.[320] In any event, the letter is too short and not sufficiently indicative to offer any orthographic novelties.

5.4. Orthographic Shift

The main orthographic changes indicated in the OB reform are: 1) Distinction of voiced and voiceless phonemes in the script; 2) Indication of gemination and *plene* writing; 3) Greater use of logographic writing; 4) Replacement of specific signs and standardization

Insufficient documentation during this transitional period hampers assessments of whether all four of these changes occurred simultaneously, or whether certain of these emerged earlier than others. Certainly, the change most identifiable with the OB orthographic reform is the distinction of voicing. Unlike the old orthography, which assigned one sign for all three obstruent options (voiced, voiceless, emphatic), each of the obstruent options now has its own sign. However, several syllables ostensibly crucial for the Akkadian phonology were never assigned specific signs, including all the VC syllables and most emphatic phonemes. These remained as they were written in the earlier orthography of the third millennium, as discussed earlier.[321]

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[320] See also Gelb's criticism (1961d, 131) on including this letter in BIN 9.

[321] The only exception is /qa/, the only syllable that was assigned the sign $SILA_3$, and even this happened only in the later stages of the OB period.

Though there is insufficient information to chronologically date the orthographic changes, extant evidence does indicate that specific changes preceded others. For instance, the use of DI for /di/ appears to have preceded the use of KA for /ka/ – but not across all regions or genres.

It should be noted that phonological and even morphological developments possibly accompanied the OB orthographic changes, and require analysis beyond the scope of this work.[322] In any event, from the OB and on, the set of changes termed the "OB orthographic reform" entirely changed cuneiform.[323] The shift is most easily observed by contrasting word or name spellings before and after the reform, which can clearly be demonstrated both diachronically and synchronically.

5.5. Timeline Differences

The 12th year name of Išbi-Erra of Isin is dated to the Ur III's terminal phase (2010 BCE), six years before Ur's demise (Sigrist 1990, 14).[324]

mu ^{d}*Iš-bi-ir$_3$-ra* lugal ma-da-na-ke$_4$ bad$_3$ gal *i-ti-il-ba-šu-nu* mu-du$_3$[325]

Year, Išbi-Erra, king of his land, built the great wall (called) Idil-pâšunu.[326]

[322] Such as the disappearance of dental fricatives /θ/ (Hasselbach 2005, 31).

[323] For possible reasons for this reform, see Chapter Five.

[324] According to the Ur-Isin king list, Ibbi-Sîn of Ur, the last Ur III king, ruled for 24 years; his last year corresponds to Išbi-Erra's 18th year (Sigrist 1990, 4).

[325] Several exemplars read *i-ti-ba-šu-nu*; to be interpreted *i-til$_3$-ba-šu-nu*, or less likely *i-ti-<il>-ba-šu-nu*.

[326] Despite the exemplars above (n. 10), the verb should be interpreted as *edēlu*, not *elû*. (CAD E, p. 25; lex. sec.). See also Baqir 1948, 109.

The same wall is mentioned in the Kazallu letter, sent by Puzur-Numušda to Ibbi-Sîn, a school text found in several copies, all dated around 1800 BCE, around the reign of Rim-Sîn of Larsa and afterwards (Michalowski 2011, 439 ff.).

i_3-si-in^{ki}-na bad_3-bi ga-am_3-du_3 *i-di-il-pa-šu-nu* mu-$še_3$ ga-an-sa_4.

Isin's wall I shall rebuild (and) name it Idil-pâšunu.

The letter shows the new OB spelling *i-di-il-pa-šu-nu*, using the signs DI and PA, in contrast to the earlier orthography's TI and BA, respectively. Interestingly, one of the exemplars shows what can be interpreted as an evidence for the orthographic changes that were taking place at the time. It appears the student first wrote the sign TE but then erased it and wrote the sign DI instead (ibid. 457, n. 32). We can even imagine a scenario where the student using the old orthography was corrected by his teacher and directed to replace it with the newly adopted sign DI.

5.6. Regional Differences

The regional differences between the north and the south are pertinent to this discussion. Generally speaking, in a formula oft employed to answer different questions, the south is more conservative, adhering to the earlier orthography, due to its historical Sumerian tradition. This stands in contrast to the more Semitic-oriented north.

The evidence from Uruk suggests interesting south-north differences and display texts of different textual genres. Around 1860 BCE, Sîn-kāšid, a local southern ruler in southern Mesopotamia established an Amorite dynasty in Uruk. Though he ruled in the south, he also had strong northern relations through his father-in-law, Sumu-la-El, founder of the First Dynasty of

Babylon. This synchronism is helpful in dating Sîn-kašid's reign, as well as those of Sūmu-El and Nūr-Adad of Larsa.[327]

Table 15. Early OB Dynasties

Uruk	**Babylon**	**Larsa**
Sîn-kāšid	Sūmu-la-El (1880-1845)	Sūmu-El (1894-1866)
		Nūr-Adad (1865-1850)
Sîn-irībam Sîn-gāmil Ilum-gāmil	Sabium (1844-1831)	
	Apil-Sîn (1830-1813)	
Anam	Sîn-muballiṭ (1812 -1793)	

Sîn-kāšid's royal inscriptions are all written in Sumerian, but his Akkadian name is written in the old orthography: ^{d}EN.ZU-*ga-ši-id*. This may show some preservation of the old orthography that was still considered standard in the writing of personal names, usually written in a highly conservative manner. The same is true for Anam's letter, addressed to Sîn-muballit of Babylon, found at Uruk and dated c. 1800 BCE (Falkenstein 1963, 56 ff.); which is either an archive copy or an unsent letter. The letter shows a full OB orthography, but Sîn-kāšid's name is written with GA for /ka/ as in this king's original royal inscriptions (col. III, l. 28), which Falkenstein also noted as an unusual orthography. The question once again is whether this spelling is a regional marker of the conservative south or a feature of more formal royal or official writing. Falkenstein mentions an unprovenanced administrative text employing the sign KA for the same name: BAD_3 30-*ka-ši-id* (VS 13, 104. col. III, 29). Two legal texts dated to the same period, Sūmu-la-El 26 and Sūmu-la-El 33, mention Sîn-kāšid (which may or may not refer to the king) and use

[327] There were two types of Amorite dynasties: kings with Amorite names, such as the First Dynasty of Babylon and kings with Akkadian names, such as Isin I. At Larsa, the Nūr-Adad dynasty using Akkadian names replaced the Samum dynasty using Amorite names). Sîn-kāšid's dynasty names were mostly Akkadian.

the sign KA; ^{d}EN.ZU-*ka-ši-id* (CT 6, 22 and YBC 4375). The first tablet comes from Sippar, while the latter is unprovenanced, but probably from the north as well (Goetze 1950). Finally, the recently published treaty between Uruk, Larsa and Ešnuna, dated 1843-1842 BCE (Guichard 2014), mentions Sîn-kāšid several times, all of them with KA. This may point to regional differences after all. On the other hand, two OB letters still preserve the old orthography: One clearly from the south (Girsu) preserves an unusual archaic spelling ^{d}EN.ZU-*ga*-SI-*id* (AbB 5, 142), and the other is unprovenanced and displays ^{d}EN.ZU-*ga-ši-id* (AbB 6, 177).[328]

5.7. Approximate Date

5.7.1. The Mari Orthographic Reform

While the evidence from Mesopotamia is as yet scarce and rather vague, more compelling evidence of an orthographic shift comes from Mari, on the Middle Euphrates. Although no specific evidence of an edict or order imposing scribal reform has been found, an orthographic shift does seem to have taken place during Yaḫdun-Lim's reign (c. 1810-1795).

Two identical texts, one written in the old orthography and one in the new orthography, correspond to the political shift in Mari from the so-called *šakkanakku* period to the Yaḫdun-Lim's Amorite dynasty (Durand 1985, 161-162). Whether this change in orthography is directly related to the reform in Babylonia or was merely one of many occurring over a long period of time is not clear.[329] The main changes that can be detected in the standardization and in turning the Mari peripheral writing to be closer to an alleged standard writing:

[328] The problem of Akkadian sibilants and their phonetic shift in the OB is a specific topic that has been separately discussed (Streck 2006, with literature).

[329] One should keep in mind that the so-called *šakkanakku* dialect is a completely different dialect, and any comparison with Akkadian must be taken advisedly. See Charpin 2012; Durand 2012.

Table 16. The Orthographic Reform at Mari

	Old Orthography	Reading	New Orthography
Syllabary	DI[330]	*ša*	ŠA
	ZA	*sa*	SA
	URU	*ri*	RI
	LAL	*la*	LA
	RU or RU-UM	*ru*(*m*)	AŠ
Logographic writing	*ḫu-ru-ru-*(*um*)	*ḫururum*	GUZ
Divine names	ḪA-a	Ea	E_2-a[331]
	ZI-EN	Sîn	30
Morphographemic writing:	*si-ni-qi*$_2$-DI-*am*	Sîn-iqīšam	30-*i-qi*$_2$-*ša-am*
	al-aq-ru-um	Ali-waqrum	*a-li*$_2$-*wa-aq-rum*
	ṣil$_2$-*la*$_2$-*iš-ḫa-ar*	Silli-Išḫara	*ṣil*$_2$-*li*$_2$-^{d}*iš-ḫa-ra*[332]
	šum-si$_2$-EN	Šū-ma-Sîn	*šum-ma*-30

There is no clear evidence for attention paid to voicing or gemination. Mimation seems like an orthographic issue with no implication on pronunciation. In one case, we see two opposite changes in the same sentence: the old *u*$_2$*-ṭub-lum bi-ru* changes to the new *u*$_2$*-ṭub-lu bi-rum*. This example shows that the OB mimation, at least at Mari, was not necessarily realized in the actual pronunciation. It only represented an orthographic feature, probably deriving from the OB

[330] Based on standard *sa*$_2$. Durand transliterates it *ša*$_{18}$, while Gelb prefers *ša*$_x$

[331] Note the phono-semantic value of using E_2 in a divine name.

[332] The new version also adds the deity classifier for the goddess.

schools in Babylonia.[333] However, if this example indeed represents the herald of comprehensive developments, then it indicates an orthographic reform took place at Mari around 1800 BCE. Whether or not it is part of a set of reforms, this example does not represent the origin of the OB reform, because the orthographic changes appeared even earlier in Mesopotamia. One must also be careful with any comparison between Mari and Mesopotamia, as the languages in these two places, especially Mari's *šakkanakku*, cannot be considered identical. Though the linguistic affiliation between the languages is clear, and is useful in etymological study, several morphological forms show clear differences between the two.[334]

5.7.2. The Orthographic Reform in Babylonia

Unlike the "smoking gun" from Mari, there are no examples of this sort in Mesopotamia. One possible reason is that the textual Akkadian textual inventory predates the Mari reform with very few examples throughout the 19th century BCE and the almost none in the 20th century BCE (Veldhuis 2012). The main challenge of studying the OB's early phases is the small quantity of material to analyze, which prevents us from drawing definitive conclusions. The scarcity of even Akkadian personal names leaves us with substantial questions regarding, for example, the problem of phonetic vs. logographic writing. As demonstrated, the OB reform presents a clear tendency to use more logographic writing as one its novelties.[335] Let us examine the name Ṣilli-DN ("DN is my protection"). This is a common Akkadian name, attested throughout the OB

[333] See also Gelb's comments (1955) regarding mimation as an orthographic feature rather than phonetic.

[334] See for instance the Mari PN Amir-Šulgi in Ur III texts (e.g., *a-mi-ir-*^{d}*šul-gi* MVN 15, 189), clearly related to the Akkadian verb *amāru* (to see), but with different theme vowel, /i/ instead of /u/. It can also be interpreted "to say", as in the western Semitic tradition. See the recent evidence of interpreting ʔ.m.r. as "to say" (George and Krebernik 2022, 126-127).

[335] See for instance the evidence from Mari.

period and beyond, usually written either *ṣi-li*$_2$-DN, *ṣi*$_2$-*li*$_2$-DN or ĜI$_6^{li}$$_2$-DN.[336] This name is indeed attested as *ṣi-li*$_2$-U.DAR (BIN 9, 332), but this is the only attestation dated to the early Isin kings. At Kisura, the same name is attested several times, either *ṣi-li*$_2$-DN or *ṣi*$_2$-*li*$_2$-DN, never ĜI$_6^{li}$$_2$-DN. On the other hand, the logographic form is abundantly attested in tablets from Tell Harmal and Tell Ishchali, both in the north, but also a little bit later.[337] Does this point to a chronological difference or perhaps only to regional scribal traditions?

5.8. OB Textual Inventory

A review of the early OB text inventory reveals an absence of clearly dateable material. This poses clear challenges to scholars hoping to link this material to a particular historical and political moment, foremost of which establishing the exact onset of this period. Lacking concrete evidence, resolving this question has become a matter of scholarly approach. It is generally considered that the fall of Ur is the watershed event that led to the end of the Ur III period and the beginning of the OB period. This is certainly true on many levels, especially in view of the political shift from Ur to Isin and the Amorite rise to power. Amorite political dominance is indeed the most distinctive feature of the OB period, which has prompted some scholars to name the entire OB as "The Amorite Period" (Charpin 2004a).[338]

For the sake of clarity and convenience, the period between the fall of Ur and the fall of Babylon is divided between the early OB or the Isin-Larsa period (2004-1792 BCE), followed by the OB period beginning from Hammurabi onwards (1792-1595 BCE). Some scholars further

[336] Sometimes transliterated as *ṣil*$_2$-*li*$_2$, but better interpreted as logographic with a phonetic complement ĜI$_6^{li}$$_2$, due to forms such as ĜI$_6$-^{d}*Nin-urta* (TIM 3, 135). One may read it *ṣil*$_2$-<*li*$_2$>-^{d}*Nin-urta*, but this seems unnecessary.

[337] Alongside the phonetic form. Tell Harmal also has rare examples of using LI for this name: ĜI$_6^{li}$-30 (YOS 14, 24) or the hypocoristic ĜI$_6^{li}$$_2$-*ia* (YOS 14, 78).

[338] For criticism of this term, see Yoffe 2007.

divide this lengthy latter period into the earlier Hammurabi period (sometimes to Samsu-iluna's 28th year, 1792-1722 BCE) followed by the Late OB period, measured from Samsu-iluna's loss of the south onwards (1722-1595 BCE). This "Late OB period" represents Babylon's decline, which continued until it was finally destroyed in 1595 BCE.

Yet, it would also be reasonable to divide the earlier Isin-Larsa period as well. Isin's exclusive rule in the region (roughly the 20th century BCE) would determine the first part of this period, since the early kings of Isin I made efforts to preserve some Ur III traditions.[339] Šū-ilīšu, the second king of Isin, and his immediate successors never called themselves "King of Isin" in royal inscriptions, but rather "King of Ur".[340] Later Isin I kings continue to mention Ur in their royal inscriptions as an important religious center, even though the city itself was probably lost under the reign of Ur-Ninurta, sixth King of Isin. This, combined with the observation that Isin, to some extent, regarded itself as Ur's legitimate successor, invites one to identify the Isin period as the "Late Ur III Period".[341] The second period of this historical division would stretch from the late 20th century BCE when Larsa rose to become a political power, first competing with the Isin dynasty and finally conquering it.[342] Although decisive evidence is lacking, it appears at this point that Larsa kings adopted a different approach. On the one hand, all Larsa's royal inscriptions are written in Sumerian, unlike the Isin kings who did have a few Akkadian

[339] Such as the deification of the kings, though not in the exact same manner. See Steinkeller 2017.

[340] Albeit Išbi-Erra himself, the founder of Isin I dynasty may have seen things differently (Michalowski 2005). See for instance an early OB short text (Alster 1997, 86) which appears to criticize the kings of Ur III. Successive dynastic kings basically saw themselves as the Ur III direct successors. The Ur-Isin Kinglist, written during the the last Isin king's reign, Damiq-ilīšu, presents the kings of Ur III and Isin I consecutively, as if they belonged to the same dynasty (Grayson 1980-83, 90).

[341] The Ur-Isin Kinglist presents the kings of Ur III and Isin I consecutively, as if they belonged to the same dynasty (Grayson 1980-83, 90).

[342] For the early Larsa kings, see Steinkeller 2004a.

inscriptions. That southern Larsa had a stronger Sumerian tradition than northern Isin should not be surprising.

By contrast, Larsa's connection with Ur was gradually diminishing even during the reign of Gungunum, the first documented king of Larsa. Despite the lack of Akkadian texts during Gungunum's rulership, the Akkadian personal names that appear on economic and administrative documents, apparently from several decades later, already display the first signs of the impending OB orthographic reform. Everyday Akkadian usage increased, and is mainly expressed in epistolary texts.

Another issue that emerges from the inventory review is that the various textual genres surveyed here are not contemporaneous, and by no means represent a specific period during the OB period.

The earliest Isin texts were all written in Sumerian. Perhaps, therefore, these should be considered (late) Ur III texts; or they might simply be an artifact of the genre, because economic and administrative texts were regularly written in Sumerian.[343] This indeterminacy means that the presence of Sumerian alone offers no conclusive evidence of any change in the OB period, as economic and administrative texts simply continued in the same fashion already established in the third millennium BCE.

Another aspect to consider is the regional differences between the north and the south. These might merely reflect regional usages, and therefore cannot be compared for the purpose of establishing a timeline of orthographic development changes. Texts of the same character and their spellings of identical words, personal names, or geographical toponyms must be compared

[343] Or highly and even entirely logographic. See discussion below.

as they were written before and after the suggested historical marker changes. Only at this point of demarcation may we use the term OB orthographic reform for this period.

Finally, as discussed earlier, the term orthographic "reform" is also only designated for ease of reference and is in fact technically incorrect, as the total orthographic changes did not stem from a single event that revised cuneiform spelling conventions. Rather, the changes resulted from several innovations that began in different places and different periods. One cannot define the reform in a specific moment in time, but rather only indicate when, in the duration of a relatively short period, the most notable changes occurred. In fact, additional orthographic changes continued to occur throughout the OB period, even at the late OB.

5.8.1. Economic and Administrative Texts

Economic and administrative texts are particularly useful for determining possible chronological differences, since they are the earliest OB texts, as seen in the year names. Most of them, especially the earliest ones, are less relevant to our discussion because they are written almost entirely in Sumerian. The earliest economic texts (BIN 9) and administrative texts (BIN 10) are dated to the OB's earliest phase. Based on several personal names and the very few Semitic lexemes found in these texts, it is clear that the old orthography was still used in Mesopotamia at the time. This continued use can be discerned in the lack of distinction in voicing such as *su*$_2$-GA-*li* for *sukkallu* (BIN 9, 207) or *i*-TI-^{d}*Nin-gal*$^{?}$ (BIN 10, 108); and also in the irregularities in sibilants, such as PN *ša-ma-mu-um* (BIN 9, 406) vs. SA-*ma-mu-um* (BIN 9, 423).

Nevertheless, the few Akkadian words and the personal names found in these texts do point to orthographic changes that were already occurring at the end of the 20th century BCE. The main question is whether these changes, or what we might call *proto*-changes, are related to

the political landscape at the time: Isin's decay, Larsa's rise, and shortly afterwards Babylon's ascension to become an exclusive political force in Mesopotamia.

Two unprovenanced tablets attributed to Gungunum, the first documented king of Larsa, offer examples such as *ka-ak-ki* (YOS 14, 175) or *di-in*-DINGIR (YOS 14, 349), Another tablet from Ur, dated with Gungunum's year name shows the somewhat rare word *ka-ba-ṣum*.[344] One PN to note is ^{d}EN.ZU-*ga*-SI-[*id*] for Sîn-kāšid (FAOS 2, 115) resembling the example from Girsu mentioned above.[345]

A generation later, we find a noteworthy example in a non-geminated text, dated to Abi-sare's first year (YOS 14, 176).[346] Another text, dated to the same king reads *ka-lum-ma*-[*tum*] (YOS 14, 217). The texts dated to the third Larsa king, Sumu-el, contain much more OB orthography, but on can still find an unusual spelling *id*-TI-<*in*>, both on the tablet and the envelope, employing gemination but requiring the sign TI for /di/ (Figulla and Martin 1953, 88).[347]

In the north, a legal text and envelope from Sippar dated to Sūmu-la-El 29 (CT 6, 49) may show an interesting case of transition to the OB orthography, or perhaps relics of the old orthographic habits within a newer system. The CT publication provides a copy for the tablet, but not for the envelope. According to the online transliteration (P385869), the tablet reads *ka-re-e-em* (as seen in the copy), while the envelope reads ⌜ GA ⌝-*re*-⌜ *e* ⌝-*em*. L. Dekiere (1994, 46)

[344] Twenty-eight tablets from Ur, dated with Gungunum's year-name are of particular interest as they are provenanced, but there is almost no information relevant for our discussion.

[345] Nonstandard writing of sibilants is a clear feature of the earlier orthography, later attested almost exclusively in the periphery.

[346] *… ma-la e-li i-la-ki i-šu-ma ṣi-ba-at ša-na-at i-⌜na-ṣa-ar⌝…*

[347] See this spelling also in Uruk (Sanati-Müller 1988, 493), and later in late OB tablets from the periphery, such as Tigunānum (George 2017, 98) or Šemšara (Eidem 1992, 66 t. 41).

transliterated the same text but has not provided copies or photos. According to his transliteration, the word on the tablet is to be read, ⌜ *kar* ⌝-*ri*-⌜ *e* ⌝-*em* [sic].[348] Though the envelope is not available, Dekiere's version seems less likely, as there is no other example of it, nor is there any reason for writing this word geminated. This tablet may indicate that as late as c. 1850 BCE the syllable /ka/ could still be written interchangeably with both KA and GA on the same text.[349]

The first third of the 19th century BCE is thus suggested as the approximate date for cuneiform orthographic changes, while noting the old orthography's relics remained in some cases, especially in official epistolary or royal inscriptions.

5.8.2. Royal Inscriptions

Early OB Royal inscriptions are rarely written in Akkadian. Most of the Isin-Larsa royal inscriptions were written in Sumerian, excluding a few Akkadian inscriptions, as well as Akkadian personal names (of the kings themselves), and several lexemes in the Sumerian inscriptions. In many cases, royal inscriptions cannot serve as indicators since they were often purposefully written in archaic fashion, both orthographically and paleographically.

5.8.2.1. Isin Royal Inscriptions

Lacking any other evidence, the Isin royal inscriptions offer a clue regarding the OB orthographic reform.

[348] The reading <kar> (TE.A) seems like a typo in the publication, as it is completely different from GA. Perhaps Dekiere meant to read kar_3 (GAR_3)  which seems quite similar to GA .

[349] This does not include later use of old orthography features in archaic contexts or in peripheral Akkadian, e.g., the Amarna letters.

Table 17. The First Dynasty of Isin

King	Reign
Išbi-Erra	2019-1987 BCE
Šu-ilīšu	1986-1977 BCE
Iddin-Dagan	1976-1956 BCE
Išme-Dagan	1955-1937 BCE
Lipit-Eštar	1936-1926 BCE
Ur-Ninurta	1925-1898 BCE

The earliest example of an OB royal inscription written in Akkadian is a bilingual inscription of Šū-ilīšu (Klein 2008, 162 ff.). The text shows clear old orthography, resembling the third millennium BCE bilingual inscriptions. The same is true of the recently published inscription of Išme-Dagan of Isin (George 2011, 89), a rare Isin I Akkadian inscription, that clearly employs the old orthography, by use of the signs TU for /du/, TI for /di/ and GA for /ka/.[350] These two inscriptions indicate that writing in the early to mid-20th century BCE still employed the old orthography before the advent of the OB reform changes. This king's other Akkadian royal inscription is a fragmentary text, evincing the old orthography only in *ma*-TI-*iš* for *mādiš*, or in the somewhat obscure *e-em*-GI$_4$-*im* for *emqim*. One possible change is indicated in the spelling of the king's name itself, *iš-me-da-gan*; perhaps heralding the upcoming reform.

A generation later, an Akkadian royal inscription of Lipit-Eštar was found on several dozen exemplars (Frayne 1990, 49-51; George ibid. 92), each of which exhibit the same irregular orthography, suggesting that they were all made from one copy. Most of the orthographic features appear old, including GA-*ni*-*in* for *kānin*, and *a*-GA-TI-*im* for the GN. The first indication of progress towards the OB reform is *i*-KA-*ru-um* for *ikkarum*, using KA for /ka/, yet

[350] George notes another interesting feature that looks slightly anachronistic - use of the sign ŠU$_2$, commons to inscriptions dated to the late 2nd millennium BCE.

without the expected gemination and it is written phonetically.[351] This leaves us in the last third of the 20th century BCE with an inscription almost entirely written in the old orthography. No later Isin Akkadian royal inscriptions have yet been found.

5.8.2.2. Larsa Royal inscriptions

The situation in Larsa is more complicated. Unlike Isin I, the Larsa dynasty was probably not a monolithic dynasty of one royal family. The Larsa King List (Grayson 1980-1983, 89) presents a king list which at first glance does appear to be that of one consecutive dynasty. However, this list actually contains at least four dynasties: 1) the Samum dynasty[352]; 2) tNūr-Adad dynasty; 3) Kudur-mabuk's sons, Warad-Sîn and Rim-Sîn I; and finally 4) Hammurabi and his son Samsu-iluna, kings of Babylon who also bear the title "King of Larsa", following Rim-Sîn's defeat in Hammurabi's 28th year.[353] Dynasties 1-2 identify themselves as Amorites; and though the first dynasty's kings had Amorite names, the second had Akkadian names. For our purposes, the most relevant dynasties are the Samum and the Nūr-Adad dynasties, especially at the transitional point between them (Table 18).

Table 18. The Dynasty of Larsa

King	Reign
Gungunum	1932-1906 BCE
Abi-sarê	1905-1895 BCE
Sūmu-El	1894-1866 BCE
Nūr-Adad	1865-1850 BCE
Sîn-iddinam	1849-1843 BCE

[351] Unlike the more common OB logogram $ENSI_2$.

[352] His two predecessors, Naplanum and Emiṣum, were probably not independent kings, but local governors subordinate to the king at Ur (Steinkeller 2004a, 37-41).

[353] For possible connections between the Nūr-Adad dynasty and Kudur-Mabuk's dynasty, see Fiette 2020.

The first Larsa documents are dated to Gungunum, who reigned in parallel to Lipit-Eštar and Ur-Ninurta of Isin. However, Larsa royal inscriptions, specifically the relevant inscriptions for the early OB, i.e., those of the first two dynasties, are all written in Sumerian, and are not relevant here.

5.8.3. Epistolary Texts

While royal inscriptions represent - or are supposed to represent - official writing, letters are the exact opposite. Except for specific examples that may be considered literature, letters usually were written ad-hoc and therefore show the closest textual genre to the vernacular, sometimes including direct quotes. Royal letters may be considered the middle ground between the official and unofficial registers of writing, as they represent official correspondence but are still written ad-hoc and are only rarely written archaically.

The main sources for early OB letters are those from Tell Asmar (Whiting 1987), Tell ed-Dēr (De Boer 2021), Kisura (Kienast 1978) and the early OB Larsa letters (George 2018). Their exact chronology is not entirely clear, but the Asmar letters mention five Ešnuna kings, the last of whom, Ipiq-Adad I, reigned around 1900-1890 (De Boer 2014, 200).[354] The Kisura letters are presumably dated to the end of the 20th century to the early 19th century BCE, not much later (if at all) than Tell Asmar. The Tell ed-Dēr letters are dated slightly later and display a much more developed orthography. Of these four, the Larsa letters are the youngest - obviously closer to the OB orthography, but with some noted old orthography features. Most of the 32 royal Larsa letters are dated to Sūmu-El, with one dated to Nūr-Adad. As the Larsa relative chronology is well established, these letters are to be dated around 1890-1860 BCE. Aside from the slight

[354] For discussion regarding Tell Asmar chronology, see Whiting 1987, 3 ff.

chronological difference, note again that Tell Asmar on the Diyala is in the north, while Larsa lies in the more traditional south.[355]

Each of these epistolary texts exhibits the orthographic phenomenon of mixed orthography, in which scribes employ both old and new orthographic features. In what follows, four of these texts are examined for their mixed orthography, which may point toward a transition period when old scribal habits still remained amidst the new approach, or, perhaps conversely, when new features had been recently introduced into the old system.

5.8.3.1. Tell Asmar (Ešnuna)

Orthographically speaking, the letters should be divided into two groups: nos. 1-37 and 38-55. Letter 38 may employ mixed orthography of both GA and KA for /ka/. The sign KA is reportedly used in this letter for the GN Kazallu (*ka-zal*-[*lu*]), a spelling already attested in OAkk (Whiting 1987, 95).[356] However, it is uncertain whether this GN is to be read Kazallu, or Kirizallu (KA = $kiri_4$), as the phonetic value /zal/ for NI is only rarely used in Akkadian (P. Steinkeller *pers. comm*.) In any event, the same letter also employs DI for /di/, a clear feature of the upcoming OB orthography. This raises the question of whether writing DI for /di/ indeed preceded the use of KA for /ka/, a question that is not decisively resolved in the Asmar letters. The first group of letters regularly uses TI for /di/, while the second group consistently shows DI for the same syllable. Four letters from the first group show one attestation of DI for /di/, including Letter 11 presenting a mixed orthography of three TI and one DI used for /di/.[357]

[355] Tell Asmar letters were found in the 1930s by the University of Chicago archaeological expedition, whereas Larsa letters come from the antiquities market.

[356] This may suggest a possible logo-phonetic writing if indeed original and not a later copy. See Gelb 1961b, 50.

[357] The same feature is seen in OA, which employs a similar orthography to the earlier orthography, but DI is consistently used for /di/. See Chapter Six.

The other letters in the second group (39-55) also show a clear distinction in voicing and gemination (*it-ti*, no. 44) in contrast to the first group (*i-ti*, nos. 18 or 27).[358] Only one Ešnuna king, Ipiq-Adad I, is mentioned in the second group, in Letter 40.[359] There is no clear synchronism between this king with other kingdoms that have been anchored in firmer chronologies, but the current evidence suggests he probably ruled Ešnuna in the early 19th century BCE (De Boer 2014, 200). If these two groups (Letters 1-37 and 38-55) indeed represent two chronological phases, in this basis we may suggest an orthographic shift occurring in the early 19th century BCE.

5.8.3.2. Ikūn-pîša Archive

Known as the Ikūn-pîša Archive, fifty-six letters found at Tell ed-Dēr (Sippar-Amnanum) in northern Mesopotamia are dated slightly later than Tell Asmar, probably around 1880 BCE (De Boer 2021, 21). Compared to Tell Asmar, these letters exhibit a more developed phase in the north that corresponds much closer to the OB orthography. Four letters (15, 43, 44 and 48) do, however, display some old orthography features, and if orthography serves as a chronological marker, then these are the earliest in this dossier. None of them show mixed orthographies for the same syllable, i.e., using both KA and GA for /ka/. Letter 15 shows an interesting case of employing GA for /ka/ (twice) and KA for /qa/. Only one example, Letter 14 (which mentions Sūmu-abum) has TI for /di/. Gemination is rare; the particle *itti*, for example, is always written *i-ti* as in the old orthography.

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[358] See also the PN DINGIR-*lu*-*tar*$_2$ in letter 15, corrected to DINGIR-*lu*-<*wa*>(?)-*tar*$_2$ (based on DINGIR-*lu*-*wa*-*tar*$_2$ in letter 13. It can also represent a phonetic writing, as in *al-aq-ru-um* for standard *a-li*$_2$*-wa-aq-rum* (see above).

[359] Note the unnecessary gemination in this very letter *šu-di-*<<*iš*>>*-šu-um* 'inform him'. Is this a hint for a scribal incompetence as a result of recent orthographic novelty?

5.8.3.3. Kisura Letters

The letters from Kisura (Abu-Khatab) are dated to the late 20th century to early 19th century BCE (Kienast 1978). While not royal letters, they do belong to the same context of the legal and administrative texts dated by year names (Goddeeris 2009).[360] Several year names mention Gungunum and Sumu-El of Larsa, Ur-Ninurta, Būr-Sîn and Erra-imitti of Isin, and Sumu-abum (See above tables 17-18).

Kisura is a small site in central Mesopotamia with an abundance of texts. Though they are relatively early, we see here an advanced phase in the orthographic changes as compared to Asmar. The syllable /ka/ is written interchangeably with both GA and KA, but /di/ is always written with DI; there is not one example of TI for /di/. Whether this points to a later date than Asmar or to regional differences is again indeterminate. Worse, obviously, is that the letters themselves are not dated, and we cannot be sure if any are of early Kisura in the late 20th century with the rulers Ur-Ninurta of Isin and Gungunum of Larsa), or if they all date to the mid-19th century BCE. All administrative texts dated to Gungunum are written in Sumerian, and there is no clear conclusion from the Akkadian personal names mentioned there.

One letter (FAOS 2, 149) shows an unusual phonetic writing *ta-am*-GA-*ra-am*, which appears like an example of the old orthography, preceding the standard OB logographic writing dam-gar$_3$. The same letter reads later also phonetically, *ka-sa-ap-šu*, instead of the expected KUG.BABBAR-*šu*. Other than this letter, only a few texts present mixed orthography, e.g., FAOS 2, 164. SA and ZA, for instance, are both used for /sa/, but never appear on the same tablet.

[360] For other published Kisura texts, see Charpin 2010.

5.8.3.4. Larsa Letters

Most of the Larsa letters are written in the OB orthography, but they still retain some earlier orthography relics. One would expect to see unusual features, including orthographic, in the transition of power between Sūmu-El, the last Samum dynasty king and Nūr-Adad who founded a new dynasty at Larsa. However, though these features are not detectible, note that only one letter is clearly dated to Nūr-Adad.[361] The main development for our purposes is that the new dynasty's kings have Akkadian names as opposed to the previous dynasty's Amorite names. Yet the orthographic changes seem to have taken place earlier, perhaps due to northern influence.

An example of orthographic changes can be seen in the word *sikkatum* which is written in several spellings.[362]

Table 19. *sikkatum* in the Larsa Letters

Spelling	Letters
si$_2$-GA-*tim*	2, 3, 7, 12, 13, 15, 16
si$_2$-KA-*tim*	5, 6, 10, 11, 14
si$_2$-*ka-ti-im*	18
si$_2$-*ka-a-tim*	1, 8, 9
si$_2$-*ik-ka-ti-im*	17, 19

Letters 1, 17 and 18, written in perfect OB orthography (including gemination in 17), mention Erra-imitti, king of Isin (1870-1863 BCE), whose short reign may be helpful in chronological discussions. The question is whether the GA in *sikkātum* is a chronological marker, or is it a particular word, written archaically? Aside from *sikkātum*, there is no use of the sign GA for /ka/ in the entire dossier, and the same word is occasionally written with GA even in late OB.[363]

[361] Obviously, other letters, especially the private ones, could be dated to Nūr-Adad but without clear proof.

[362] Attested several times in the term *rubbu sikkātim*, translated by George as "heads of security", or as "supervisors of pegs" by Steinkeller (1989a, 103).

[363] See examples in CAD S, s.v.

These letters point to a slightly later period than Asmar and Kisura, which may be explained as a northern influence.

Altogether, this evidence points to orthographic changes in Mesopotamia beginning around the end of the 20th century BCE, say around 1900 BCE, and then stretching over several decades to around 1850 BCE. This will be defined as the "OB reform", the time when most changes appear for the first time, changing the way scribes used cuneiform in Mesopotamia. Obviously, other changes appear in the OB, but for our purposes those will be considered as local and minor changes of specific signs or syllabic values. The current evidence offers examples first in the north and slightly later in the south, but this may simply be due to the frequency of excavations and the state of the extant textual inventory.

5.8.4. Divinatory Texts

5.8.4.1. Mari

The earliest omens treated by this are not from Mesopotamia but rather from Mari, dated to the *šakkanakku* phase (Rutten 1938). Although these texts precede the orthographic reform in Babylonia, they can serve as an example of texts that may have been contemporary with Babylonia when the OB reform was already at hand.[364]

Mari omen texts mention two kings, Išbi-Erra and Išma-Dagan, who appear at first glance to be the kings of Isin I. Gelb (1956, 3 n. 1) doubted whether the latter was Išme-Dagan of Isin; instead, he suggested that the king should be identified with Išma-Dagan, a Mari governor during the Ur III period. This is due to the consistent spelling *iš-ma*$_2$ in contrast to the regular *iš-me* of

[364] The problem whether the *šakkanakku* period was parallel with OB Mesopotamia or Ur III has not been sufficiently resolved.

the Isin king. Moreover, unlike the king mentioned in Mari omens, Išme-Dagan of Isin is always written with the divine classifier.[365] However, the other king mentioned in these texts, Išbi-Erra is also written with no divine classifier, and yet he is clearly Išbi-Erra of Isin. Furthermore, though the *šakkanakku*-period chronology is not established, it does seem that Išma-Dagan, *šakkanakku* of Mari, reigned much earlier, in parallel to the Old Akkadian Empire (Durand 2006-2008, 561). This issue can be resolved by suggesting that Išma-Dagan from the Mari omen texts is indeed Išme-Dagan of Isin, but the name is simply written in the old *šakkanakku* orthography.[366] If the Mari omen texts are indeed contemporaneous with Mesopotamian Isin, they stand as a unique example of texts written at the juncture of the nascent OB reform in Babylonia before it reached Syria. If indeed this Išma-Dagan is the same Išme-Dagan of Isin, we see here an example of the same name written in the earlier and in the new OB orthography in different regions, or it could indicate that the OB reform started in Mesopotamia, and only later reached Mari. The overall orthography of the Mari *šakkanakku* omens does express classic features of the earlier orthography, including phonetic writing, and lack of gemination and distinction of voicing, as enumerated.[367]

5.8.4.2. Babylonia

The earliest copies of omens appear only later in the OB period, but they may preserve some relics of pre-orthography writing. Take for instance, the OB *šumma immeru* (Cohen 2020, 47-

[365] Rutten (1938, 44) transliterated DINGIR (il) before his name, but this must be a typo due to the sign AN preceding it: *u₂-ma-an iš-ma₂-*^{d}*da-gan*. The copy clearly shows only one AN sign.

[366] One may still wonder why only Išbi-Erra and Išme-Dagan of Isin, the first and fourth kings, were mentioned while Šū-ilīšu and Iddin-Dagan were absent of these texts.

[367] For the orthographic change MA_2 > ME, see 4.10.1.3

84). The text appears on three manuscripts, numbered by Cohen as A (YOS 10, 47), B (YOS 10, 48) and C (YOS 10, 49), all dated to the period between Rim-Sîn I and Hammurabi. Cohen suggests that manuscript B is slightly later than manuscripts A and C, and possibly copied from A (ibid. 84). At first glance, ms. B does appear to be a later copy, because of the lack of mimation (*ki-ir-bi-nu*, B45 instead of *ki-ir-bi-nu-um* at C17) and apocopation (*u_2-pa-la-aš*, *tu-pa-la-aš*, ll. 21-22 instead of *u_2-pa-la-aš-ši*, *tu-pa-la-aš-ši* at A84-85). However, other orthographic features may indicate the opposite case. A lack of mimation in the late OB may have been an indicator for the new MB orthography, but there is no disputing that each of these three manuscripts are dated from around the time of Hammurabi. It has been argued that mimation had already declined by this time and was only preserved in writing.[368] It is to be proposed that the lack of mimation here is not a date indicator but is rather a marker for erratum or possibly colloquial writing, and the same is true for the apocopation.[369] Therefore, it seems likely that B was the earlier copy, written haphazardly and in the old orthography, while the other two manuscripts amend the orthography, according to the teacher's instructions. We can see it in the plene writing (*ṣe-ḫe-re-tum* and *pu-lu-ša*, B3 instead of *ṣe-eḫ-ḫe-re-tum* and *pu-ul-lu-ša* A69, respectively) as well as in the choice of some signs. For *teleqqe*, B uses the old orthography *te-le-gi* (B3), while A employs the OB orthography, *te-le-ki-e* (A66). Interestingly, an identical word, *miqitti* is written in all three manuscripts in three different ways: B uses both the old orthography (*mi-gi-ti*, B42) and the OB version (*mi-ki-ti*, B10), with both written defectively; A reads *mi-ki-it-ti* (A72), and C reads *mi-gi-it-ti* (C14), with both written *plene*, but C still uses the

[368] The evidence from Syria shows a regular omission of mimation around the same time, such as Yadi'-abum, king of Terqa, even appearing in the Samsu-iluna's 28th year name, written either *ia-di-ḫa-bu-um*, *ia-di-a-bu-um* or *ia-di-a-bu* (Horsnell 1999, 221). The evidence from Mari above shows that mimation appears in some cases after the OB orthographic reform, i.e., it is merely a feature of standard writing.

[369] The Mari evidence above shows that this fashion is precisely identified with the pre-OB orthographic reform.

sign GI for /ki/, an old orthography indicator.[370] It is hard to determine chronology on the basis of these three manuscripts, but if we postulate the orthography as a date indicator, we can indeed recognize B as the older manuscript, while A and C are slightly later, written in the newer orthography.

Another notable text is YOS 10, 50, an interesting case of either erroneous copying or orthographic (mis-)interpretation. The text reads in the first two lines *ši*-PI-*tum*, while all the rest are written *ši*-E-*tum*. The word should be interpreted as *šēpētum* the word for the footmarks on the liver (Cohen ibid. 84). The cause for this error derives from the copier's assumption that the PI sign stood for /we/, and the spelling *ši-e-tum* is a phonetic spelling for **šîtum*.[371]

Other omens from the same phase have recently been published (Khait 2013).[372] An interesting orthographic phenomenon is the phonetic writing of Sumerian loanwords; *girru* 'military campaign' is written KI-*ir-ri* (usually *gi-ir-ru* or *gir-ru*) and *gabaraḫḫu* 'rebellion' is written KA-*ba-ra-ḫu* instead of the more common spelling with GABA (ibid. 33).[373]

5.9. Conclusion

Despite the paucity of written material and knowledge as a whole about this period's history, some general lines are agreed upon in the research. Towards the end of the 20th century BCE, the Isin dynasty preserving the Ur III Sumerian heritage weakens significantly, initially giving way

[370] Other corrections can be seen in changing tenses (*i-iz-zi-za*, C2 instead of *iz-za-az-za*, B30) or adding possessive pronouns (*um-ma-an-ka*, C15 instead of *um-ma-nu*, B43).

[371] The same error may have led Schieleri (1929, 215-216) to read this word *ši-we-tum*, assuming this was an orthographic version for *šīmtum*. See also Khait 2012, 35.

[372] Khait (2011) has also joined one of these texts to YOS 10, 30.

[373] See also YOS 10 46 iv. 12 and other examples in CAD G, pp. 1-2.

to Larsa. Shortly afterwards, Babylon appears in the north as a major political force that will take over all of Mesopotamia. It must be noted that even in the 19th century BCE, the pre-Hammurabi kings of Babylon carried out impressive political and military achievements both in the north and even in the south with the royal marriage between Sūmu-la-El's daughter and Sin-kāšid of Uruk. Local orthographic changes are already visible during the reign of Gungunum, the first Larsa king to appear in year names on economic texts. It is difficult at this point to determine the connection between Larsa and the orthographic changes emerging from the scribal schools, but it is clearly evident that the kingdom of Larsa no longer preserved the heritage of the Sumerian language the way the early Isin kings did. Akkadian now takes a more central place in Mesopotamia and will soon become the main language of Mesopotamian administration and bureaucracy. Due to the current inventory of texts written in phonetic Akkadian, it is not yet possible to determine with absolute certainty whether this is indeed a northern influence. As mentioned above, the general assumption is that the Semitic north was more identified with Akkadian, which is less rooted in the strong Sumerian tradition that characterized the ancient cities of the south. With little other evidence at hand, it seems reasonable to assume that political changes in the north, among them the later centralization of political power in Babylon led to bureaucratic developments and reorganization.

Chapter Six: Old Assyrian Orthography

6.1. Overview

While change and development took place in southern Mesopotamia, the northern region experienced its own political upheaval during what is called the Old Assyrian period. The rise of the Amorites, which so impacted the geopolitics of Babylonia, did not affect the city of Assur to the same extent. The Amorite hegemony that spread over Babylonia during the early OB did not reach the north; rather, a local dynasty ruled the city of Assur and its immediate hinterland concurrently with the Isin-Larsa period in the south.[374] Only in a later phase, towards the end of the 19th century BCE, do we see the Amorite Šamši-Adad I in Upper Mesopotamia, conquering the city of Assur and ending its independence. Despite major political differences between the north and the south, one must consider the obvious parallels between them, first and foremost their language and its writing system, the cuneiform script. As this work deals with texts and language, it is important to note that what is generally perceived in research as "OA texts" is not parallel with, nor is it the product of, the entire timespan of what is called the "OA period". Although the OA period overlaps with the OB period, most tablets classified as OA texts stem from a very limited ca. thirty-year time span, from 1895-1865 BCE (Barjamovic et al. 2012). The OA period begins with king Puzur-Aššur I and the onset of his dynasty (ca. 2025 BCE), following the Ur III kingdom's rapid disintegration and the loss of its northern client city-states (Steinkeller 1987b; Lafont 1995). The point at which this period should be demarcated is Šamši-Adad I's rise to power, which drastically changed the face of the region.[375]

[374] Further north, what was later to become the Assyrian heartland between Nineveh and Arbil seems in the first part of the 2nd millennium to have been settled primarily by Hurrian speakers.

[375] However, there are a number of later texts including royal letters sent to the Hurrian kingdom of Tigunānum (George 2017, 97-100), all should be classified as Late OA.

Despite the considerable length of this period, which lasted several centuries, almost no textual records from this time have been found at Assur. On the other hand, far from the city itself, a large number of OA texts have been unearthed at Kültepe in Anatolia, 20 kilometers northeast of modern-day Kayseri. This site was host to a local trading settlement of Assyrian merchants who lived in Anatolia and traded with the locals, mainly textiles in exchange for metals. Over the course of several excavations throughout the 20th century CE, the site yielded more than 23,000 tablets, nearly all written in what is known as the OA dialect (Michel 2003). These unique circumstances mean we have almost no official court correspondence by royal scribes. Rather, our main evidence of this era and culture is a preponderance of business documents found in in a relatively peripheral site. These documents were largely written by, and for, private individuals with no scribal background. The OA Kültepe tablets are mostly consistent in the way they employ cuneiform signs and writing techniques. One must ask whether this can reliably indicate the writing and orthography of the entire culture of this period, or whether these records were created by non-professional scribes responding to the site- and time-specific needs of this community.

6.2. The Orthography of Kültepe Texts

Since the 1970s, scholars have maintained that the Kültepe texts, written mostly by merchants, provide evidence of non-professional writing by scribes who used a unique orthography, in contrast to parallel texts written in Babylonia by professional scribes (Larsen 1976, 144; Veenhof 1982, 365). According to the scholarship, unlike professional scribes who adhered to standard orthography and scribal conventions, OA merchants did not concern themselves with such

matters: instead, they used a small number of signs, and even chose "simple" signs with as few strokes as possible (Barjamovic 2015, 60 ff.; Larsen 2015, 55-56).

However, this interpretation must be re-examined for the following reasons. First, a significant proportion of the texts found at Kültepe were letters written in Assur by those who could have been professional scribes, as there is no clear orthographic distinction between these texts and texts written locally. Moreover, the fact that non-professional scribes wrote these texts is not, in fact, grounds for drawing far-reaching conclusions about their orthography. Indeed, recent studies have shown that literacy in the ancient Near East was much more widespread than previously thought (Veldhuis 2011). Given that children in modern China learn thousands of signs without any particular difficulty, there is no reason to assume that learning a much smaller number of cuneiform signs was any more difficult in ancient times.

The Kültepe letters provide a clearer picture of their authors than their Babylonian counterparts. Unlike many other extant texts whose obscure authorship forces scholars to guess at the identity of the scribe, the texts found at Kültepe reveal exactly who wrote them: merchants. The idea that OA orthography was uniquely simple based on the fact that merchants, not professionally-trained scribes, were writing these texts, is a misguided and possibly Eurocentric conclusion that is neither supported by substantive evidence nor independently reviewed.

Regarding script in terms of "easy" and "difficult" is naturally a problematic and reductive approach. Native speakers read and write their language, regardless of what the script may look like to the foreign observer. Even if we were to assume that OA writers and readers considered script in these terms, the ostensibly limited number of signs in OA was not necessarily easier for its users; it was perhaps even more difficult. It is indeed, at least in theory, easier to learn a smaller number of signs, but writing and reading with less graphemes might be

harder. Fewer graphemes result in a deeper orthography and may create problems in reading comprehension.[376] However, as explained in Chapter Three, these issues do not affect native speakers who read their language, regardless of its script's orthographic depth.[377]

Finally, it should be noted that although relatively few texts have been found at Assur, even these, including royal and votive inscriptions, are sufficient for comparison with the Kültepe texts. Juxtaposing OA royal and official texts with the Kültepe texts does not reveal any significant orthographic difference.

There is nothing to support any suggestion that the OA syllabary was significantly smaller than the earlier OAkk syllabary, as will be demonstrated below. Indeed, the OB orthographic reform enlarged the syllabary used in Babylonia by assigning many values to existing signs, but the main bulk of OA texts, as mentioned above, is dated to the period which either preceded the OB reform or corresponded to that exact period when the orthographic changes and developments had not yet reached the north.[378]

Beyond northern Mesopotamia, there are almost no synchronisms between Babylonia and the Kültepe texts. Isin was ruled by kings Ur-Ninurta and Būr-Sîn, Samum's dynasty still ruled Larsa, and the kingdom of Babylon was probably not yet founded.[379] It is safe to assume that OA

[376] If we wrote English with no distinction of voice, as in the OA orthography, we would indeed reduce the alphabet from the current 26 letters to 18 (a, b, d, e, g, h, i, j, l, m, n, o, r, u, v, w, x, z), but would it make the English alphabet and its use any easier? See the following text: "vrom a lidl avder du oglog andil olmozd zandaun ov ze long zdil hod weri ded Zebdember avdernun zei zad in wad Miz Goldvild zdil gold ze oviz…" (W. Faulkner, *Abasalom, Absalom!*).

[377] Indeed, if the English orthography lacked distinction of voice, and were learned from young age, there is no reason to believe that native speakers would have had difficulty reading the passage above.

[378] Note that the orthographic reform at Mari, as mentioned above, took place during the reign of Yaḫdun-Lim (c. 1810-1795 BCE), several decades later than the bulk of the Kültepe texts (1895-1865 BCE).

[379] Though it is difficult to ascertain this assumption. It is possible that the OA texts' terminal phase overlapped to some degree with the very early stages of the kingdom of Babylon.

texts existed in Anatolia while Babylonia almost completely lacked Akkadian texts (see Chapter Five). Apart from the Tell Asmar letters, most traces of Akkadian material in Babylonia were personal names in Sumerian texts, as well as a few Semitic lexemes. Thus, there is no other contemporary Akkadian material to compare with the Kültepe texts, assuming the orthographic reform began several decades later in Mesopotamia with the rise of Larsa and later than that of Babylon. This suggests that the Kültepe material represents the commonly used, soon-to-be-replaced orthography, and that the OA texts were not written in a radically new, ad-hoc manner devised by Assyrian merchants to facilitate their own writing and reading.[380] It is true that we have no real foundation to make any assumptions about how Akkadian may have been written in Babylonia. Even so, the proposal that the physical and cultural distances between Assur and Babylonia produced a radically different orthography is a proposal that lacks any real basis.

In what follows, this line of reasoning will be interrogated by examining some of the novelties associated with OA orthography that can be interpreted as OA "trademarks".

6.3. OA Orthographic Features

6.3.1. Syllabary

In principle, a novice scribe can write any word in Akkadian if they know a minimal number of cuneiform signs. Bilabial consonants (/b/ and /p/), as dentals (/d/, /t/ and /ṭ/) velars (/g/, /k/ and /q/), and sibilants (/s/, /ṣ/ and /z/) can all be written in one series each. Therefore, multiplying 10 Akkadian phonemes (b/p, d/t/ṭ, g/k/q, ḫ, l, m, n, r, s/ṣ/z, š) by 6 options (Ca, Ce/Ci, Cu) of each

[380] Even if there was some overlap between the OA material and the orthographic developments in Mesopotamia, it is well known that novelties and innovations arrive in the periphery sometime later than their initiation.

series yields 60 necessary signs plus 4 signs for the vowels /a/, /e/, /i/ and /u/, that is 64 signs, with no logograms at all.[381]

Nevertheless, the OA syllabary contains about 130 signs, including logograms, and not uncommon polygraphy (multiple signs used for a single syllabic value). G. Kryszat (2008) has classified the OA material into two groups, one written in a more complicated orthography, and another that employs simpler signs. Indeed, one may find examples of a preference for "easier" signs over "hard" signs, such as a higher prevalence of LA_2 over LA or AB_2 over AB.[382] At the same time, it must be admitted that several hard signs are more common than their easier counterparts, e.g., $AŠ_2$ is more common than AŠ, or $PUZUR_4$, more common than $PUZUR_2$.[383]

To some extent, the OA choice of signs reflects the preservation of OAkk traditions or perhaps Ur III. Assur's relationship with Babylonia goes back to the third millennium BCE, when Assur was a client state of Ur III and was undoubtedly influenced by Babylonian writing traditions. Despite the non-professional background of the scribes, the OA syllabary indicates much more continuity and scribal conservatism than it does innovation and scribal novelties.

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[381] Even this number may be reduced, because closed syllables can be expressed in Cv-Cv writing, as is common at Ebla.

[382] Remarkably, AB is used as a logogram for a certain deity (^{d}AB). Mr. W. F. Nation (*pers. comm*.) notes that ^{d}AB is documented in a single OA personal name - ^{d}AB-*ba-ni*, most of this name's attestations (about 300) are dated to the OA's earliest stage. It is generally accepted to identify this deity with Enlil due to several MA royal inscriptions, as early as Šalmanesser I, where *ša*$_2$*-ak-ni* ^{d}AB corresponds to *ša*$_2$*-ak-ni* ^{d}EN.LIL$_2$ and *ša*$_2$*-ak-ni* ^{d}BAD 'appointee of Enlil' (Grayson 1987). However, there is another ^{d}AB, attested in pre-Sargonic and Sargonic sources, as early as Fara. Pomponio (2001, 112) identifies this deity (which he reads eš$_3$) with Sud, who in turn is equated with Ninlil (Streck 2011-2013, 335). The relationship between third millennium ^{d}AB and MA ^{d}AB deserves a further study, but one must wonder what role played OA ^{d}AB in this problem. In light of the significant differences between pre- and post-Šamši-Adad I Assyria, and more than half a millennium between OA ^{d}AB and MA ^{d}AB, it is to be questioned whether OA ^{d}AB was indeed Enlil. On the other hand, since the OA orthography largely preserves, as argued above, the third millennium orthography, OA ^{d}AB should be considered as identical to the third millennium ^{d}AB. It should be noted that ^{d}AB re-appears in a Neo-Babylonian economic text, with the gloss KUR.GAL (Strassmaier 1889, t. 276, l. 6). KUR.GAL was indeed an epithet for Enlil in the early periods (e.g., in the za$_3$-mi$_3$ hymns, Biggs 1974, 46), but in the NB period, KUR.GAL stands solely for Amurru. For an exhaustive study of the OA religion, see Nation's upcoming Harvard PhD dissertation.

[383] Especially in personal names, which may indicate standard writing and scribal conventions; contrary to Charpin 2004b, 501-502.

Some changes are perceptible when compared to previous periods or other contemporary sites, but the overall picture points more to evolution rather than revolution.

For instance, we see a clear preference for the earlier orthographic habit of writing velars: The ^{v}C*a* (/ga/, /ka/ and also uvular /qa/) is written with GA; ^{v}C*u* (/gu/, /ku/ and /qu/) with KU, while the ^{v}C*i* (/gi/, /ki/ and /qi/) with both KI and GI, similarly to the OAkk orthography. Remarkably, /di/ is mostly written with DIN (as di_2), but also with DI, and even TI like in the OAkk orthography. One can also identify "northern" traditions documented in Mari's *šakkanakku* texts. An example of this tradition is writing /sa/ with DI, a phenomenon attested in OAkk texts and Mari's *šakkanakku*, but probably never in early OB Mesopotamia.

Several signs were used for specific purposes only, showing scribal conventions. BI_2, though rare, is used solely for the epistolary formula *qibi*. Other signs were mostly used for writing personal names, such as UR_2 (e.g., *nu-ur*$_2$*-i*$_3$*-li*$_2$*-šu*), or GAN for writing the name of Dagan (*da-gan*).[384]

One example of a syllabic value appears to be unique to the Kültepe texts: the sign BE which stands for what is supposed to be /bi/, which is usually transliterated as <bi_4>. However, this reading is unnecessary, not to mention methodologically misguided, since BE by itself has no "value" of /bi/ and cannot be transliterated as <bi_4>. To read BE as /bi/ simply to adjust to the Babylonian form is a further oversight.[385]

[384] Though one may find few examples of ur_2 as a phonogram, e.g., *ur*$_2$*-ma-ku* (CCT 3, 07, l. 8).

[385] Languages are written differently in different places. There is no reason to manipulate British English spelling to adjust to American English forms or vice versa. Reading Old Assyrian BE as bi_4 to adjust to Babylonian BI or BI_2 is like "reading" British *realise* as <realiz$_2$e> in order to adjust to American *realize*. It must be emphasized, as it has been stated throughout this dissertation, that orthography does not necessarily indicate pronunciation. British *realise* and American *realize* are written differently, but pronounced identically, while *laboratory* is written identically in both British and American English but pronounced differently.

It might be suggested that BE was chosen because it was an easier sign than BI, but the same phenomenon exists in writing "hard" EL for /il/ (transliterated as il_5), over DINGIR, which may be transliterated as il_3. One should see BE as simply /be/ and EL as /el/, spellings that were common in Assur at the time, regardless of their paleography. OA material suggests there was probably no essential difference between /e/ and /i/, and the syllables /be/ and /bi/ could be written interchangeably as BE and BI. Indeed, the OA royal inscriptions show consistent use of BI for /bi/, but any comparison of royal inscriptions and epistolary texts must consider the difference in genres regardless of the scribe's identity.[386] There is one example, however, of *qa*$_2$-BE-*i* in Erishum I's inscription (Grayson 1987, 21, l. 44), which may suggest BE was perceived as /bi/.[387] This inscription is a unique example of a royal inscription, found at Kültepe, that employs a similar orthography to the other Kültepe texts, but was probably not written by a local merchant (ibid., 19; Hecker 1993) .

An OA feature of note is the frequent use of "multi-vocalic" signs, such as NIM for /nim/, /num/ and /nam/ or LIM for /lim/, /lam/ and /lum/.[388] This phenomenon is also found in the aforementioned Erishum I's inscription, using LIM for /lum/ (lum_2), and the later Puzur-Sîn's inscription (Grayson 1987, 77-78), using NIM for /nam/ (nam_3).[389]

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[386] See also the consistent writing of ME for /mi/ (transliterated as mi_3) in both the OA royal inscriptions and the Kültepe texts, which could also be interpreted as a choice of an "easy" sign over a "hard" sign (MI), but in fact, it simply continues the OAkk orthography, which can also be found in early OB texts.

[387] The copy (Landsberger and Balkan 1950) shows the sign I, written on an erasure, which may have been a scribal error or the copier's interpretation.

[388] Note that NIM as /nim/ and /num/ is not limited to OA. Multi-vocalic signs are frequently used in OA, but not exclusively. There are several examples of NAM for /nam/ (mostly in PNs, e.g., *en-nam-a-šur*, but also *ḫa-ra-nam* and *di*$_2$*-nam* in De Boer et al. 2012, 172-173) as well as LUM for /lum/ and LAM for /lam/. See the next footnote.

[389] The use of LIM for /lam/ (lam_5) is quite rare in OA, and always occurs at the end of words, which calls into question the very reading of lam_5.

Though these specific examples are not attested, or at least not common, in other syllabaries, the phenomenon of multi-vocalic signs itself is not necessarily rare in cuneiform writing (Streck 2003-2005, 139).

6.3.2. Word Dividers

It is a common assumption in OA studies that tablets of word sequences without spaces between them may have challenged the unskilled scribes (Larsen 2002, xl-xli; Larsen 2015, 57). According to this premise, the scribes' need for an aid to help them read and write prompted the introduction of the word divider, a feature that did not appear in the earlier Mesopotamian orthography. However, we should be wary of our Western perspective and habits that may color our view of this feature. It is worth remembering that even today the Japanese writing system also lacks space between words, and yet the Japanese population is highly literate. Moreover, the word divider appears in other cuneiform contexts that were written by professional scribes, such as Amarna texts or in Ugarit. The word divider appears to be a peripheral development, possibly attested for the first time in the OA texts (Krebernik and Nissen 1994, 278), but even this assumption is not firmly established.[390]

6.3.3. Sandhi and Crasis

Sandhi and crasis are two similar phenomena of contraction between two sequential words. Sandhi is a contraction of two adjacent consonants in two sequential words, while crasis is a

[390] See word dividers in an early OB tablet from Tell Asmar, which appears to have shared other "OA features" (Gelb 1942). See also Whiting's comments (1987, 106).

contraction of two vowels in two consecutive words. While these two phenomena always existed in cuneiform records, they are admittedly much more common in OA texts.[391]

Let us now examine these phenomena in general. Sandhi occurs when "the final consonant of a word is taken as the first consonant of the next (vowel-initial) word, as in (a), and one in which a final consonant that is identical to the initial consonant of the next word is left unwritten, as in (b)" (Kouwenberg 2017, 30). For example:

(a) *be-la$_2$-a-wa-tim* for bēl awātem 'litigant'.

(b) *qa-ra-be-tem* for qarab bītim 'inside the house'.

An example for crasis can be shown in *a-la$_2$-bu-um* (rarely *a-la-bu-um*) for Ali-abum, *šu-da-ad* for Šū-Adad or *šu-li$_2$* (rarely *šu-li*) for Šu-īli.[392]

Another well-attested contraction is the frequent assimilation of the prepositions *ana* and *ina*; for example, *a-ga-ni-iš* for *ana Kaneš*, or *i-pa-ni-šu* for *ina panišu*. This phenomenon also occurs in OB, especially in letters.[393] One should wonder why we see this contraction of the /n/ of *ina* or *ana* when the last sound of these words is a vowel (/a/). The contraction we see here looks like /na/ + C > CC. On the other hand, it is quite rare (if exists at all) to see a similar contraction when the *anlaut* of the following word is a vowel. There are examples of *i-na a-lim*; *i-na a-ḫi-a*; *i-na a-wa-tim*; *i-na a-la$_2$-ki* and many others, but never forms such as **i-na-lim*; **i-na-ḫi-a*; **i-na-wa-tim*; **i-na-la$_2$-ki* etc.[394]

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[391] Though much less documented, Mari's *šakkanakku* is probably not much different. See Chapter Five.

[392] This phenomenon already existed as early as Ebla, e.g., *ib*-NI-*lum* for ibni-īlum or ibbi-īlum (ARET 3, 584).

[393] See for instance an OB letter (AbB 1, 59), reading *i-li-ib-bu* for *ina libbu*/*i*. The CAD (A2, p. 100) suggests *am-ma-ti-šu* for *ana matīšu* in an OB literary text (CT 15, 4), perhaps based on Edzard's suggestion, quoted in Römer 1967, 199. Schwemer (2001, 421), on the other hand, believes the AM belongs to the preceding word, *šu-uz-ni-na-am ma-ti-šu.*

[394] Except of common accepted words, such as *inūmi* "when", which historically derives from *ina ūmi* (on the day), but in a colloquial use, it loses its original etymology and becomes one word. Cf. Eng. *outside* (out+side).

Another example of crasis may be discerned in *i-ni-ga-lim* for *ina ekallim* (VS 26, 095). It is theoretically possible if the following verb is *šakālum*, but in fact, the word here is *nigallim* 'a sickle'.[395] More promising is an OB example of *i-ni-li* for *ina īli* in two literary texts (VS 10, 214); but in any event, it is very rare in both OB and OA.

To summarize the problem, the prepositions *ina* and *ana* tend to coalesce with the following words, when the *anlaut* of these words is a consonant, not a vowel, which is against the logic of sandhi and crasis. In other words, *ina* and *ana* seem like they stand for /in/ and /an/, respectively. These forms recall the OAkk prepositions, but in fact these were *in* and *ana*, not *an* (Hasslebach 2005, 167). This rather seems like an orthographic matter, a practical scribal choice to avoid the frequent use of the sign AN, which was used regularly for a different purpose (DINGIR). In this sense, it is possible that the sign NA in *a-na*, in fact stands for /n/, such as what we see later in the OA texts.[396] Starting in the Ur III period, the preposition *in* becomes *ina* (Gelb 1961b, 63), a phenomenon that can be interpreted as orthographic, not necessarily related to language. In later periods, especially in royal inscriptions or literary texts, *in* and even *an* appear in archaic spelling, a marker associating them with the earlier OAkk texts.[397]

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[395] See Eisser and Lewy's translation (ARK p. 71), as well as CAD N2 p. 214.

[396] Note that von Soden (1995 §114d) had already reached a similar conclusion, though not with concrete evidence.

[397] The preposition *in* can be found in some OB royal inscriptions (e.g., VAS 1, 33 or YOS 9, 35). *an* is rarer but exists in some texts that may have been purposefully written in a hyper-archaic fashion, such as the glass recipe text (Oppenheim 1970, 59-65) or the so-called Kadašman-Ḫarbe kudurru (Paulus 2014, 296). Brinkman (2015) argued the latter was a later copy, perhaps a forgery made in the 12th century BCE, which could explain the inscription's highly unusual and archaic spelling.

6.3.4. Phonetic Writing of Logograms

A typical OA phenomenon is the phonetic writing of logograms. Unlike the notion of logograms being read in the target language, the OA evidence suggests that perhaps logograms were read according to their phonetic value. In this sense, one may recall the Japanese example, in which *kanji* signs are read in either Japanese (*kun*-reading) or in the original Chinese pronunciation (*on*-reading). The latter, as said, sounds slightly different than the original, because the Chinese pronunciation is not relevant to Japanese speakers.

As mentioned above regarding phonograms, OA orthography also demonstrates some degree of similarity to the old orthography regarding logograms, i.e., little use of logograms, mostly for common commodities repeatedly mentioned, like 'gold', 'silver', 'donkey' etc. (Kouwenberg 2017, 32 ff.). The spelling of some logograms reveals a phonetic approach which may raise the question of whether OA logograms were even read (or 'normalized') in Akkadian; or just uttered in their phonetic values.[398] It is difficult to address this problem, as some signs were used for logograms only and never as phonograms, such as PA that was used for SIPA or MAŠKIM, but never for /pa/.

The most common example of this phenomenon is the spelling KUG.KI for 'gold', instead of the standard KUG.GI.[399] This may not be surprising, as the signs GI and KI were used alternately in the OA syllabary (as in OAkk). A similar case is found in the rather rare logogram KI.DIRIG for standard GI.DIRIG 'a basket', showing the same alternation KI/GI. Other examples are shown in IR for standard IR_3 and ID (or *i-id*) for ID_2,[400] and even DU for DU_3

[398] I. J. Gelb had already raised this possibility in his first monograph (Gelb 1935, 63).

[399] This suggests the term "Sumerogram" may be a misnomer, at least in the OA context. Those who wrote this logogram did not either know or pay attention to the fact it was a Sumerian word in the past, because the sign GI in Sumerian probably stood for /sig/. See Civil 1976.

[400] The sign ID_2 is not attested in OA.

(Kryszat 2021, 239, n. 19).[401] As mentioned above, writing the sign IŠ seems to be a phonetic rendering of $ŠA_3$, on the principle of syllable inversion or "vowelless signs".[402] Since phonetic complements are common in OA, one cannot entirely exclude the concept of logograms. But even here, these phonetic complements may be merely conventional, and a result of scribal habits.[403]

While phonetic spelling frequently occurs in Sumerian, the phonetic writing of logograms is relatively rare. It can be found in a few first-millennium literary texts, copied repeatedly in a period when Sumerian had long died out, such as IR for IR_3 in *Ludlul bēl nēmeqi* (Oshima 2014, rev. l. 124). This phenomenon is quite rare in OB,[404] but there are examples from OB Mari. Some Nippur calendar months were written phonetically, such as ARM 26, 248: *ga-an-ga-na* for GAN.GAN.E_3, *ab-bi-in* for AB.E_3 and the somewhat obscure u_2-WA-*ri-im* for ZIZ_2.A (or rather UD_2.$DURU_5$), perhaps to be read as u_2-*wu-ri-im*, an Akkadianized version of this month (Charpin 2021, 102).[405]

6.4. Conclusion

Compared to texts from other periods of Mesopotamian history, the Old Assyrian texts present an unusual case. A relatively large number of texts, most of which have been found at a site that

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[401] Logograms for verbs are quite rare in OA (Kouwenberg 2019, 39-41).

[402] As the signs IŠ and $ŠA_3$ are not palaeographically similar.

[403] Cf. the common Hittite text spelling DINGIR-*LIM* (occasionally also -*LUM* or -*LAM*), employing Akkadograms as "phonetic complements", not necessarily matching Akkadian grammatical rules; see Weeden 2011, 188 ff.

[404] One candidate may be lu_2-gal for LUGAL, attested in a late OB document from Sippar (Richardson 2010, text 33, l. 5), an orthographic rendering most common in the Amarna archive, as well as in several MA texts from Tell Hadidi (see CDLI P390662, P390665, P390668).

[405] Note the phonetic writing of this month in an Ur III text (NATN 311), *ud-du-ru-u*. L. Marti (1993) has proposed reading the sign WA in ARM 26, 248, as well as another Mari text (ARM 9, 97), as UD, for u_2-*ud-ri-im*.

was probably not particularly important at the time. Most of these texts may be considered private texts, including many letters. Contrary to the standpoint of current research, it is likely that most of the OA texts do not correspond to the post-OB reform in Babylonia. Given this starting point, it is necessary to reconsider theories put forward in the past regarding the nature of the texts and their writers as those who may have influenced their orthography. The OA texts, written in Anatolia, were most likely contemporary with Isin-Larsa Babylonia when the old orthography was still in use. The OA texts show a clear continuation from the OAkk scribal traditions, with some unique elements that may be identified as OA "trademarks". Among these elements, one may count the extensive use of word dividers, the relatively common use of multi-vocalic signs, the frequent sandhi and crasis, and the phonetic reading of logograms. Apart of these features, the use of some specific signs for specific purposes (such as BE) may be typical OA. The assumption that the OA syllabary is composed of easier or simpler signs, and that it is evidence for non-professional writing must be dismissed. There is no reason or justification to read these signs with unnecessary values simply to adjust them to Babylonian forms. It is possible that the choice of these signs indicates different pronunciations or phonetics, but at the same time, these conclusions must be reached cautiously. As has been repeatedly stated throughout this work, no conclusions regarding phonetics can or should be drawn from inanimate tablets; the only information to be deduced from them are orthographic and scribal traditions that differ according to many variables, such as region, scribal tradition and textual genre.

Chapter Seven: Conclusion

The Old Babylonian orthographic reform was a watershed in the history of writing in Mesopotamia, and in the history of writing as such. The series of orthographic changes which this dissertation calls "the OB reform" represents a conceptual development in the use of script to convey language. What originated as an ad-hoc scribal tool emerged over time as a sophisticated mechanism that not only responded to but was enabled by the political and economic activity it recorded. The main focus of this work has been to identify the motives and incentives that led scribes to innovate these changes at this particular historical juncture.

Orthographic revisions may be the product of an intentional program of reform implemented from the top down by rulers or administrators, and they can be accurately dated. Such reforms are known in Šulgi's 20th year and another executed in Šū-Sîn's third year. This dissertation demonstrates how the OB reform stands in marked contrast to these "top-down" reforms. It was not a singular, isolated event that occurred at a specific point in time in Mesopotamia, never to be repeated again. It was a process that stretched over several decades, beginning in the late 20th century BCE and continued through the first third or half of the 19th century BCE. This is a less-documented period whose textual inventory does not permit us to pinpoint the exact year of its inception. As such, it is necessary to reiterate that the term "OB reform" must not be misunderstood as a unique, historically *sui generis* event. Rather, it refers to the process during which many changes are expressed across the totality of this period.

For the better part of its four thousand years of existence, cuneiform served as the main script of all the Near East languages. Over time it underwent far-reaching changes, often local, both in the physical shape of its signs and how they were read and verbalized in any given language. Among them, one may include one reform in Urukagina's reign (ca. 24th century BCE), as well as one or two during the Ur III period (21st century BCE). Throughout

Mesopotamia's history, it is quite rare to encounter orthographic changes in such a short period, that they might be considered official, organized reform.

Perhaps the most significant reform took place in the early OB period within a limited span of ca. fifty years, roughly during the first half of the 19th century BCE, which saw a large number of applied changes within a relatively short time, and the introduction of new writing principles alongside with technical changes. Most of these innovations were so fundamental and durable that they remained in effect throughout cuneiform's lifetime until its demise towards the end of the first millennium BCE. More importantly, cuneiform changed conceptually into a bridge between speakers of a living language and a dead language. Yet, by virtue of its prestige, its religious value, and its connection to the past, this dead language retained a central role in society.

A working assumption is that the OB reform's origins were rooted in the decline of Isin I's hegemony and the rise of Larsa, a transition which demarcates the clear and final separation of Mesopotamia from the Ur III historical and cultural tradition. The adaptation process of cuneiform script to Akkadian writing occurred after Sumerian ceased to be actively used and as Akkadian gradually became the entire region's dominant language.

This dissertation has argued that OB reform was not born out of a response to a pressing functional need but was rather a cultural byproduct of professional scribal attempts to preserve Sumerian in Mesopotamian tradition. The reform was not a method of distancing cuneiform from its Sumerian roots; rather, the changes we observe in Akkadian writing occurred precisely because of a significant underlying cultural attachment to Sumerian. We see a significant increase in textual material from the scribal schools, and in dictionaries and phrasebooks, which were designed to teach Sumerian as accurately as possible and to aid the pronunciation of its unique phonemes, which did not exist in Semitic languages. The Semitic phonemes, on the other

hand, did not trouble the scribes; some phonemes even remained written according to the early orthography principles, surviving without a special sign for each phoneme or series. It might be presumed that because cuneiform was not created to write Semitic languages, an effort was made to adapt it to better suit Akkadian through a series of orthographic changes. However, as this dissertation demonstrates, even in the present day there are several languages (for instance Persian or Japanese) that act as clear indications of the fact that a script's suitability for a language is not necessarily the primary consideration for its adoption; nor does its adaptation prompt far-reaching orthographic changes. Indeed, cuneiform was effectively employed by the Akkadian language as early as the Old Akkadian period and could have continued to operate according to the same principles, as shown by some surviving old orthographic principles, such as writing the VC signs or emphatic phonemes.

7.1. Summary

Although the OB reform was an extensive phenomenon that encompassed other fields, including paleography, this dissertation focused first and foremost on orthography.

Chapter Two discussed the technical dimension of a society taking a script originally created for one language and adapting them for the use of another, especially when the target language differed structurally from the script's original language. Two test cases discussed were adapting Arabic script to writing Persian and Ottoman Turkish, and adapting Chinese characters to Japanese writing.

Chapter Three studied a specific aspect of adaptation, the orthographic depth. This varies from language to language and reformers give it different weight in their considerations. As demonstrated, comprehensive planned reforms, such as the 1918 reform in Russian, give orthographic depth a central role. Local emendations in a language, even in large numbers, such

as the numerous changes in English throughout history, by their very nature trust the native speakers to use the script efficiently and to ignore orthographic depth. As the OB reform is demonstrably free of these considerations, this in and of itself may be sufficient to demonstrate the absence of a top-down planned reform with clearly defined objectives.

Chapter Four elucidated the reciprocal relations between Sumerian and the Semitic languages that came in contact with it, particularly Akkadian, starting in the OAkk period and onward. To a great degree this mutual relationship caused a shift in the very purpose of cuneiform; some changes came in the third millennium BCE when cuneiform was first used for writing Semitic personal names and lexemes. Other adaptations came later, in the OB reform, when Sumerian had already died as a spoken language and Akkadian speakers worked to retain it and keep it active in their culture for administrative or religious purposes.

Chapter Five presented the textual evidence from the period in which the reform was executed. Despite this period's evident scarcity of texts, the assessment is that the main orthographic changes first appear ~1900-1850 BCE, and those changes are found in and emerge from within the Mesopotamian scribal tradition context.

Chapter Six discussed the specific case of OA texts. In a departure from earlier assumptions that these texts were contemporary with the OB texts, it now seems that most of the OA textual inventory was either dated prior to the OB reform or was perhaps contemporary with its very first manifestations in Babylonia. In any event, it is shown that their concurrent existence in Babylonia predates when those innovations reached further into Anatolia or Assyria.

7.2. Further Study

For several reasons, among them the current events that occurred throughout the writing of this thesis in addition to the naturally limited scope of a single dissertation, it was not possible to encompass all the dimensions and aspects of OB reform and its full range of cultural meanings. Among the many issues future research could illuminate there are two important topics.

1. The influence of the Amorites and the Amorite language on the OB reform. The Amorite presence in Mesopotamia and the Amorites' accumulation of political power and their establishment of a series of kingdoms across Mesopotamia undoubtedly had an important and perhaps even decisive influence on the OB reform taking place in the same period. Although this topic was explicitly mentioned several times in this work, including a study of a specific case, the writing of the phoneme /ʕ/, major obstacles remain in assessing the Amorite role in this reform and their contribution to shaping its orthography, such as specifically, the lack of any primary texts written in Amorite, and our general lack of a clear historical grasp regarding the Amorites. However, a recent article published after most of this dissertation was written may shed an important light on this problem. Two well-preserved tablets present for the first time Akkadian-Amorite phrasebooks. These constitute the first example ever found of an original text written in Amorite. Once we know these exist, along with other prospective texts of this sort, that will hopefully turn up in excavations, they could add new insights into the OB reform process.
2. A synchronic analysis and chronological dating of every single orthographic change. The paucity of written Akkadian material during the early OB period does not enable close examination of the changes to definitively categorize them as early or late. Recent publications including at the time of submission are vastly increasing the early OB period

textual inventory. Future research should evaluate the total amount of orthographic changes and seek to detect any signs of a regular pattern if certain changes occurring before others, regardless of geography.

These two points will provide a clearer picture of the Old Babylonian orthographic reform, both from the technical and cultural aspects of the several languages sharing this space; and will better explain the anomaly of why for many centuries all these languages were written for many centuries in the script of a long-dead language.

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