

The Adaptation of Cuneiform to Write
Semitic: an examination of syllabic sign
values in late third and early second
millennium Mesopotamia and Syria



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I have certainly faced my share of struggles in the process of completing this work; at many points I worried I would not reach the end. Now that that the project has reached maturity, I am so grateful for the support I received from those around me throughout the process. They encouraged me not to abandon the project. In the end, the skills that were reinforced in me – how to think, how to write, how to accept failure, and how to recognise my own achievements even in the face of criticism – are just as valuable as the finished product itself.

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Although many individuals have helped shape this thesis, the ideas and wording are all my own and I take full responsibility for any errors that are inevitably present.

Abstract

The earliest, but scarce, evidence of cuneiform signs being used syllabically to write Akkadian words and proper nouns is at Fara and Tell Abu Salabikh between 2600 BC and 2500 BC. Between around 2350 BC and 1800 BC, there is an increase in the development and use of signs with syllabic values across Mesopotamia and Syria, but these syllabic values (together called ‘syllabaries’) are still very local in nature with significant and observable differences in sign usage and values between sites. Starting around 1800 BC, reforms to the system begin to be enforced that standardise these signs and their values, which essentially ends any major variability in the script within specific periods. This provides us with a period of almost 600 years, spanning the second half of the third millennium and early second millennium BC, during which there is a wealth of textual data documenting the first full adaptation of the cuneiform script to syllabically write Semitic words and proper nouns.

This thesis investigates the attestations and usage of syllabic values to write Semitic lexemes in the cuneiform text corpora from Ebla, Mari, Nabada, Tuttul, Adab, Eshnunna, Kish, Tutub, Assur, and Gasur – with a particular focus on the Syrian sites – during the second half of the third millennium BC and early second millennium BC in order to answer the following two research questions:

1. Did each third millennium site in Mesopotamia and Syria have its own unique syllabary?
2. What were the primary factors that influenced the differences between the syllabaries?

This research uses a series of three interdependent techniques to determine and understand the use and distribution of syllabic values within the cuneiform writing system during the second half of the third millennium BC and early second millennium BC. The results suggest that during this period cuneiform syllabaries are variable, and that variation can further inform us about the regional, temporal, and dialectal contexts in which they existed. The addition of this research to the wider literature on the early adaptation of cuneiform will enhance the field’s understanding of how cuneiform syllabic values began to develop and emerge across the ancient Near East, and demonstrates how scientific and computational methods of analysis can be applied to research questions in humanities subjects.

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Bibliographical Abbreviations

- A** Tablets in the collections of the Oriental Institute, Univ. of Chicago
- AAAS** Annales archéologiques de Syrie, (from 1966) Annales archéologiques arabes syriennes. Revue d'archéologie et d'histoire (Damascus 1951 ff.)
- AAICAB** Grégoire, J.-P., Archives Administratives et Inscriptions Cunéiformes: Ashmolean Museum, Bodleian Collection, Oxford (Librairie Orientaliste Paul Geuthner 1996)
- AAS** J.-P. Grégoire, Archives administratives sumériennes (Paris 1970)
- AASOR** Annual of the American Schools of Oriental Research (in Jerusalem) (New Haven/Cambridge, Mass. 1919/1920 ff.)
- Adab** Yang Zhi, Sargonic Inscriptions from Adab (PPAC 1, Changchun 1989)
- Aegyptus** Rivista italiana di Egittologia e di Papirologia
- AfO** Archiv für Orientforschung (vol. 1-2 as AfK = Archiv für Keilschriftforschung, Berlin Wien 1923 ff.); Beih. = Beiheft (1933 ff.)
- AIHA** The Ancient Inscriptions in Himrim, Himrim 4, Baghdad 1981.
- AJSL** American Journal of Semitic Languages and Literatures (Chicago 1895- 1941)
- AnOr** Analecta Orientalia (Rome 1931 ff.)
- AO** Der Alte Orient (Leipzig 1900 ff.). 2) Museum siglum Louvre (Antiquités orientales)
- AOAT** Alter Orient und Altes Testament (Kevelaer/Neukirchen-Vluyn 1969 ff.); S = Sonderreihe (1971 ff.)
- ARES** Archivi reali di Ebla. Studi (Rome 1988 ff.)
- ARET** Archivi reali di Ebla. Testi (Rome 1985 ff.)
- ARM** Archives royale de Mari (= TCL 22-31)

- ARMT** Archives royale de Mari, traduction (Paris 1950 ff.)
- ArOr** Archiv Orientalni (Prague)
- ASJ** Acta Sumerologica (Hiroshima, Japan 1979 ff.)
- AUCT** Andrews University Cuneiform Texts (Berriens Springs, Michigan 1984 ff.)
- AuOr** Aula Orientalis (Barcelona 1983 ff.)
- BaE** L. Cagni (ed.), *Il bilinguismo a Ebla*. Atti del convegno internazionale (Napoli, 19-22 aprile 1982), Napoli 1984.
- BaM** Baghdader Mitteilungen (Berlin 1960 ff.); Beih. = Beiheft.
- BAOM** Bulletin of the Ancient Orient Museum (Tokyo 1979ff.)
- BCT** P.J. Watson, Catalogue of cuneiform tablets in Birmingham City Museum
- BE** The Babylonian Expedition of the University of Pennsylvania (Philadelphia 1893 ff.)
- BE** The Babylonian Expedition of the University of Pennsylvania (Philadelphia 1893 ff.)
- BiMes** Bibliotheca Mesopotamica (Malibu 1975 ff.)
- BIN** Babylonian Inscriptions in the Collection of J. B. Nies (New Haven 1917 ff.)
- BIN 8** Babylonian Inscriptions in the Collection of J.B. Nies (vol. 8: Hackmann 1958)
- BJRL** Bulletin of the John Rylands Library, (Manchester, 1903ff.)
- BPOA** Biblioteca del Proximo Oriente Antiguo (Madrid, 2006ff.)
- BRM** Babylonian Records in the Library of J. Pierpont Morgan (New Haven 1917 ff.)
- CAD** The Assyrian Dictionary of the University of Chicago (Chicago 1956 ff.)
- CCTE** A. L. Oppenheim, Catalogue of the Cuneiform Tablets of the Wilberforce Sames Collation in the New York Public Library (American Oriental Series XXXII; New Haven, 1948).
- CDLI** The Cuneiform Digital Library Initiative (www.cdli.ucla.edu)
- CHEU** G. Contenau, Contribution à l'histoire économique d'Umma (= Bibliothèque de l'école des Hautes études, sciences philologiques et historiques 119, Paris 1915)

- CL** Codex Lipit-Ishtar
- Cop.** Unpublished texts in the Antiksamlingen of the Nationalmuseet in Copenhagen.
- CPM** E. Porada, Ancient Mesopotamian Art and Selected Texts (Pierpont Morgan Library, 1976)
- CST** T. Fish, Catalogue of Sumerian Tablets in the John Rylands Library (Manchester 1932)
- CT** Cuneiform Texts from Babylonian Tablets in the British Museum (London 1896 ff.)
- CT 50** Cuneiform Texts from Babylonian Tablets in the British Museum (Sollberger 1972)
- CTC** Th. Jacobsen, Cuneiform texts in the National Museum, Copenhagen (1939)
- CTMMA** Corpus of Cuneiform Texts in the Metropolitan Museum of Art (3 of 4 volumes have appeared as of June 2010)
- CUSAS** Cornell University Studies in Assyriology and Sumerology (Bethesda, 2007ff.)
- D** I. J. Gelb, Sargonic texts from the Diyala region (MAD I; Chicago, 1952).
- DAB** R.C. Thompson, A Dictionary of Assyrian Botany (London 1959)
- DAB** R.C. Thompson, A Dictionary of Assyrian Botany (London 1959)
- DCEPHE** J.-M. Durand, Documents cunéiformes de la IV^e Section de l'Ecole pratique des Hautes Etudes. Tom I: catalogue et copies cunéiformes (Genève, Paris 1982).
- DV** Drevnosti Vostočnyja, Moskau
- E** Sargonic personal names in MDP XIV
- Elam** W. Hinz and H. Koch, Elamisches Wörterbuch (in 2 Teilen). Berlin: Verlag von Dietrich Reimer in Berlin, 1987.
- ELTS** Earliest Land Tenure Systems in the Ancient Near East (Gelb, Steinkeller, and Whiting 1989)
- ETB** Excavations at Tell Brak, edited by D. Oates, J. Oates & H. McDonald, 2001
- FAOS** Freiburger Altorientalische Studien (Freiburg 1975 ff.); Beih. = Beihefte: Altassyrische Texte und Untersuchungen (1984 ff.)

- Fara** E. Heinrich, *Fara, Ergebnisse der Ausgrabungen der Deutschen Orient-Gesellschaft in Fara und Abu Hatab* (1902/3, Berlin 1931)
- FM** I. J. Gelb, *Old Akkadian Inscriptions in Chicago Natural History Museum* (*Fieldiana: Anthropology* Vol. 44 Number 2; Chicago, 1955).
- Fs.** Festschrift
- GAG** W. von Soden, *Grundriss der Akkadischen Grammatik*, *Analecta Orientalia* 33, Rome 1952; *Erg"anzungsheft mit Nachtr"agen*, *Analecta Orientalia* 47, Rome 1969; 2nd edition mit *Erg"anzungsheft*, *Analecta Orientalia* 33/47, Rome 1969; 3rd edition, *Analecta Orientalia* 33, Rome 1995
- Georgica** M. Civil, *The Farmer's Instructions: A Sumerian Agncultural Manual* (= *Aula Or Suppl.* 5)
- Gir** Unpublished texts from Girsu in the Oriental Institute (University of Chicago).
- Hermitage** . . . N. V. Koslova, *Ur III-Texte der St. Petersburger Eremitage* (Wiesbaden, 2000).
- HLC** G. Barton, *Haverford Library Collection of Cuneiform Tablets* (Philadelphia 1905-1914); collations by T. Maeda, *ASJ* 2,197ff.
- HSS** Harvard Semitic Series (Cambridge, Mass. 1912 ff.)
- HSS 10** Harvard Semitic Studies (vol. 10: Meek 1935)
- IAMN** Istanbul Asariatika M"uzeleri ne"riyati.
- Ist Mu** Istanbul Museum
- ITT** Inventaire des tablettes de Tello
- JAOS** Journal of the American Oriental Society
- JCS** Journal of Cuneiform Studies (New Haven, Baltimore 1947 ff.)
- JEOL** Jaarbericht van het Voor-Aziatisch-Egyptisch-Gezelschap (from 1945: Genootschap) *Ex Oriente Lux* (Leiden 1933 ff.)
- JNES** Journal of Near Eastern Studies (Chicago 1942 ff.)
- JRAS** Journal of the Royal Asiatic Society of Great Britain and Ireland (London 1834 ff.); *Suppl.* = Supplement; *Cent. Suppl.* - Centenary Supplement (1924)
- KAH** Keilschrifttexte aus Assur historischen Inhalts (I: L. Messerschmidt, *WVDOG* 16, 1911; II: O. Schroeder, *WVDOG* 37, 1922)

- Kh.** Unpublished texts from Khafaje in the Oriental Institute, University of Chicago.
- Kish 1930** Unpublished texts from Kish in the Ashmolean Museum, Oxford (as cited in Gelb 1961)
- KTT** Tall Bi'a/Tuttul. II. Die altorientalischen Schriftfunde
- LB** Tablets in the de Liagre Bohl Collection (Leiden)
- MAD** I.J. Gelb et al., *Materials for the Assyrian Dictionary* (Chicago 1952-1970)
- MC 4** *Mesopotamian Civilizations* (vol 4: Steinkeller 1992)
- MCS** *Manchester Cuneiform Studies* (Manchester 1951 ff.)
- MDOG** *Mitteilungen der Deutschen Orientgesellschaft zu Berlin* (Berlin 1898 ff.)
- MDP** *Mémoires de la Délégation en Perse* (Paris 1900 ff.); Bd.29, 1943 ff. also cited as MDAI = *Mémoires de la Délégation Archéologique en Iran*
- MEE** *Materiali epigrafici de Ebla* (Naples 1979 ff.)
- MJ** *Museum Journal* (Univ. Museum, Univ. of Pennsylvania)
- MO** *Man-ištušu Obelisk* (MDP II)
- MSP** J. J. M. de Morgan, *Mission scientifique en Perse*.
- MTBM** M. Sigrist, *Messenger Texts in the British Museum* (1990).
- MVN** *Materiali per il vocabulario neosumerico* (Rom 1974 ff.)
- NABU** *Nouvelles Assyriologiques Brèves et Utilitaires* (Paris 1987 ff.); cf. *Mémoires de NABU* (1992 ff.), *Cahiers de NABU* (1990 ff.)
- NATN** D. I. Owen, *Neo-Sumerian Archival Texts primarily from Nippur* (Winona Lake 1982)
- Nebraska** N. Forde, *Nebraska Cuneiform Texts of the Sumerian Ur III Dynasty*
- Nisaba** *Studi Assiriologici Messinesi* (Messina 2002ff.)
- NRVN** M. Çig/H. Kizilyay, *Neusumerische Rechts- und Verwaltungsurkunden aus Nippur, I* (Ankara 1965)
- NRVN** M. Çig/H. Kizilyay, *Neusumerische Rechts- und Verwaltungsurkunden aus Nippur, I* (Ankara 1965)
- NS** *Narâm-Sin*

- OAIC** Old Akkadian Inscriptions in Chicago Natural History Museum (Gelb 1955)
- OAIC** I. J. Gelb, Old Akkadian Inscriptions in Chicago Natural History Museum (Chicago 1955)
- OIM** Oriental Institute Museum (University of Chicago).
- OIP** Oriental Institute Publications (Chicago 1924 ff.)
- OLA** Orientalia Lovaniensia analecta (Leuven 1975 ff.)
- OLP** Orientalia Lovaniensia periodica (Leuven 1970 ff.)
- OLZ** Orientalistische Literaturzeitung (Berlin 1898 ff.)
- OMRO** Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden
- OrAnt** Oriens Antiquus (Rome 1962 ff.)
- Orient** Orient. Report of the Society for Near Eastern Studies in Japan (Tokyo 1960 ff.)
- OrNS** Orientalia, NS = Nova Series (1932 ff.)
- OrSP** Orientalia, SP = Series Prior (Rome 1920-1930)
- OSP** A. Westenholz, Old Sumerian and Old Akkadian Texts in Philadelphia Chiefly from Nippur, OSP 1 (= BiMes. 1, 1975), OSP 2 (= Carsten Niebuhr Institute Publications 3, Copenhagen 1987)
- PBS** University of Pennsylvania, Publications of the Babylonian Section (Philadelphia 1911 ff.)
- PDT** M. Çig/H. Kizilyay/A. Salonen, Die Puzris-Dagan-Texte der Istanbul Archaologischen Museen Part 1 = texts 1-725 (= AASF B 92, Helsinki 1956)
- Pinches, AT** . . Th. G. Pinches, The Amherst Tablets
- PIOL** H. Sauren, Les Tablettes Cuneiformes de l'Epoque d'Ur de la New York Public Library
- Princeton** . . . M. Sigrist, Tablettes du Princeton Theological Seminary: Epoque d'Ur III
- QNAR** Quaderni napoletani di Assiriologia Ricerche (Rome 2005 ff.)
- R** H. Rawlinson et al., The Cuneiform Inscriptions of Western Asia, I-V (London 1861-1909); 1R, vol. 1 (1861); 3R, vol. 3 (1870)
- RA** Revue d'Assyriologie et d'Archéologie Orientale (Paris 1886 ff.)

- Reisner, TUT** G. Reisner, Tempelurkunden aus Telloh (Berlin 1901)
- RIAA** L. Speleers, Recueil des inscriptions de l'Asie antérieure des Musées royaux du Cinquantenaire à; Bruxelles (Brussels 1925)
- RIME** The Royal Inscriptions of Mesopotamia, Early Periods (Toronto 1990ff)
- RTC** F. Thureau-Dangin, Recueil des tablettes chaldéennes (Paris 1903)
- SAKI** F. Thureau-Dangin, Die sumerischen und akkadischen Königsschriften (= VAB I, 1907)
- SANTAG** Karl Hecker und Walter Sommerfeld, eds., Arbeiten und Untersuchungen zur Keilschriftkunde
- SAT** M. Sigrist, Sumerian Archival Texts, SAT I = Texts from the British Museum (CDL Press 1993) (= Texts from the British Museum, TBM); SAT II = Texts from the Yale Babylonian Collection, Part I (CDL Press 2000) (= Texts from the Yale Babylonian Collection I, TYBC I, 1-1176; SAT III = Texts from the Yale Babylonian Collection, Part II (CDL Press 2000) (=TYBC II, 1177-2223)
- SDU** P. Steinkeller, Sale Documents of the Ur-III-Period (= FAOS 17)
- SEb** Studi Eblaiti. Missione archeologica italiana in Siria (Rome 1979ff.)
- SEL** Studi Epigrafici e Linguistici sul Vicino Oriente Antico (Verona 1984 ff.)
- SET** T.B. Jones and J.W Snyder, Sumerian Economic Texts from the Third Ur Dynasty (Minneapolis 1961)
- SF** A. Deimel, Schultexte aus Fara (= WVDOG 43, 1923)
- SLE** P. Fronzaroli (ed.), *Studies on the Language of Ebla*, Firenze 1984 (= *Qsem* 12).
- SMS** Syro-Mesopotamian Studies (Malibu 1977 ff.)
- SNAT** T. Gomi and S. Sato, Selected Neo-Sumerian Administrative Texts from the British Museum (Chiba, Japan 1990)
- STA** E. Chiera, Selected Temple Accounts (from Telloh, Yokha and Drehem) (Philadelphia 1922)
- StOr** Studia Orientalia (HeIsinki 1925 ff.)

- StPohl** *Studia Pohl* (Rome 1967 ff.); SM = Series Maior (1969 ff.)
- STTI** V. Donbaz and B. Foster, *Sargonic Texts from Telloh in the Istanbul Archaeological Museums* (= OPBF 5 / American Research Institute in Turkey Monographs 2, Philadelphia 1982)
- Subartu 2** Ismail et al., *Administrative Documents from Tell Beydar (1993-1995)*
- Sumer** *Sumer. Journal of Archaeology and History in Iraq* (since 1973), was *Arab World* (Baghdad 1945 ff.)
- Syracuse** M. Sigrist, *Textes économiques néo-sumériens de l'Université de Syracuse* (= ERC Mém. 29, 1983)
- TA** Unpublished texts from Tell Asmar in the Oriental Institute, University of Chicago.
- TCL** *Textes cunéiformes, Musées du Louvre* (Paris 1910 ff.)
- TCTI 1** B. Lafont and F. Yildiz, *Tablettes cunéiformes de Tello au Musée d'Istanbul: datant de l'époque de la IIIe Dynastie d'Ur. Tome I. ITT II/1, 617-1038. PIHANS 65.* (Leiden, Nederlands Instituut voor het Nabije Oosten, 1989)
- TCTI 2** B. Lafont and F. Yildiz, *Tablettes cunéiformes de Tello au Musée d'Istanbul, datant de l'époque de la IIIe Dynastie d'Ur. Tome II. ITT II/1, 2544-2819, 3158-4342, 4708-4714. PIHANS 77.* (Leiden, Nederlands Instituut voor het Nabije Oosten, 1996)
- TD** H. de Genouillac, *Tablettes de Drehem* (= TCL 2)
- TLB** *Tabulae Cuneiformes a F.M.Th. de Liagre Böhl collectae* (Leiden 1954 ff.)
- TMH NF** *Texte und Materialien der Frau Professor Hilprecht Collection* Jena, (Leipzig 1932-1934); NF = Neue Folge (Leipzig 1937, Berlin 1961 ff.)
- Torino 1** A. Archi, F. Pomponio, *Testi cuneiformi neo-sumerici da Drehem, n. 0001-0412, Catalogo del Museo Egizio di Torino, Ser. II, 7* (Milano, 1990).
- TrD** H. de Génouillac, *La trouvaille de Dréhem* (Paris 1911)
- TRU** L. Legrain, *Le temps des rois d'Ur* (= Bibliothèque de l'école des Hautes études 199, Paris 1912)
- TSA** H. de Genouillac, *Tablettes sumériennes archaïques*
- TSU** H. Limet, *Textes sumériens de la IIIe dynastie d'Ur*

- Tutub** W. Sommerfeld, *Die Texte der Akkade-Zeit: Das Dijala-Gebeit: Tutub* (Rhema, 1999).
- U** Ur III personal names in Orient. XXIII-XXIV (Rome, 1927).
- UDT** J. Nies, *Ur Dynasty Tablets* (= AB 25, 1920)
- UET** *Ur Excavations. Texts* (London 1928 ff.)
- UMTBM** F. V. D'Agostino, *Umma Messenger Texts in the British Museum* (Pisa, Rome, 2003).
- Ur C** As cited in M. Hilgert, *Akkadisch in der Ur-III Zeit* (Rhema, 2002).
- USC** Museum siglum of the Archaeological Research Collection, University of Southern California
- Varia** As cited in M. Hilgert, *Akkadisch in der Ur-III Zeit* (Rhema, 2002).
- VAT** Museum siglum of the Vorderasiatisches Museum, Berlin (Vorderasiatische Abteilung. Tontafeln)
- VE** *Vocabulario di Ebla* (= MEE 4, 1982)
- VO** *Vicino Oriente. Annuario dell'Istituto di Studi del Vicino Oriente, Università; di Roma* (Rome 1978 ff.)
- WO** *Die Welt des Orients. Wissenschaftliche Beitr"age zur Kunde des Morgenlandes* (Wuppertal G"ottingen 1947/1952 ff.)
- Yang** Yang Zhi, *Sargonic Inscriptions from Adab* (PPAC 1, Changchun 1989)
- YOS** *Yale Oriental Series, Babylonian Texts* (New Haven 1915 ff.)
- ZA** *Zeitschrift für Assyriologie und verwandte Gebiete, (from 1939) und Vorderasiatische Archäologie* (Leipzig Berlin 1886 ff.); s. UAVA

Other Abbreviations

abs.	absolute
act. part.	active particle
c.	common
conj.	conjunction
const. st.	construct state
dat.	dative
DN	deity name
dur.	durative
e.g.	<i>exempli gratia</i> (“for example”)
enc. part.	enclitic particle
f.	feminine
GN	geographic name
i.e.	<i>id est</i> (“that is”, “in other words”)
imper.	imperative
ind. pronoun	independent pronoun
inf.	infinitive
interr. pronoun	interrogative pronoun
m.	masculine
MN	month name
pass. part.	passive participle
perf.	perfect
pl.	plural
PN	personal name
pos. inj. part.	positive injunctive particle
poss.	possessive

prec.	precative
prep.	preposition
s.	singular
stat.	stative
sub. marker	subordination marker
term.-adv.	terminative-adverbial suffix
vent.	ventive
verb. adj.	verbal adjective
W. Sem.	West Semitic

1

Introduction

1.1 Scope

The earliest, but scarce, evidence of cuneiform signs being used syllabically to write Akkadian words and proper nouns is at Fara and Tell Abu Salabikh between 2600 BC and 2500 BC. Between around 2350 BC and 1800 BC, there is an increase in the development and use of signs with syllabic values across Mesopotamia and Syria, but these syllabic values (together called ‘syllabaries’) are still very local in nature with significant and observable differences in sign usage and values between sites. Starting around 1800 BC, reforms to the system begin to be enforced that standardise these signs and their values, which essentially ends any major variability in the script within specific periods. This provides us with a period of almost 600 years, spanning the second half of the third millennium and early second millennium BC, during which there is a wealth of textual data documenting the first full adaptation of the cuneiform script to syllabically write Semitic words and proper nouns.

This thesis investigates the attestations and usage of syllabic values to write Semitic lexemes in the cuneiform text corpora from Ebla, Mari, Nabada, Tuttul, Adab, Eshnunna, Kish, Tutub, Assur, and Gasur – with a particular focus on the Syrian sites – during the second half of the third millennium BC and early second millennium BC in order to answer the following two research questions:

1. Did each third millennium site in Mesopotamia and Syria have its own unique syllabary?
2. What were the primary factors that influenced the differences between the syllabaries?

Individual studies of the signs attested with a syllabic value among the selected Syrian corpora form the basis of this investigation. These studies aim to provide a clear, consistent, and complete description of syllabic value attestations in Syria and Mesopotamia, and the information they provide is concatenated into a table of reconstructed syllabaries for each site. Together, these reconstructed syllabaries form a pan-Mesopotamian dataset informed by the most current knowledge of syllabic values attested at these sites during the roughly 600-year period being examined.

After curation, the dataset is then analysed using three computational methods: a phylogenetic estimation program, hierarchical clustering, and principal component analysis. These analyses examine the principal drivers behind the variation in syllabic values attested in Semitic contexts within the Syrian corpora and across wider Mesopotamia. From these results, it is clear that geography and time are the most significant factors affecting syllabic value observations across Mesopotamia. Additionally, principal component analysis provides information about the most influential sign values driving this result. The important syllabic values from the Syrian corpora are then examined further.

Specifically, the lexical items that were collected in the sign studies of the Syrian corpora are used to further interpret the results of the computational analyses using traditional linguistic and text-analysis techniques. The syllabic values that have been identified as primary indicators of geographic or temporal variation are examined to determine if any underlying patterns or characteristics define them. A secondary aim of this chapter is to identify which factors in addition to geography and time are influential in determining the relationships between the collated syllabaries. The results of this lexical interpretation suggest that a

particular class of syllabic values within these syllabaries are strong indicators of dialectical variation in the corpora in which they are found.

In summary, this research uses a series of three interdependent techniques to determine and understand the use and distribution of syllabic values within the cuneiform writing system during the second half of the third millennium BC and early second millennium BC. The results suggest that during this period cuneiform syllabaries are variable, and that variation can further inform us about the regional, temporal, and dialectical contexts in which they existed. The addition of this research to the wider literature on the early adaptation of cuneiform will enhance the field's understanding of how cuneiform syllabic values began to develop and emerge across the ancient Near East, and demonstrates how scientific and computational methods of analysis can be applied to research questions in humanities subjects.

1.2 Corpora Examined

This study aims to examine the development of the syllabic system within the cuneiform script, so Sumerian words and morphological units have been excluded. It is not possible to determine if during this time period Sumerian cuneiform was viewed as phonological, logographic, or a combination of the two. Akkadian cuneiform, on the other hand, has always relied on a system of syllabograms and Sumerian logograms, providing a data set that is guaranteed to contain some syllabically-written words.

In the third millennium there were 19 sites that produced cuneiform texts with attestations of Semitic lexemes¹, and ten of these have been chosen for inclusion in this study: Ebla, Mari, Nabada, Tuttul, Adab, Kish, Tutub, Eshnunna, Assur, and Gasur (Figure 1.1). Using these texts I have reconstructed the syllabaries attested at each of these sites (except Ebla, see p. 5 below) by examining the published photos or transliterations of the texts of each site, and by collating a few of the tablets that have not yet been sufficiently published. I have therefore relied on a

¹Not included in this study are the following nine sites: Nagar, Sheḫna / Shubat-Enlil, Umma, Shuruppak, Abu Salabikh, Nippur, Girsu, Umm al-Jir, and Susa.

combination of (a) analog data, (b) digital data,² and (c) collation of texts for the collation of the syllabaries of the sites included in this study.

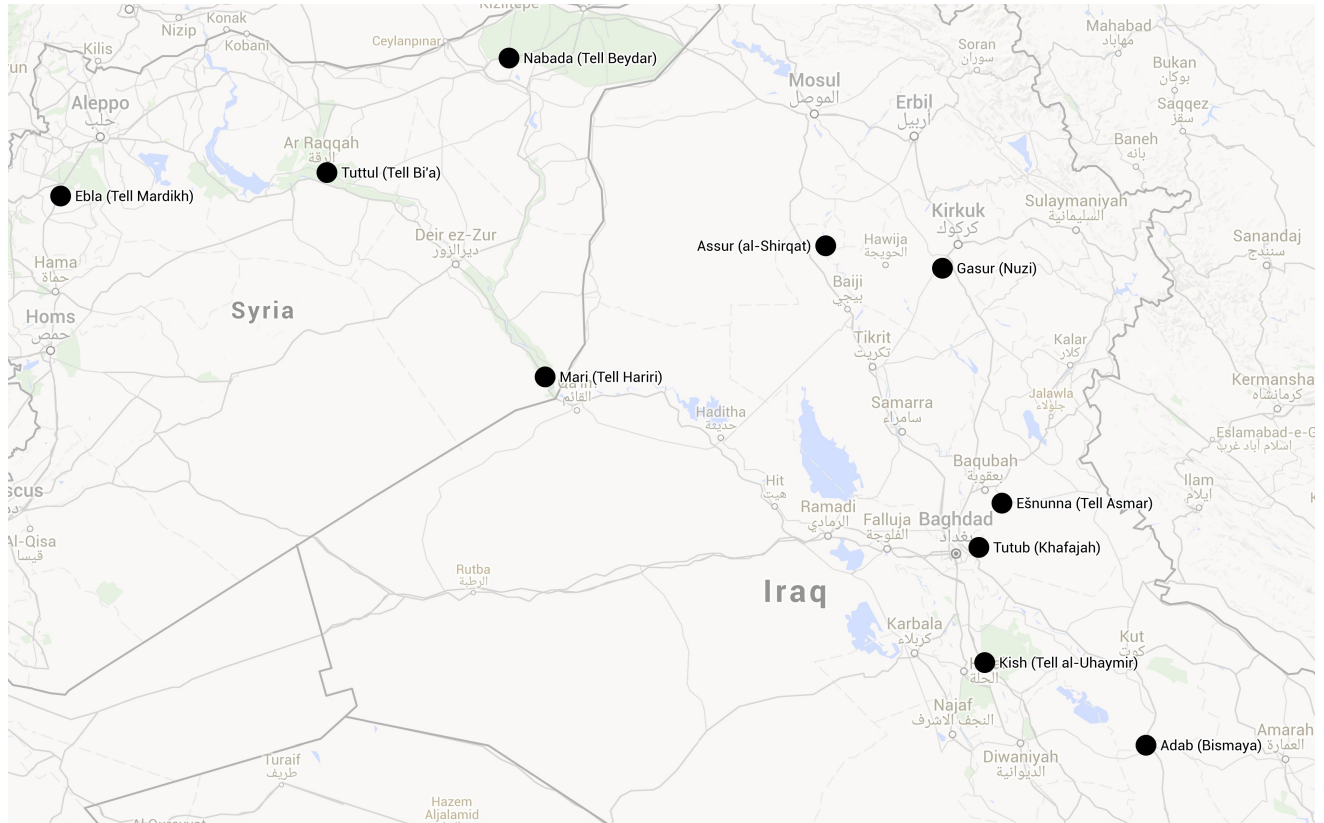


Figure 1.1: The ten sites included in this study are Ebla, Mari, Nabada, Tuttul, Adab, Kish, Eshnunna, Tutub, Assur, and Gasur.

The reconstructed syllabaries of Adab, Kish, Assur, and Gasur were collected using texts published on the Cuneiform Digital Library Initiative’s database. The syllabary from Tutub was reconstructed using texts published both on the CDLI and Sommerfeld’s (1999) “Die Texte der Akkade-Zeit. 1. das Dijala-Gebiet: Tutub.” The data from Eshnunna was collected from texts published in Gelb’s (1952) “Sargonic Texts from the Diyala Region” (MAD 1, nos. 1-195, 270-336.) and from the CDLI database. Many of these texts are fragmentary and retain few discernible lines of text.

For the Tuttul and Nabada corpora, I have relied on the works of Krebernik (2001) and Ismail et al. (1996) respectively, as well as well-structured and collated

²This was obtained from the Cuneiform Digital Library Initiative (www.cdli.ucla.edu), unless otherwise stated.

digital data on the CDLI for both. Because of the size of the Mari and Ebla corpora, limitations had to be imposed on the type of texts examined in the reconstruction of the syllabaries of these two sites. For Mari I have chosen to include only the Shakkanakku texts published in Limet 1976 and for Ebla I only consider the already-published syllabaries of the lexical texts (Krebernik 1982-1983, pp. 178-236 and Conti 1990, pp. 3-60) and the texts published on the Ebla Digital Archives³.

The table below outlines the sites that are examined in this study. It includes the periods examined, the number of texts used for the collection of the data, and the genres⁴ attested among the texts included (plus the numbers within each genre in parentheses). For all sites examined, the majority of the texts are administrative in genre, with a small number being epistolary, literary, or lexical texts.

Site	Region	Period(s)	No. of texts	Genres (no.)
Ebla	Syria	Old Akkadian	ca. 7000	Lexical ⁵ Administrative Letter
Mari	Syria	Ur III/ Shakkanakku	463	Administrative (463)
Nabada	Syria	Old Akkadian	223	Administrative (222) Legal (1)
Tuttul	Syria	Early Old Babylonian	54	Administrative (51) Letter (2) Uncertain (1)
Adab	S. Mes. ⁶	Old Akkadian, Ur III	1946, 130 ⁷	Administrative (1854, 102) ⁸ Letter (27, 1) Royal/monumental (25, 21) Legal (22, 3) Uncertain (16, 0) Lexical (1, 0) Mathematical (1, 0) School (1, 2)

³<http://virgo.unive.it/eblaonline/cgi-bin/home.cgi>

⁴These genres are based on those provided on the Cuneiform Digital Library Initiative Database.

⁵The majority of the texts from Ebla used here are lexical and administrative. For more about the numbers of texts attested within each genre, see the following resources: Krebernik (1982-1983), Conti (1990), and the Ebla Digital Archives.

⁶Southern Mesopotamia.

⁷These are the numbers of texts from the Old Akkadian and Ur III periods, respectively.

⁸These are the numbers of texts within each genre from the Old Akkadian and Ur III periods, respectively.

Site	Region	Period(s)	No. of texts	Genres (no.)
Eshnunna	S. Mes.	Old Akkadian	261	Administrative (220) Uncertain (26) School (8) Letter (6) Literary (1)
Kish	S. Mes.	Old Akkadian	80	Administrative (68) Letter (5) Royal/monumental (3) Votive (2) Lexical (1) Literary (1)
Tutub	S. Mes.	Old Akkadian	73	Administrative (65) Royal/monumental (7) Legal (1)
Assur	N. Mes. ⁹	Old Akkadian	20	Royal/monumental (7) Lexical (6) Administrative (4) School (3)
Gasur	N. Mes.	Old Akkadian	220	Administrative (190) Lexical (15) Letter (9) Legal (2) School (2) Mathematical (1) Uncertain (1)

Table 1.1: The ten sites examined in this thesis.

1.3 Terminology

1.3.1 ‘Syria’

The term ‘Syria,’ used in opposition to ‘Mesopotamia,’ is based on the modern country’s political borders; however, such a division can be reasonably applied to the ancient Near East as well since factors such as geography, climate, and language affected each area’s development into separate cultural units (Wossink 2009). So, although the term Syria is a modern one, it serves as a convenient designation

⁹Northern Mesopotamia.

of a distinct region in the ancient Near East, both based on ancient criteria and on the path modern scholarship has taken. It must be noted, however, that the geographical scope that should be encompassed by the term ‘Syria’ and even its use at all in discussions of the ancient Near East are not agreed upon in the field.

1.3.2 ‘Semitic’

I use the term ‘Semitic’ to refer to any and all Semitic languages or dialects that may have been spoken or written in the third millennium. These include one or more dialects of Akkadian, Eblaite, and Amorite, all of which are members of the East Semitic language family. Since the discovery of the archives at Ebla and Mari, it has become apparent that the linguistic environment of the ancient Near East is far more complicated than had been previously assumed. I will not delve into this discussion here, but suffice it to say that the identification of all attestations of third millennium Semitic dialects written in cuneiform as Old Akkadian is too simplistic (see below). The term ‘Semitic’ is preferable because it encompasses the language attested at Ebla, Amorite, and perhaps other yet-unidentified Semitic dialects found in the cuneiform record of the third millennium. It is also preferable because it attaches no pre-conceived notions of culture, origin, or grammatical constraints to the language being discussed.

1.3.3 ‘Old Akkadian’ vs. ‘Sargonic Akkadian’

It has been established that the term ‘Old Akkadian’, as was commonly used in the past, is too broad a term to refer to all the stages of the Akkadian language attested in the third millennium (Gelb 1961, p. 1; Sommerfeld 1987, p. 1; Hasselbach 2005, p. 1). Recent in-depth studies on the Akkadian from the third millennium have revealed a diversity in the language and writing system across this 500-year period that was not known before; for example, it has recently been argued that Ur III Akkadian writing and grammar should be considered a separate entity from Sargonic Akkadian based both on their grammatical features and on the syllabaries used to write them (Sommerfeld 1999; Hilgert 2003; Hilgert 2002, pp. 62, 120-133).

It is therefore customary now to refer to more discrete units of the Akkadian language: ‘Sargonic Akkadian’ refers to the Akkadian attested during the reign of the Sargonid kings (ca. 2350-2200 BC) and ‘Ur III Akkadian’ refers to the Akkadian of the Ur III period (ca. 2100-2000 BC). In this thesis, ‘Sargonic Akkadian’ refers to the time period of 2350-2200 BC, whereas ‘Old Akkadian’ is used to refer to the Akkadian language attested after the Early Dynastic periods and the Ur III period.

1.4 Limitations of the Project

General Limitations

This thesis only examines syllabic sign values and excludes logographic ones, largely because logographic signs are not language exclusive. Syllabically written words and texts reveal much more about not only the languages in question, but can also elucidate how the earliest scribes first dealt with the issue of expressing a different language than the one the writing system was created to represent.

Issues of phonology and transcription inevitably emerge when discussing third millennium Semitic. I recognise that some uncertainty remains about the nature, and therefore preferred transliteration, of certain phonemes during this period (particularly involving sibilants, gutturals, and vowel length). However, any variant transcription of certain phonetic classes that impacted the data in a significant way would be detected through the principal component analysis, and, as is shown in Chapter 3, phonetic class is not, in fact, a principal component behind the variation in the data set. This neutralises the concern about precise phonology and transliteration in this study.

This study was not able to examine every third millennium text with syllabically-written lexemes or proper nouns due to the lack of access to entire corpora. Newly discovered or transliterated tablets could certainly alter the data and therefore the results; however, as is shown in Chapter 3, the bootstrapping method applied to the hierarchical clustering provides a level of certainty for the results. If, by chance, a significant number of texts were discovered that altered the syllabaries presented here, the data could easily be modified and run through the program

with relative ease since the pipelines have already been established. This is one of the most powerful aspects of this methodology, particularly for a study without a known and finite dataset.

It bears noting that during the third millennium the Hurrians likely occupied much of the northwest region of Mesopotamian (Salvini 1998), particularly at Nuzi and Urkesh (Steinkeller 1998), and it is possible that some of the scribes writing texts in these cities were native Hurrian speakers. If so, this certainly could have affected how Akkadian was rendered in cuneiform at these sites. Therefore a study of third millennium Hurrian phonemics could theoretically be useful to a study on the adaptation of cuneiform to write Akkadian and other Semitic languages in the third millennium, but this is not currently possible because of the dearth of linguistic evidence of Hurrian in the third millennium. Regardless, such a study would fall outside the scope of this thesis.

Chronological Scope

The data collected for this thesis has been limited to cuneiform texts dating from the latter half of the third millennium BC, starting with what is traditionally referred to as the Old Akkadian period (ca. 2350-2200 BC), to texts dating until the Early Old Babylonian period (ca. 2000-1900 BC, corresponding to the Isin-Larsa period in southern Mesopotamia). Any texts dating from the Old Babylonian period (ca. 1800-1600 BC) and later are not included in this study.

The Old Babylonian period acts as a logical end-point for this study due to the widespread reforms and standardisations that were imposed on the writing system during this period, which essentially halted any local innovation (Michalowski 1987; Hilgert 2003; Michalowski 2006, pp. 170-2). The implementation of these Old Babylonian reforms therefore act as a watershed in the study of cuneiform as a writing system; before this point, there were fewer prescriptive rules about the orthography or sign repertoire across Mesopotamia and its periphery, so differences in the use and adaptation of cuneiform at different sites is more easily detectable. After this point, it becomes more difficult to discern differences in tradition and usage.

There are both advantages and disadvantages of including texts from a relatively large temporal range. The primary advantage is that by including a wider range of time periods there are more sites that have both attestations of Semitic and a sufficient publication record; this results in more data which aids in the power of the analytical tools. A disadvantage, perhaps, is that the range of time periods might overshadow any other nuances in the data that could be detectable within a more discrete time period.

Access to Corpora

Large or entire portions of the Gasur, Eshnunna, Tutub, Tuttul, and Nabada corpora are currently housed in Syria, Iraq, or Turkey. It has not been possible to personally collate these texts and so I have relied solely on published transliterations and photos where they exist. I have had to exclude texts from my data that have not been adequately published.

This study was also hindered by the lack of access to certain collections in Europe. I was not granted permission to collate tablets at the Vorderasiatisches Museum in Berlin, which greatly diminished the accuracy of the reconstructed Assur syllabary. As is discussed in Chapter 3 of this thesis, the lack of sufficient data from Assur has made this site inutile for the purposes of this study.

2

Collecting the Data: syllabic sign values attested in late third and early second millennium BC

2.1 Methodology

2.1.1 Reconstructing syllabic values

The reconstruction and publication of syllabaries and sign lists is fundamental to the study of the cuneiform script and the languages that were recorded with it. Examinations of the signs and syllabic values used in different contexts allow us to determine if and how the writing system changed over time and across space. Analysing the development of syllabaries and other features of a writing system allows us to answer fundamental questions about early scribal education and tradition, as well as the relationship between language and script, through what is essentially an examination of how the scribes interacted with the script they used.

In order to reconstruct the syllabaries nested within this logo-syllabic script, used by speakers of at least two different languages (Akkadian and Sumerian), the relevant corpus or corpora of texts must first be established. Since this study aims to answer questions on how scribes adapted the cuneiform script to write Semitic languages across Mesopotamia and Syria, the relevant corpora include texts that contain

syllabically written Semitic lexemes and proper nouns. The corpora being examined in this thesis have been outlined in Chapter 1. The studies of individual signs (in the following “sign studies”) provide a representative view of this investigation.

The methodology required to collate each corpus depends, of course, on the state of publication of the individual corpora. For corpora where extensive digital data and reliable digital transliterations exist, text mining is relatively straightforward: simple search commands can concatenate all lexemes attested in these texts. For corpora that are predominantly published in traditional analog, or paper, formats, text mining involves the straightforward yet time-consuming task of reading and transliterating the text on each tablet.

The next analytical step is identical for both digital and analog data sets: to examine individual lexemes, proper nouns, and sentences (where present) to determine the underlying language. There are, however, certain structural features that help determine the language of a text without a particularly close reading of the text.

In the case of letters, for example, there is a clear structural difference between texts written in Sumerian and Akkadian.¹ Letters tend to be formulaic in structure and often provide greater linguistic information than economic or administrative texts, so the underlying language of the text is more apparent. Even more helpfully, letters in both Akkadian and Sumerian have clear and different structures unique to the language in which they are written. This distinction in structure is apparent from the very first few lines of a text.

<u>Akkadian</u>	<u>Sumerian</u>
<i>en-ma</i> PN1 <i>a-na</i> PN2	PN1 <i>u₃-na-du₁₁</i> PN2 <i>na-be₂-a</i>
	or
	PN1 <i>na-be₂-a</i> PN2 <i>u₃-na-du₁₁</i>

If the letter in question does not follow this structure, or if the beginning of the letter is lost, or if one is examining a text belonging to another genre, then the next step is to look for lexical items written in Akkadian. Since both

¹Third millennium letters have been the subject of a number of studies; see, for example: Sollberger 1966; Oppenheim 1967; Michalowski 1993; Charpin 2007.

Sumerian and Akkadian texts make use of Sumerian words (in the case of Akkadian texts, as logograms), the presence of clear lexical items in Sumerian is not an indication of the language of the text. On the other hand, if there are lexical items that only make sense if read in Akkadian, then this is a clear indication that the text was written in Akkadian.

In other cases, such as lexical texts or administrative texts, there is often no clear difference in structure based on the underlying language of the text. These genres also often lack the full range of linguistic information (in other words, they rarely contain full sentences or full grammatical notations), particularly during this period.²

For texts such as these, examining language-specific grammatical and morphological patterns of individual lexemes and phrases is helpful for determining the underlying language. For example, the presence of either of the tripartite case endings on nouns – *-um/im/am* (Huehnergard 2011, pp. 6-7) – or language-specific verbal patterns – *i/yaPRuS* (G-stem preterite 3 m. s.), *i/yaPaRRaS* (G-stem durative 3 m. s.) (Huehnergard 2011, p. 623) – can be clear indications of the Akkadian language. I rely most heavily upon these grammatical and morphological features in the analysis presented below (the “sign studies”).

2.2 Conventions for the Sign Studies

The sign studies below represent a synthetic view of this investigation into the spread and use of cuneiform syllabaries in the late third millennium, one sign at a time (the complete syllabaries are presented in the table in Appendix A). The results of these sign studies – in other words, the reconstructed syllabaries and the establishment of Semitic lexemes and proper nouns within each corpus – are then used in the computational and linguistic analyses that are carried out in the following two chapters. These three main components of this study – the sign studies, the computational models, and the linguistic analysis – aim to answer the main research questions of this study:

²For studies on third millennium lexical texts, see: Krebernik 1982-1983; Westenholz 1985; Civil 2008; Civil 2010. For administrative texts, see: Foster 1977; Foster 1982; Michalowski 1985; Westenholz 1987; Englund 1991; Steinkeller and Postgate 1992.

- (1) Did each site in third millennium Mesopotamia and Syria use a consistent syllabary to write Semitic lexemes?
- (2) Was geography the primary factor in influencing any discernible differences in the syllabaries?

Both analog and digital publications of texts were used to reconstruct these syllabaries.³ For the “sign studies” below, examples of Old Akkadian and Ur III Akkadian lexemes and proper nouns come from Gelb (1957) and Gelb (1961), Hilgert (2002), and from digital data from the Cuneiform Digital Library Initiative.

All signs that are attested with a syllabic value or values at a site in Syria are included below, however they are not comprehensive in that they do not include every attestation at each site. The attestations of each value for the signs below occur in Semitic lexemes or proper nouns and are found predominantly in administrative texts. The exception is the Ebla syllabary, which was reconstructed using many lexical texts.⁴

The heading of each section includes the sign’s number published in Borger (2010) followed by the sign’s name. The paragraphs within each section contain the following information:

- Syllabic attestations during the Old Akkadian period in Mesopotamia
- Syllabic attestations during the Ur III period in Mesopotamia
- Syllabic attestations at Ebla
- Syllabic attestations at Mari

³The reconstructed syllabaries of Adab, Kish, Tutub, Assur, and Gasur were collected using texts published on the Cuneiform Digital Library Initiative’s database. The data from Eshnunna was collected from texts published in Gelb’s (1952) “Sargonic Texts from the Diyala Region” (MAD 1, nos. 1-195, 270-336.) and from the CDLI database. For the Tuttul and Nabada corpora, I have relied on the works of Krebernik (2001) and Ismail et al. (1996) respectively, as well as well-structured and collated digital data on the CDLI for both; the Mari syllabary is based on the one published in Limet (1976). The Ebla syllabary is taken directly from the following resources: Krebernik (1982-1983, pp. 178-236), Conti (1990, pp. 3-60), and the Ebla Digital Archives (<http://virgo.unive.it/eblaonline/cgi-bin/home.cgi>).

⁴See Chapter 1 for more on the genres attested among these texts.

- Syllabic attestations at Nabada

- Syllabic attestations at Tuttul

- Readings listed in Proto-Ea (MSL XIV)⁵

Although the earliest copies of Proto-Ea come from the Old Babylonian period, entries from Proto-Ea, the earliest attested Mesopotamian “sign list” that includes sign names and sign readings, are included simply as points of comparison with the main body of data from the Old Akkadian, Ur III and Early Old Babylonian periods.

2.2.1 Phonological, Morphological, and Grammatical Considerations

Where at all possible, transliterations, translations, and grammatical parsings are given for each word or proper noun attested. These are not given, however, for geographic names (as indicated by ‘GN’) or deity names (as indicated by ‘DN’), unless a clear meaning can be determined.⁶

There are a few peculiarities in the sign studies below that should be noted, although most of these will be discussed in further detail in Chapter 4. These include “non-standard” phonological or morphological phenomena,⁷ and “non-standard” grammatical structures in proper nouns that reflect differences in language or dialect.

The nature of particular aspects of Old Akkadian, Eblaite, and Amorite phonology – such as sibilants and gutturals – is still not fully understood (Gelb 1961; Hasselbach 2005; Huehnergard 2011). Since the purpose of this study is to examine the syllabic use of particular signs – and not the precise internal phonology of third millennium Akkadian dialects – transliterations of these phonemes concord with later Akkadian convention unless there is strong evidence otherwise; for example, the proper noun *su₄-be-lum* (ASJ 4, 50 o. col. ii 7) is transliterated as *šū-bēlum*, “he is the lord”. Since phonology is not the primary focus of this study, no attempt

⁵See Civil 1979.

⁶A concordance of all abbreviations used here can be found on page ix.

⁷By “non-standard”, I refer to phenomena not usually common to third millennium Akkadian.

to reconstruct internal phonology of the dialects attested was made.⁸ An attempt to identify the precise phonological qualities of these particular phonological classes would be speculative and would undoubtedly introduce unnecessary errors into the data, and therefore weaken the dataset.

Certain other unusual phonological phenomena can be observed. These include: (1) the /r/-/l/ interchange phenomenon at Ebla; (2) the spelling of normative Akkadian *bēlum* (<*ba^clum), “lord”, as *behlum* at Tuttul;⁹ (3) the practice of *ya*-verbal prefixes at Tuttul. These will be discussed further in Chapter 4.

It is notable that the proper nouns attested during these periods do not always appear to conform to grammatical norms.¹⁰ In particular, appropriate case endings and mimation are not standard. For example, we would expect the name “servant of Su’en” to be written as *warad-sw'en* or *wardi-sw'en* (with the noun *wardum* in the construct state and the DN *Su'en* in the genitive case), but instead may appear as, for example, *wardu-sw'en*.¹¹

2.3 Sign Studies

1. AŠ

During the Old Akkadian period, the syllabic values *aš*, *eš₂₀*,¹² and *dil* are attested for the sign AŠ, as in the following proper nouns: ^d*aš-šir-gi₄* (DN; REC 14; AO 11254 R.; OIP XIV 96); *ta₂-aš-qi₂-tum* (*tašqītum*, a seed furrow?, nom. s. f. noun from the root *š-q-*, “to give to drink; irrigate”; CT 50, 78 r. 6’);

⁸For extensive studies on third millennium Akkadian phonology, see Hasselbach (2005, pp. 99-146), Faber (1981), Faber (1985), and Kogan (2001).

⁹The interesting phenomenon of the sign values *iḫ/eḫ* acting in the word for ‘lord’ (Akk. *bēlum* <*ba^clum) can indicate one of two things: either (1) the phoneme /c/ has shifted closer to /ḫ/ at Tuttul or (2) the sign Iḫ has adopted the syllabic value /e^c/ at Tuttul. For a further discussion of this phenomenon, see Chapter 4.

¹⁰For discussions of third millennium proper nouns, see Stamm (1939), Biggs (1967), Edzard (1971), Pettinato (1971), Heimpele (1974-1977), Pomponio (1984), Di Vito (1993), Hilgert (2002), and Andersson (2012).

¹¹This name could be interpreted as either an unusual rendering of a noun in construct state plus a deity name, “the servant of Su’en,” or a nominal clause composed of a nominative singular noun without mimation plus a deity name in the vocative, “he is the servant, O Su’en.”

¹²In later periods, the syllabic value *eš₄* is ascribed to the sign DIŠ, while this same phonetic value, /eš/, is designated as *eš₂₀* for the sign AŠ.

eš₂₀-dar (DN; MO B ii; C xi; RTC 53 ii; 202; Fara III 110; LB 929:2; etc.); *dil-da-ba^{ki}* (GN; TCL V 6041 iii).

During the Ur III period, the syllabic value *aš* is attested for the sign AŠ, as in the following words and proper nouns: *aš-ri-li₂* (*ašri-ilī*, “taken care of (by) my god” or “place of my god”, nom. s. noun in const. st. (from *ašrum*) + gen. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); ASJ 11, 339-43 M₂-18 v. col. II 8); *ša-lim-ni-aš* (*šālimniāš*, “he makes well/whole for us”, act. part. (from the root *š-l-m*, “to be whole, well”) + 1 pl. dat. suffix (-*niāš*); PIOL 19, 120 R. Col. IV 9; STA 16 R. Col. IV 7); ^d*šul-gi-ra-ma-aš* (*šulgi-rāmaš*, “Love him, O Šulgi!”, voc. DN + imp. from the root *r-ṣ-m*, “to love” + 3 m. s. acc. suffix (-*š(u)*); BIN 3, 627a O. 2; 627b O. 2), *aš-ta₂-na-pa₂-ra-ma* (*aštanapparamma*, “I will send there and...”, from the root *š-p-r*, “to send”, Gtn-stem dur. 1 c. s. + vent. + enc. part.; TCS 1, 370, 7f.);¹³ *la-aš-šu-u₂* (*laššu*, contracted form of *lā išu*, “there is not”, from neg. part. + the root *ṣ-š-ṣ*, “to be, exist”, G-stem pret. 3 m. s.; TCS 1, 372 = TLB 3, 67, 1-9).¹⁴

At Ebla, the syllabic values *aš* and *rum* are attested for the sign AŠ (written *Diš_{tenū}*¹⁵), as in the following words and proper nouns: *aš-dar* (DN; *VE* 805); *en-bu₃/bu₁₄-we-rum* (possibly *inbû(w)-ilum* “(the one which) the god named”, from the root *n-b-ṣ*, “to call, name”, G-stem pret. 3 m. s. (although we would expect the form *inbi*); *ARET* 15, 42 v. 7, 5; r. 2, 9; le. 14); *iš/iš₁₁-qi₃*-^(d)*we-rum* (possibly *išqi(w)-ilum* “the god became high/elevated”, from the root *š-q-ṣ*, “to become high, elevated” G-stem pret. 3 m. s. + nom. s. noun (from *ilum*); *ARET* 15, 31 v. 4, 5; *ARET* 15, 47 r. 13, 2); *ši₂-ba-rum* (*šibarum*, “sparrow”, nom. s. noun; *ARET* 15, 2 r. 5, 3).

The sign AŠ is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *aš* is attested for the sign AŠ, as in the following proper nouns: *aš-ma^{ki}* (GN; Subartu 2, 37 r. 1, 1; Subartu 2, 39 r. 1, 4; Subartu 2, 125 v. 2, 1); *aš-lum* (meaning unknown, possibly a proper noun; Milano et al.

¹³*mi-nu-um aš-ta₂-na-pa₂-ra-ma* // *la tu₃-ša-ba-lam* (Gtn Sg. 1 c. + ventive), “Why, though I write you again and again, do you not send it to me?”

¹⁴*a-na eš₁₈-tar₂-dan-na-/at* // *qi₂-bi₂-ma* // 3 ^{tu_{g2}}*guz-za 4-kam-us₂* // 3 ^{tu_{g2}}*bar-dul₅ gin* // *i₃ ġi^šeren* // *i₃ [du₁₀]-ga [gib]il₄* // *i₃ z[u₂-lu]m* // *la-aš-[šū²-u₂²]* // *šu-bi-ti-im*, “To Eštar-dannat say: three *guzza* garments of second-rate quality; three *bardul* garments of ordinary quality; cedar oil; sweet, new oil; (and) date palm oil are not here (yet). Send them!” (Hilgert 2002, 628).

¹⁵For a description of *tenû*-signs, see Gong 1957 (32-5).

2004, 86; Subartu 12, 148 v. 2, 3); *da-ri₂-aš-dar* (*dāri-ištar*, “Ištar is eternal”, act. part. from the root *d-r-*), “to last forever” + DN; Subartu 12, 150 v. 1, 6), and *ta₂-kun₃-aš-dur₂* (meaning uncertain, possibly *takūn-ašdar*, “(May) Ašdar exist”; Subartu 2, 124 r. 1, 5’).

At Tuttul, the syllabic value *aš* is possibly attested for the sign AŠ, as in the proper noun *la/ra-aš²-a-na* (meaning uncertain; KTT 22 v. 10).

Proto-Ea lists the readings *aš* (l. 98), *ru-um* (l. 99), and *di-li* (l. 100) for the sign AŠ.

2. 𒄩

During the Old Akkadian period, the syllabic value *hal* is possibly attested for the sign 𒄩, as in the word *hal-<qum>* (*halqum*, “fugitive (slave)”, nom. s. noun; Kish 1930, 406 passim; cf. Gelb 1957, 128).

During the Ur III period, the syllabic value *hal* is likely attested for the sign 𒄩, as in the following words: *hal-hal-um* (*halhallum*, meaning uncertain, possibly an object made of wood, goat hair, and wool,¹⁶ nom. s. noun; ITT V 6875, U); *aš-hal-lum* (*ašhallum*, meaning uncertain, possibly a type of wooden container; Reisner, TUT 124 viii; HSS IV 5 iv; BIN IX 355, OB); *hal-li₂-li₂* (PN, meaning uncertain; CTMMA 1, 9 R. 25; MVN 16, 727 O. 1; NRVN 37 O. 4; 37 Siegel 1; OIP 115, 291 O. 12; SACT 1, 3 O. 4; Princeton 1, 108 O. 1; cf. Hilgert 2002, 290; 562); and *hal-li₂-lum* (PN, meaning uncertain; OLP 8, 3 O. 2; cf. Hilgert 2002, 290; 562); *hal-wa-hi-^riš[^][ki]* (GN; Iraq VII 66).

At Ebla, the syllabic value *ha_x*¹⁷ is attested for the sign 𒄩, as in the following words: *ha_x-da-bu₃*, *ha_x-da-bu₃-um* (*hatāpu(m)*, “to slaughter”, inf. of the root *h-t-p*, “to slaughter”; VE 252); *ha_x-zu-um* (*hassum*, “wise, clever”, nom. s. adjective from the root *h-s-s*, “to be conscious (of), remember”; Conti 1990).

The sign 𒄩 is not attested with a syllabic value at Mari.

The sign 𒄩 is not attested with a syllabic value at Nabada.

¹⁶See CAD vol. 6, p. 42.

¹⁷Krebernik 1982-1983, p. 190 suggests that this value could have arisen due to the common feature of the Eblaite syllabary to drop the final /l/ of a vC or CvC sign.

The sign 𒄩 is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ha-al* for the sign 𒄩 (l. 142).

4. BA

During the Old Akkadian period, the syllabic value *ba* is attested for the sign BA, as in the following words and proper nouns: *be-li₂-ba-ni* (*bēlī-bānī* “my lord is my creator”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + acc. s. noun (from *bānûm*) + 1 c. s. poss. suffix (-ī); BIN 8, 144 o. i 7; HSS 10, 109 o. 7; MAD 1, 185 o. 2; MAD 1, 335 o. 9; MAD 5, 74 o. 5; OAIC 2, o. 3; OIP 104, 40 v’ 14; OSP 2, 178 o. 10); *i-ba-tum* (PN; MDP 14 74 r. 2; CPM 110, v.), *u-ba-al-lī’-it* (*uballit* “he shall bring to life”, from the root *b-l-t*, “to live”, D-stem dur. 3 m. s.; Ist. Mus. Lagash 11001), *ba-la-ti₃-šu* (*balatīšu* “his life”, s. noun (from *balātum*) + 3 m. s. poss. suffix (-šu); Speelers, RIAA 4 ii, Dêr.; KAH II 2, BS.), *ba-qi₂* (*baqqī* “flies”, acc./gen. pl. noun; Kish 1930, 143:12), (*in*) *ba-ri₂-ti* (*in barīti* “in between”, prep. + gen. s. noun (from *barītum*); R xxiii, xxv; PBS V 39 x+iv, NS.).

During the Ur III period, the syllabic value *ba* is attested for the sign BA, as in the following proper nouns and lexemes: *ba-ni-DINGIR* (*bānī-ilum* “my creator is (the god) Ilum”, nom. s. noun in const. st. (from *bānûm*) + 1 c. s. poss. suffix (-ī) + DN; TCTI 1, 715 v. 6), *um-mi-ta₃-ba-at* (*ummī-tābat* “my mother is sweet”, nom. s. noun (from *ummum*) + 1 c. s. poss. suffix (-ī) + G-stem stat. 3 f. s. (from the root *t->-b*, “to be sweet, kind, good”) ; AAICAB 1 Ashm. 1924-584 Siegel 1); *iš-ba-at* (*išbat* “he seized”, from the root *š-b-t*, “to seize”, G-stem pret. 3 m. s.; Elam 2, 109); *tu₃-ša-ba-lam* (*tušabbalam* “you will deliver here”, from the root *w-b-l*, “to carry bring”, Š-stem dur. 2 m. s.; TCS 1, 370 r. 8).

At Ebla, the syllabic values *ba*¹⁸ and *pa₂* are attested for the sign BA, as in the following words and proper nouns: *ba-qa₂-lum* (*baqārum* “to (lay) claim to”, inf. from the root *b-q-r*, “to (lay) claim to”; VE 1101); *ra-pa₂-dum* (*rapādum* “to roam; wander”, inf. of the root *r-p-d*; VE 1342); *a-ba-ab*^{ki} (GN; ARET 8,

¹⁸It is also notable that at Ebla, the string *i₃-ba* is interchangeable with *ib₂* (Conti 1990, p. 28).

525 v. 5, 16; *ARET* 15, 36 v. 3, 10; passim); *ra-pa₂-qu₃* (*rapāqu(m)* “to lean, support”, inf. of the root *r-p-q*; *VE* 248).

At Mari, the syllabic values *ba* and *pa₂* are attested for the sign BA, as in the following words and proper nouns: ^d*en-lil₂-ba-ni* (*enlil-bāni*, “Enlil is the creator/builder”, DN + acc. s. noun (from *bānûm*); ARM XIX 32; 52; 53; 54; 59; 60; 84; 86; 97; 268; 316; 317; 400; 409); *ba-la-lim* (*balālim*, “alloy metal”, gen. s. noun; ARM XIX 347); *pa₂-ag-ru* (*pagru(m)* “carcass”, nom. s. noun; ARM XIX 303); *pa₂-an* (*pān*, “face of / (in) front of”, nom. s. noun in const. st. (from *pānum*); passim).

At Nabada, the syllabic value *ba* is attested for the sign BA, as in the following word: *ba-ri₂* (*bāri* (UDU), “a supervisor (of sheep)”, nom. s. noun in const st. (from the root *b-r-ṣ*, “to see, watch”); passim).

At Tuttul, the syllabic values *ba* and *pa₂* are attested for the sign BA, as in the following words: *i-ba-ni-il* (*ibanni-il*, “(the god) Il will create”, DN + the root *b-n-ṣ*, “to build, create”, G-stem dur. 3 m. s.; KTT 11 r. 9); *pa₂-ti-u₂-tum* (*pativūtum*, meaning uncertain, likely from the root *p-t-ṣ*, “to open”; KTT 53 v. 12).

Proto-Ea lists the reading *ba-a* for the sign BA (l. 146).

5. ZU

During the Old Akkadian period, the syllabic values *zu*, *su₂* and *ṣu₂* are attested for the sign ZU, as in the following words and proper nouns: *mu-za-zu* (*muzzāzū* “witnesses”, nom. pl. noun from the root *ṣ-z-z*, “to stand”; AnOr VII 372 iii, Sarg.); *li-za-zu-ma* (*lizāzūma* “may they stand (as a witness) and...”, from the root *ṣ-z-z*, “to stand”, G-stem prec. 3 m. pl. + enc. part.; Cop. 10055 rev.); *li-su₂-ḫu* (*lissuḫū* “may they tear out”, from the root *n-s-ḫ*, “to tear (out)”, G-stem prec. 3 m. pl.; BE I 120, NS.; BE I 1, Škš.; MDP VI Pl. 2, 1 ii); *nu-su₂-ḫu-um* (*nussuḫum*, a type of wooden object, nom. s. noun from the root *n-s-ḫ*, “to tear (out)”; ITT V p. 46, 9624; UET III 835, U; UET III 733 i, U); *wu-ṣu₂-iṣ* (*wuṣṣū’iṣ* “for spreading out, opening wide”, from the root *w-ṣ-ṣ*, “to go out”, D-stem inf. + term.-adv.; HSS 10, 186:6); *li-ṣu₂-ur* (*liṣṣur* “may he guard”, from the root *n-ṣ-r*, “to guard”,

G-stem prec. 3 m. s.; HSS 10, 6:4); *im-ḥa-ṣu₂* (*imḥaṣū* “they struck”, from the root *m-ḥ-ṣ*, “to strike”, G-stem pret. 3 m. pl.; BIN VIII 121).

During the Ur III period, the syllabic values *zu*, *su₂*, and *ṣu₂* are attested for the sign ZU, as in the following words and proper nouns: *li-zu-zu* (*lizūzū* “may they stand”, from the root *ṽ-z-z*, “to stand”, G-stem prec. 3 m. pl. ; ZA 82, 185, 1 o. 4); *ṣu-zu-bi₂* (*ṣūzubi*, “saved, rescued”, from the root *ṽ-z-b*, “to leave (behind)” in Š-stem; Legrain, TRU 43 rev.); *ṣar-ru-su₂-ṭa-bat₃* (*ṣarrūssu-ṭābat*, “his kingship is sweet”, nom. s. noun (from *ṣarrūtum*) + 3 m. s. poss. suffix (-*ṣu*) + 3 f. s. stat. from the root *ṭ-ṽ-b*, “to be good, sweet”; UET 3, 754 o. col. II 18’); *ik-ṣu₂-ṣu₂-ma* (*ikṣuṣūma* “they chewed/gnawed, and...”, from the root *k-ṣ-ṣ*, G-stem pret. 3 m. pl. + enc. part.; NATN 365 r. 26’); *e-ṣu₂-ri₂-i₃-li₂* (meaning uncertain, though possibly *iṣṣūri-ilī* “bird of the gods” (?); HSS 4, 57 r. 3; MTMB 188 v. 4).

At Ebla, the syllabic values *zu*, *su₂*, and *ṣu₂* are attested for the sign ZU,¹⁹ as in the following words: *’a₃-za-zu* (*ḥazzāzu(m)* “seer”, nom. s. noun; VE 216); *pu₃-ra-su₂-um* (*purrasum*, meaning uncertain but likely from the root *p-r-s*, “to cut off, decide”; VE 195); *wa-ṣu₂-bu_x(NI)* (*waṣṣubu(m)* “addition; interest” (?), nom. s. noun from the root *w-ṣ-b*, “to add, increase”; VE 1148).

At Mari, a syllabic value *zu/su₂/ṣu₂* is possibly attested in the word ZU-GU (meaning uncertain; ARM XIX 316; 317; 328; 400).

At Nabada, a syllabic value *zu/su₂/ṣu₂* is possibly attested for the sign ZU, as in the proper nouns ZU-*sum* (meaning uncertain; Subartu 2, 5; 14; 30) and *ḥa-bu₃-ZU* (meaning uncertain; Subartu 2, 4 r. ii 4; Subartu 2, 5 r. v 9).

At Tuttul, the syllabic values *zu*, *su₂*, and *ṣu₂* are possibly attested for the sign ZU, as in the following proper nouns: *a-zu-ni-il* (meaning not entirely certain, “...me, O (god) Ilum!”; KTT 20 II: 2), *ia-su₂-um* (meaning uncertain; KTT 6 II: 8); *bu-ṣu₂-um* (perhaps related to *būṣum*, “hyena”; KTT 15 II: 10).

Proto-Ea lists the reading *zu-u₂* for the sign ZU (l. 147).

¹⁹Conti (1990, p. 60) also suggests the syllabic value /*ṣu*/ for the sign ZU, but the example he provides is *su*!

6. SU

During the Old Akkadian period, the syllabic value Su^{20} is attested for the sign SU, as in the following words and proper nouns: *su-lum* (meaning uncertain, but possibly from the root $\check{s}-l-m$, “to be well, whole”; D 290 r. x+3); *ik-su-du₂* (*ikšudū* “they arrived”, from the root $k-\check{s}-d$, “to arrive, conquer”, G-stem pret. 3 m. pl.; D 231; 236); *ša-su-ru-um*^{ki} (GN; YOS IV 91).

During the Ur III period, the syllabic values *su* and $\check{s}u_{11}$ ²¹ are attested for the sign SU, as in the following words and proper nouns: *li-su-ḥa* (*lissuḥā* “may they tear out”, from the root $n-s-ḥ$, “to tear (out)”, G-stem prec. 3 f. pl.; Elam 13, 10’); *na-š_{i2}-š_{u11}* (*nāšīšū*, “his carrier”, act. part. from the root $n-\check{s}-\check{s}$, “to carry” + 3 m. s. poss. suffix (- $\check{s}u$); Varia 19, 3); *su-ru-uš-ki-in* (perhaps *šurrûš(u)-kīn*, “his beginning is true”, nom. s. noun (from *šurrûm*) + 3 m. s. poss. suffix (- $\check{s}u$) + stat. from the root $k-\check{s}-n$, “to be firm, true”; Torino 1, 24 v. 3).

At Ebla, the syllabic values $\check{s}u_{11}$ and *su* are possibly attested for the sign SU, as in the following words: *ta₂-ta₂-mi-š_{u11}* (*tattam(m)išū(m)*, nom. s. noun from the root *namāšum* “to move”; VE 126²²); *u₃-ba-š_{u11}-um* (*ubāšum*, “imposter”, nom. s. noun; VE 149); *š_{u11}-ma-tum* (*šummattum*, “tether” cf. Akk. *šummannu*, nom. s. noun; VE 483); *kar-su-um* (*karsum* or *karšum*, meaning uncertain, nom. s. noun; VE 576); *š_{u11}-mu-um* (*šumum*, “name”, nom. s. noun; VE 1144).

The sign SU is not attested with a syllabic value at Mari.

At Nabada, the syllabic value Su is attested for the sign SU, as in the personal and geographic names: *Su-a-ḥu* (*šū-aḥu*, “he is the brother”, 3 m. s. ind. pronoun ($\check{s}ū$) + nom. s. noun (from *aḥum*); Subartu 2, 5 r. II 6); *Su-lum*^{ki} (GN; Subartu 2, 30 r. III 3’; 140 v. I 2; 42 o. III 2; passim).

²⁰As with all sibilants during this period, the exact nature of the initial phoneme of this syllable is uncertain. Plausible options include /s/, /š/, and /ś/. The capitalisation of the initial ‘S’ indicates this uncertainty.

²¹We can distinguish that there were (at least) two different syllable-initial sibilant phonemes that could be represented with this same sign: what later became the Akkadian /s/ and /š/. Even if the exact pronunciations are unclear for one or both of these sibilants during this period, it is necessary to separate them in transliteration; the most logical way to do this, without introducing potential errors, is to use the established transliteration conventions of later Old Babylonian Akkadian.

²²See also Bonechi 2008, pp. 12-13.

The sign SU is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *su-u₂* for the sign SU (l. 148).

8. BAL

The sign BAL is not attested with a syllabic value during the Old Akkadian period.

During the Ur III period, the syllabic value *bal* is attested for the sign BAL, as in the word *uš-bal-kit* (*ušbalkit*, “he transferred over”, Š-stem pret. 3 m. s. from the root *b-l-k-t*, “to transfer (over)”; Frayne 1997, RIME 3/2.01.01.33, ex. 20 v. 8).

At Ebla, the syllabic value *bal* is possibly attested in the geographic name *gu₂-ra-ra-bal^{ki}* (passim).

The sign BAL is not attested with a syllabic value at Mari.

The sign BAL is not attested at Nabada with a syllabic value.

At Tuttul, the syllabic value *bal* is attested in the proper noun *ma-na-bal-ti₄-il* (meaning uncertain; KTT 10 o. 9).

Proto-Ea lists the reading *ba-la* for the sign BAL (l. 273).

11. TAR

During the Old Akkadian period, the syllabic values *tar* and *dar_x* are attested for the sign TAR, as in the following words and proper nouns: *tar-am₃* (*tarâm*, “she loves”, from the root *r-ṣ-m*, G-stem dur. 3 f.s.; Fs D. Oates 14); *su-mu-dar_x* (*šumu-dār*, “the name is eternal.”²³, nom. s. noun (from *šumum*) + G-stem stat. 3 m. s. from the root *d-ṣ-r*, “to be eternal”; MAD 1, 276 o. 1’)

The sign TAR is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic values *haš/ku₅* and *ti_x* are possibly attested for the sign TAR, as in the following word: *mar-haš/ku₅-tum* (meaning uncertain;²⁴ VE 480); *ti_x-wa-da-mu* (personal name, uncertain element + DN; ARET 15 43 r. ix 1).

²³Cf. *su-mu-da-ar* (Tutub 6 r. col. i 5).

²⁴Krebernik (1982, 203) reads *haš* here, while Pettinato reads it as *ku₅*. According to the *Chicago Assyrian Dictionary*, the words *marḥušum/marḥašum* (CAD Volume 10, Part 1, p. 281) and *markūtum* (CAD Vol. 10, Part 1, p. 284) are both attested at Mari as words for types of materials: stone and wood, respectively.

The sign TAR is not attested with a syllabic value at Mari.

The sign TAR is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic values di_x and ti_x are attested for the sign TAR, as in the following proper nouns: $di_x-ša-nu-u_2$ (KTT 13 o. 8, 9); $ba-du-di_x-el$ (KTT 5 o. 10); $i-di_x-im-li-im$ (KTT 10 o. 8); ${}^{\prime}a_3-ti_x-qa_2$ (likely from the root ${}^{\prime}t-q$, “to go past; to go through; to cross over”; KTT 23 o. 4).

Proto-Ea list the readings $ku-ud$, $ku-u_2$, $ha-aš$, $ta-ar$, and $si-la$ (l. 194a-199) for the sign TAR.

12. AN

During the Old Akkadian period, the syllabic values an and il_3 are attested for the sign AN, as in the following words or proper nouns: $ma-an-iš-tu-su$ ($man-ištūšu$, “who is after him?”, interr. pronoun + prep. + acc. 3 m. s. suffix ($-šu$); MAD 2/2, 197; passim); $u-ki_2-il_3$ ($ukūl$, “he held”, from the root $k-l$, “to hold”, D-stem pret. 3 m. s.; HSS 10, 94 r. 5); $tu-ki_2-il_3$ ($tukūl$, “you held”, from the root $k-l$, “to hold”, D-stem pret. 2 m. s.; OAIC 9 r. 9); $i_3-li_2-il_3-la-at$ ($ilī-illat$ “my god is (the god of) the clan”, nom. s. noun (from $ilum$) + 1 c. s. poss. suffix ($-ī$) + abs. noun (from $illatum$); MDP 14, 6 r. ii 14’); $il_3-su-dar$ ($išū-dār$ “his god is eternal”, nom. s. noun (from $ilum$) + 3 m. s. poss. suffix ($-šu$) + G-stem stat. 3 m. s. from the root $d-r$, “to be long lasting, eternal”; STTI 168 o. ii 7’).

During the Ur III period, the syllabic values an and possibly il_3 are attested for the sign AN, as in the following words and proper nouns: $iš-ta_2-ka_3-an$ ($ištakan$ “he has placed”, from the root $š-k-n$, “to place”, G-stem perf. 3 m. s.; Fragment C 7 II 15); $i-li_2-da-an$ ($ilī-dan$ “my god is strong”, nom. s. noun (from $ilum$) + 1 c. s. poss. suffix ($-ī$) + G-stem stat. 3 m. s. from the root $d-n-n$, “to be strong”; RA 19, 33, 79 o. 3); $a-ḫu-um-il_3$ ²⁵ ($aḫum-il$, “the brother is (the god) II” or “the brother is the god”, nom. s. noun + DN; Altavilla, QNAR 1 BM 19327).

²⁵It is possible that the final sign is not the syllable /il/ but instead the logogram DINGIR, “god”. The interpretation of this sign as il_3 is based on comparisons with other Ur III proper nouns ending in the theophoric element il , such as $en-na-il$ (RIME 1.8.3.1, ex. 1 o. 2), “favour, mercy of the god”.

At Ebla, the syllabic value *an* is attested for the sign AN, as in the following words and proper nouns: ^d*a-za-na-an* (DN, ^ʾ*asnan*, cf. Akk. *ašnan*; VE 812); *ha-ra-an*^{ki} (GN; *ARET* 15 36 o. XIII 6); *an-da* (meaning uncertain; passim).

At Mari, the syllabic values *an* and *il₃* are attested for the sign AN, as in the following words and proper nouns *i-din-d^dil₃-a-ba₄* (*iddin-ilaba*, “(the god) Ilaba gave”, DN²⁶ + G-stem pret. 3 m. s. from the root *n-d-n*, “to give”; ARM XIX 110; 290; 321; 324; 365, 12; 368; 369); *da-sa₂-an* (meaning uncertain; ARM XIX 184, 1); *bi-ta₂-an* (*bītān*, “houses”, dual noun; ARM XIX 164, 2).

At Nabada, the syllabic values *an*, *am₆*, and *il₃* are attested for the sign AN, as in the following proper nouns: *ir₃-am₆-EN* (*ir^ʾam-bēlum*, “the lord loved (him)”) or *ir^ʾam-bēlam*, “he loved the lord”, from the root *r-ʾ-m*, “to love”, G-stem pret. 3 m. s. + nom./acc. s. noun; Subartu 2, 1 o. I 3; II 1); *i-šū₂-il₃* (*išū-il*, “he has a god”, from the root *ʾ-š-ʾ*, “to have”, + abs. noun from *ilum*; Subartu 2, 5 r. II 9; Subartu 2, 29 o. IV 6).

At Tuttul, the syllabic values *an* and *il₃* are attested for the sign AN, as in the following words and proper nouns: *hu-ra-ša-an* (likely related to the *hurāšum*, “gold”, cf. the OA/OB proper noun *hurāšānum/hurāšānītum* “goldie” (Black, George, and Postgate 2000, 121); KTT 37 I 2); *ru-ma-an* (meaning uncertain; KTT 53 I 19); *mi₃-il₃-ki-li-AN* (precise interpretation unclear: perhaps *milki-il^{il₃}*, “the counsel of the gods,” or, *milki-(e)lil(um)*, “my counsel is powerful”; KTT 36 I 2; 46 I 14).

Proto-Ea lists the readings *a*, *di-mi-ir*, *sa₃-a*, and *i-lu* for the sign AN (l. 134-137).

15. KA

During the Old Akkadian period, the syllabic values *p/bu₅*, *pi₄/bi_x*, *p/bum_x*, *zu₂*, *su₁₁*, *šu_x*, and *zur_x* are all possibly attested for the sign KA, as in the following words and proper nouns: *pu₅-su-su* (possibly from *p-š-š*, “to anoint”, D-stem inf.; MAD 1, 5 + 117 + 133 o. ii 8^ʾ; cf. *pu₃-su-su*); *a-pi₄-sal₂*^{ki} (GN; Gelb, AJSL LV 7Off.); *ir₃-e-bum_x* (likely from the root *r-ʾ₃-b*, “to be big, great”; Kish 1930,

²⁶See also Lambert (1982), “Old Akkadian *Ilaba* = Ugaritic *ilīb*?” *UF* 13, 299-301.

144a); *su₁₁-pa₂-lum* (*supālum*, “juniper”, nom. s. noun; ITT 2, 4587 o. 2; ITT 2, 6669 o. 3); ^d*ṣu_x-ur₃-mu* (DN; Gudea xx).

During the Ur III period, the syllabic values *du₁₁*, *ka*, *pi₄*, *pu₅*, *qu₈*, *tu₆*, and *zu₂* are attested for the sign KA, as in the following words and proper nouns: *iš-du₁₁-ki₂-ni* (*išdū-kīnī*, “the foundations are true”, nom. pl. noun (from *išdum*) + stat. pl. acc. noun (from the root *k-ṣ-n*, “to be firm, true”); MTBM 93 r. 8; 118 o. 8); *a-ta₂-ka-al-šu-um*? (*atakkalšum*, “I trust in him”, from the root *t/w-k-l*, “to trust”, G-stem dur. 1 c. s. + 3 m. s. dat. suffix (-*šum*); ITT 5, 6815 r. 4’), *a-pi₄-la-num₂* (*āpilānum*, “the answerer,” nom. s. noun with particularising infix (-*ān*) from the root *ṣ-p-l*, “to answer”; HLC 3, 127, 284 r. 23); *pu₅/pi₄-um-wa-qar* (*pūm-waqar*, *pūm-waqar*, “precious of speech”, nom./gen. s. noun + stat. noun (from the root *w-q-r*, “to be dear, precious”); AUCT 2, 27 r. 7; 3, 207 r. 7; 438 r. 13; BIN 3, 262 r. 16; 397 r. 13; MVN 13, 522 r. 32; 522 Siegel 1; OMRO 68, 18f., 10 r. 11’; OrSP 47-49, 126 r. 10; OIM A4424 r. 28); *qu₈-da-šum* (possibly *qudāšum*, “earring”, nom. s. noun; Sumer 43, 198, 24 r. col. IV 8; 198, 24 r. col. IV 9); *ba-al-tu₆-ša-ri* (*baltu-šarri*, “the life of the king”; TLB 3, 169 r. col. VI 5), *pu₃-zu₂-ra-bi₂* (perhaps either *puzur-rābi*, “protection of the great one” or *puzur-abi*, “protection of the father”, nom. s. noun in const. st. (from *puzrum*) + gen. s. noun (from either *rābum* or *abum*); MTBM 114 o. 4).

At Ebla, the syllabic values *ka*, *su₁₁*, and *bu_x* are possibly attested for the sign KA, as in the following words and proper nouns: *ka-ri₂-NE-um^{ki}* (GN; *ARET* 15, 38 o. col. V 10; 51 o. col. VI 11); *ha-si₂-su₁₁* (*hasīsu(m)*, “wise”, nom. s. noun from the root *h-s-s*, “to be conscious; remember”; *VE* 389); *bu_x-zu-ga^{ki}* (GN; *ARET* 2, 12 o. i 1; passim).

The sign KA is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *zu₂* or *su₁₁* is possibly attested for the sign KA, as in the following proper noun: *a-za-zu₂* (possibly from the root *ṣ-z-z*, “to be angry; to stand”; Subartu 2, 15 r. col. 2 1; passim).

At Tuttul, the syllabic value *ka* is attested for the sign KA, as in the following proper nouns: *i₃-li₂-ka-bar^l* (*ilī-kabar*, “my god is solid”, nom. s. noun (from

ilum) + 1 c. s. poss. suffix (- \bar{i}) + stat. s. noun (from the root *k-b-r*, “to be thick, solid”); KTT 49 r. 5); *ra-ka-ab-tu* (possibly *rakabtu(m)* or *rakkābtu(m)*, “(female) mounted messenger” ?, from the root *r-k-b* “to ride, mount”, nom. s. noun; KTT 11 r. 8); *i-di-ka-mi-iš* (*idī-kamîš*, “my side is in a bound state”, nom. s. noun (from *idum*) + 1 c. s. poss. suffix (- \bar{i}) + stat. (from the root *k-m- \bar{r}* , “to bind”) + term.-adv. (-*iš*); KTT 7 o. 7).

Proto-Ea lists the readings *ka-a*, *zu(-u₂)*, *gi-ri*, *e-nim*, *gu₂(-u₂)*, *du-u₂*, and *pi(-i)* for the sign KA (l. 303-309).

17. BUM

During the Old Akkadian period, the syllabic values *bum*, *um*, *bu₃*, *pu₃*, and *ba₁₁* are attested for the sign BUM, as in the following words and proper nouns: *be-li₂-a-bum* (*bēlī-abum*, “the father is my lord”, acc. s. noun (from *bēlum*) + 1 c. s. poss. suffix (- \bar{i}) + nom. s. noun (from *abum*); TA 1931, 30 r. ix); *kal₂-bum* (*kalbum*, “dog”, nom. s. noun; BIN VIII 11 i, v); *sa-bum*^{ki} (GN; PBS 05, 034; PBS 4/1 pp. 173-242; PBS 15, 41); *la-qi₃-pum* (*lā-qīpum*, “unbelievable”, neg. part. + nom. s. adj. (from the root *q- \bar{r} -p*, “to (en)trust; believe”); PBS 15, 11 o. 7’; OSP 1, 148 II 1; TMH 5, 64 III 1); *bu₃-ši-num* (*bušinnum*, “wick”, nom. s. noun; FM 41:6); *pu₃-uz-ru-sa* (*puzrūša*, “her protection”, nom. s. noun (from *puzrum*) + 3 f. s. poss. suffix (-*ša*); TA 1931, 30 i); *ba₁₁-u₂-la-ti* (*ba’ūlati*, “dominion”, s. noun in const. st.; BE I 2; MJ III 23).

During the Ur III period, the syllabic values *pu₃*, *pi_x*, and *ba₁₁* are possibly attested for the sign BUM, as in the following words and proper nouns: *šu-pu₃-ul-tum* (*šuppultum*, “very short of stature”, from the root *š-p-l*, “to be(come) deep, low”, D-stem inf.; RA XIX 44, 118); *pu₃-šu-ki-in* (*pûšu-kīn*, “his word (lit.: “mouth”) is true”, nom. s. noun (from *pûm*) + 3 m. s. poss. suffix (-*šu*) + G-stem stat. 3 m. s. (from the root *k- \bar{r} -n*, “to be firm, true”); PDTI 529 x, U); *pu₃-zur_x-eš-dar* (*puzur-Ištar*, “the protection of Ištar”, nom. s. noun in const. st. (from *puzrum*) + DN; Pinches, AT 95); *pi_x-ša-ḥa-li*²⁷ (meaning uncertain; Pinches, AT 61, U);

²⁷Or, PU₃.ŠA-ḥa-li /puzur-ḥāli/ “the protection of the maternal uncle.”

*ba*₁₁-*ba-ti* or *bu*₃-*ba-ti* (*bābāti*, “city quarters”, acc./gen. pl. noun, or *bubāti*, “hunger, starvation”, acc./gen. s. noun; Barton, HLC 290 Pl. 128 r. 3).

At Ebla, the syllabic values *bum*, *pum*, *bu*₃ and *pu*₃ are attested for the sign BUM, as in the following words: *tu*₃-*bu*₃-*a-tum* (*tūbuwātum*, “goodness”, nom. s. noun; VE 61); *ta*₂-*bum* (*tābum* or *ṭawbum*, “good”, nom. s. adj.; VE 62²⁸); *ša-la-pu*₃-*um* (*šalahpuyum*, “tortoise”, nom. s. noun; VE 47); *ša-qi*₃-*lum a-pum* (*daqirum ʾappum*, “to be high/big of nose”, nom. s. noun + nom. s. noun; VE 212).

At Mari, the syllabic value *b/pum* is possibly attested for the sign BUM, as in the proper noun *za-na-b/pum* (meaning uncertain; ARM XIX 247; 258; 259; 362).

At Nabada, a syllabic value *b/pum* / *b/pu*₃ is possibly attested for the sign BUM, as in the following proper nouns: *ša-ra-BUM* (meaning uncertain; Subartu 2, 59 r. col. I 1); *BUM-EN* (meaning uncertain; Subartu 2, 6 o. col. III 11); *ha*²-*la*¹-*BUM* (meaning uncertain; Subartu 2, 29 o. col. IV 3).

At Tuttul, the syllabic values *bum* and *pum* are attested for the sign BUM, as in the following words: *i*₃-*ir-bum* (*irbum*, from *ʾ-r-b* “to enter”, possibly meaning “entrance tax”, nom. s. noun; KTT 47 o. 6); *ka*₃-*ta*₂-*pum* (*katappum*, some type of wooden, silver, or copper object, nom. s. noun; KTT 53 o. 5; 10; 15).

The sign BUM is not listed in the extant portions of Proto-Ea.

22. URU

During the Old Akkadian period, the syllabic values *ri*₂ and *ru*₉²⁹ are attested for the sign URU, as in the following words and proper nouns: *ma-ri*₂^{ki} (GN; CT 50, 72; MAD 1, 272; OSP 1, 102; passim); *su-ba-ri*₂-*tum* (*šubarītum*, “(a female) from Subartu; (a feminine thing) from Subartu”, nom. s. noun; A 7816; A 7845; A 7881); *ri*₂-*ig-mu-um* (*rigmum*, “voice; noise”, nom. s. noun; Kh. 1934, 40; A 7860 i); *sar-ru*₉-*ti-su* (*šarrūtīsu*, “his kingship”, nom. s. noun (from *šarrūtum*) + 3 m. s. poss. suffix (-*šu*); UET I 275 ii, NS.); ^d*za-za-ru*₉ (cf. ^d*za-za-ru-um*;

²⁸See also Bonechi 2008, pp. 12-13.

²⁹Thureau-Dangin (RA XXXI 83f.) proposed a value *eri*, but there seems to be little evidence for this.

Gelb, MAD I, 163+165 col. IV 35) (DN; Thureau-Dangin, SAKI p. 44 g ii 10, Urukagina); *ma-ri₂^{ki}* (GN; passim).

In the Ur III period, the syllabic value *ri₂* is attested for the sign URU, as in the following words and proper nouns: *mu-ri₂-ri₂q* (*murīq(um)*, “fender off of...”, D-stem nom. s. noun in const. st. from the root *r-ṣ-q*, “to keep someone at a distance”; OIM A26346 r. 16; passim); *be-li₂-a-ri₂-ik* (*bēlī-arik*, “my lord is long (of reign/life)”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + stat. (from the root *ṣ-r-k*, “to be long”); passim); *ma-ri₂^{ki}* (GN; passim).

At Ebla, the syllabic values *ri₂* and *re₂* are attested for the sign URU, as in the following words: *i₃-ri₂-sa-tum* (*irištum*, “desire, request”, nom. s. noun; cf. Akk. *erištum*; VE 234); *ḥa-ri₂-bum* (*ḡāribum*, “crow”, nom. s. noun; cf. Akk. *āribum*, Sem. *ḡārib-*; VE 295); *re₂-ṣ_x(EN)-ṣ_xmu* (*reḥmu(m)*, nom. s. noun; cf. Sem. *raḥm-* “uterus, womb”; VE 324).

At Mari, the syllabic values *ri₂* and *re₂* are attested for the sign URU, as in the following word and proper noun: *ri₂-im-sa₂-i₃-li₂* (*rīmša-ilī*, “her gift is my god” ?, nom. s. noun (from *rīmum*) + 3 f. s. poss. suffix (-ša) + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); ARM XIX 19; 19; 20; 51; 55; 58; 98; 370; 396; 397); *ka₃-ša-re₂-en* (meaning uncertain, but the value *re₂* is established based on the initial vowel of the next sign, *en*; ARM XIX 248).

At Nabada, the syllabic value *ri₂* is attested for the sign URU, as in the following word and proper noun: *ba-ri₂ UDU* (*bāri UDU*, “a supervisor of sheep”, nom. s. noun in const. st. (from the root *b-r-ṣ*, “to see, look at”); Subartu 2, 15 o. II 2; Subartu 2, 39 o. III 1; passim); *lu-ri₂-um^{ki}* (GN; Subartu 2, 23 r. II 6).

At Tuttul, the syllabic value *ri₂* is attested for the sign URU, as in the following words: *ki-ri₂-i-im* (*kirîm*, “plantation; orchard”, gen. s. noun; KTT 28 I 2); *u-ri₂-im* (possibly *urrim*, “daytime”, gen. s. noun; KTT 47 I 1); *a-ri₂-tim* (meaning uncertain, possibly from the root *ṣ-r-ṣ*, “to be pregnant” or “to cut off”, gen. s. noun; KTT 41 I 5).

Proto-Ea lists the reading *i-ri* for the sign URU (l. 538).

27. LA

During the Old Akkadian period, the syllabic value *la* is attested for the sign LA, as in the following words: *i-la-ak* (*illak*, “he goes”, from the root 𐎠-*l-k*, “to go”, G-stem dur. 3 m. s.; ITT V 6682); *be-la-su-nu* (*bēlassunu*, “their lady”, from *bēlatum* + 3 m. pl. poss. suffix *-šunu*; BE I Pl. VII ii).

In the Ur III period, the syllabic value *la* is attested for the sign LA, as in the following words: *be-la-ti-šu* (*bēlatišu*, “his lady”, from *bēlatum* (“lady”) + *-šu* (“his”); KAH II 2, BS.), *la-aš-šu-u₂* (*laššu*, contracted form of *lā išu*, “there is not”, from neg. part. + the root 𐎠-*š-š*, “to be, exist”, G-stem pret. 3 m. s.; TCS 1, 372).

At Ebla, the syllabic values *la* and *ra_x* are attested for the sign LA, as in the following words: *la-i-mu* (*lahimu(m)*, “to be close with one another”; VE 63); *kal₂-la-tu₃* (*kallatu(m)*, “daughter-in-law”, nom. s. noun; VE 322); *ši-ra_x-tum* (*širatum*, nom. s. noun, cf. Akk. *ešertum*, “sanctuary”; VE 331); *pa₂-ra_x-kum* (*parākum*, “to be hostile”; VE 851).

The sign LA is not attested in third millennium Mari.

At Nabada, the syllabic value *la* is possibly attested for the sign LA, as in the following proper nouns: *la-i-um^{ki}* (GN; Subartu 2, 23 r. III 4); *u₉-la-šum* (meaning uncertain; Subartu 12, 148 o. I. 4).

At Tuttul, the syllabic value *la* is attested for the sign LA, as in the following words and proper nouns: *iš-la-am^dIM* (*išlam-adad*, “Adad made healthy”, from the root *š-l-m*, “to be well, whole”, G-stem pret. 3 m. s. + DN; KTT 48 I 5); *ša-la-ta-am* (*šallatam*, a type of heavy cloth, acc. s. of the noun *šallatum*; KTT 55a II 10).

Proto-Ea lists the reading *la-a* for the sign LA (l. 179).

30. TU

During the Old Akkadian period, the syllabic values *tu*, *du₂*, and *tu₂* are attested for the sign TU, as in the following words and proper nouns: *eš₄-dar-tu-kul-ti* (*eštar-tukulti*, “the encouragement of Ištar”, or *eštar-tukultī*, “Ištar is my encouragement”, from the noun *tukultum*, “trust, reliance”, in either gen. construct state or acc. + 1 c.s. possessive suffix; TA 1931, 30 ii; A 7824 r. x+i); *tu-li-id^dUTU* (*tulid-šamaš*,

“you begot, O Šamaš”, from the root *w-l-d*, “to give birth to, beget”, G-stem pret. 2 m.s.; Fish, CST p. 16, U); *iš-du₂-ud* (*išdud*, “he towed; stretched; drew”, from the root *š-d-d*, “to tow, stretch, draw”, G-stem pret. 3 m.s.; FM 2:4); *li-im-du₂-ud* (*limdud*, “may he measure”, from the root *m-d-d*, “to measure, weight (out)”, G-stem prec. 3 m.s.; UET I 276 ii, NS.); *li-iš-ṭu₂-ru-nim* (*lišṭurūnim*, “may they inscribe there”, from the root *š-ṭ-r*, “to write, inscribe”, G-stem pret. 3 m. pl. + ventive; D 260 r. x+4); *ṭu₂-ur₄-da* (*ṭurdā*, “send away!”, from the root *ṭ-r-d*, “to dispatch, send away”, G-stem imper. f. pl.; Kish 1930, 143).

During the Ur III period, the syllabic values *tu* and *du₂* are attested for the sign TU, as in the following words and proper nouns: *tu-ra-mi-li₂* (*tûram-ilī*, “return here/to me, O my god”, from the root *t-ṛ-r*, “to return”, G-stem imper. + ventive; NATN 21, 4); *tu-ma-su₂* (meaning uncertain; TCS 1, 371 7); *i-du₂-ki-in* (*idu-kīn*, “the arm/side is true”, from *idum*, “arm, side” + *kīnum*, “true”; BAOM 2, 86, 41); *i-im-du₂-id* (meaning uncertain, unless it is a scribal error for *imdud*, “he measured”, from the root *m-d-d*, “to measure, weigh (out)”; NATN 715 A, 2’).

At Ebla, the syllabic value *tu* is attested for the sign TU, as in the following words and proper nouns: *mar-tu^{ki}* (GN; *ARET* 16, 7 o. I 11); *zi-ku-tu* (proper noun, perhaps related to *zikūtum*, “cleansing”, from the root *z-k-ṛ*, “to become clear, pure”; *ARET* 8, 542 o. III 16).

At Mari, the syllabic value *tu* is attested for the sign TU, as in the following words and proper nouns: DINGIR-*tu-kul₂-ti* (*ilum-tukultī*, “the god is my trust”, nom. s. noun (*ilum*) + gen. s. noun (*tukultum*) + 1 c. s. poss. suffix (-ī); ARM XIX 269), ^dIM-*tu-ra-a* (*Adad-tûra*, possibly “return, O Adad!”, from the root *t-ṛ-r* “to return” + vent. with dropped mimation; ARM XIX 322; 325).

At Nabada, the syllabic value *tu* is attested for the sign TU, as in the following proper nouns: *tu’ a₃-na-šū* (meaning uncertain; Subartu 2, 29 r II 5); *a-hu-tu* (likely from *aḥūtum*, “brotherhood”; Subartu 2, 2 o. I 2).

At Tuttul, the syllabic values *tu* and *du₂* are attested for the sign TU, as in the following words and proper nouns: *ra-ka-ab-tu* (*rakabtum*, “rider”, nom. s. noun from the root *r-k-b*, “to ride, mount”; KTT 55a II 17); *ši₂-tu-um* (*šītum*, “exit (tax)”,

nom. s. noun from the root $w\text{-}š\text{-}r$, “to go out”; KTT 46 I 12); $a\text{-}du_2\text{-}li\text{-}im$ (meaning uncertain; KTT 33 I 5); $ab\text{-}du_2\text{-}da\text{-}gan$ ($abdu\text{-}dagan$, “servant of (the god) Dagan”, nom. s. noun in const. st. from the root $r\text{-}b\text{-}d$, “to serve” + DN; KTT 30 I 3).

Proto-Ea lists the readings $tu\text{-}u_2$ and $du\text{-}u_2$ for the sign TU (l. 684-5).

31. LI

During the Old Akkadian period, the syllabic value li is attested for the sign LI, as in the following words: $li\text{-}ru\text{-}ru\text{-}u\check{s}$ ($lirru\check{s}$, “may he sow, cultivate”, from the root $r\text{-}r\text{-}\check{s}$, “to sow, cultivate”, G-stem prec. 3 m.s.; UET I 276 ii, NS.); $li\text{-}li\text{-}ik$ ($lillik$, “may he go”, from the root $r\text{-}l\text{-}k$, “to go, walk”, G-stem prec. 3 m.s.; ITT V 6682).

During the Ur III period, the syllabic values li and le are attested for the sign LI, as in the following words and proper nouns: $il\text{-}li\text{-}kam\text{-}\langle\langle ma \rangle\rangle$ ($illikamma$, “he comes here and...”, from the root $r\text{-}l\text{-}k$, “to go, walk”, G-stem dur. 3 m.s. + vent. + enc. part.; Elam 2, 107); $u_3\text{-}ha\text{-}li\text{-}iq$ ($u\check{h}alli\check{q}$, “he allowed to escape”, from the root $h\text{-}l\text{-}q$, “to disappear, be lost”, D-stem pret. 3 m.s.; Frayne, RIME 3/2.01.04.05 composite); DINGIR- $le\text{-}i_3$ ($ilum\text{-}l\bar{e}\hat{i}$, “the god is powerful”, from $ilum$ (“god”) + the root $l\text{-}r\text{-}i$, “to be able, powerful”, G-stem acc. act. part.; Hilgert 2002, 476 without citation); $i\text{-}\check{s}ar\text{-}le\text{-}i$ ($i\check{s}ar\text{-}l\bar{e}\hat{i}$, “(the god) I\check{s}ar is powerful”, from the root $l\text{-}r\text{-}i$, “to be able, powerful”, G-stem acc. act. part.; PDT 1, 186, 4).

At Ebla, the syllabic values li , le , and possibly ri_x are attested for the sign LI, as in the following words and proper nouns: $li\text{-}qi_3\text{-}tum$ ($liqtum$, “collection”, nom. s. noun; VE 282³⁰); $a\text{-}mur\text{-}li\text{-}im$ ($\bar{a}mur\text{-}lim$, “I saw (the god) Lim”, from the root $r\text{-}m\text{-}r$, “to see”, G-stem pret. 1 c.s.; ARET 1, 4 o. xi 9'; ARET 1 9 o v 9; ARET 1 17 r. iv 8); $ba\text{-}li$ ($bali$, “without”, cf. Akk. $balum$; ARET 13, 5 r. xi 4; ARET 13, 6 o. v 11); le (“to, for”, prep.; ARET 2, 51 r. i 6); $tal\text{-}ta_2\text{-}ri_x\text{-}bu_3$ (meaning uncertain, see Conti (1990, pp. 164-165) for a possible etymology; VE 586).

At Mari, the syllabic value li is attested for the sign LI, as in the word $li\text{-}lum$ ($lillum$, “soft”, nom. s. noun; ARM XIX 260-265).

³⁰See also Bonechi 2008, pp. 12-13.

At Nabada, the syllabic value *li* is attested for the sign LI, as in the word *li-im* (from *līmum*, “thousand”, s. const. st. / abs. noun; Subartu 2, 49 o. i 2, 4; ii 3).

At Tuttul, the syllabic value *li* is attested for the sign LI, as in the following words and proper nouns: *be-eh-li-d^dda-gan* (*beḥli-dagan*, “the lord of Dagan”, or *beḥlī-dagan*, “my lord is Dagan”, from the root *b-ṣ-l*, “to rule over, control”, nom. s. noun in const. st. + 1 c.s. poss. suffix; KTT 15 II 2); *ma-li-kum* (*malikum*, “prince, adviser”, nom. s. noun from the root *m-l-k*, “to discuss, advise; to rule”; KTT 9 II 4).

Proto-Ea lists the reading *li(-i)* for the sign LI (l. 681).

35. MU

During the Old Akkadian period, the syllabic value *mu* is attested for the sign MU, as in the following words: *i-mu-ru* (*īmurū*, “they saw”, from the root *ṣ-m-r*, “to see, watch”, G-stem pret. 3 m.pl.; D 336, 20); *ta₂-mu-ur-ma* (*tāmurma*, “you saw and...”, from the root *ṣ-m-r*, “to see, watch”, G-stem pret. 2 m.s. + enc. part.; HSS 10, 8 o. 5); *ir-e-mu-um* (*ir^eemum*, “loved one”, from the root *r-ṣ-m*, “to love”, nom. s. noun; MAD 5, 8 o. 3); *mu-ḥu-tim* (*muḥḥūtīm*, “ecstasy”, D-stem gen. s. noun from the root *m-ḥ-ṣ*, “to rave, become frenzied” MAD 5, 8 r. 12).

During the Ur III period, the syllabic value *mu* is attested for the sign MU, as in the following words and proper nouns: *li-i-mu* (*līmu*, “thousand”, nom. s. noun); *mu-ri-iq* (from the noun *murīqum*, “fender off of...”, D-stem nom. s. noun in const. st. from the root *r-ṣ-q*, “to keep someone at a distance”; passim); DINGIR-*mu-ta-bil₂* (*ilim-muttābbil*, “servant of the god”, from *ilum* (“god”) + the root *w-b-l*, Gtn-stem act. part. in const. st.; NATN 948 o. 1)

At Ebla, the syllabic value *mu* is attested for the sign MU, as in the following word: *su-mu-um* (*šumum*, “name”, nom. s. noun; MEE 1144; passim)

At Mari, the syllabic value *mu* is attested for the sign MU, as in the following words and proper nouns: *mu-qu₂-tum* (*muqqūtum*, perhaps “weariness”, from the root *w-q-ṣ*, “to wait (for), expect”, D-stem nom. s. noun; ARM XIX 326; 327; 329-339); *š^dda-gan* (*šū dagan*, “he is Dagan”, 3 m.s. independent pronoun + DN; ARM XIX 433; 434).

At Nabada, the syllabic value *mu* is attested for the sign MU, as in the following words and proper nouns: *sal₄-mu* (proper noun from the word *šalmum*, “well, whole”, G-stem nom. s. noun from the root *š-l-m*, “to be well, whole”; Subartu 2, 1 o. col. III 4; passim) | *i-mu-bar-um*^{ki} (GN; Subartu 2, 23 r. col. II 3).

At Tuttul, the syllabic value *mu* is likely attested for the sign MU, as in the following words and proper nouns: *a-mu-ra-am* (*amurram*, “Amorite”, acc. s. noun; KTT 26 o. 7); *mu-ta-an* (meaning uncertain; KTT 11 r. 11; 12 r. 11; 13 r. 11; 14 r. 11); *sa₃-mu-ITI* (meaning uncertain; KTT 21 o. 5).

Proto-Ea lists the reading *mu-u₂* for the sign MU (l. 171).

36. QA

During the Old Akkadian period, the syllabic values *Sal₄*³¹ and *qa* are attested for the sign QA,³² as in the following words and proper nouns: *Sal₄-ma-at* (*šalmat*, “whole”, from the root *š-l-m*, “to be well, whole”, G-stem 3 f.s. verbal adjective; D 185); *qa-mu-um* (*qamûm*, “to burn”; CTMMA 1, 6 r. col I 9, col. II 6).

During the Ur III period, the syllabic values *Sal₄* and *qa* are attested for the sign QA, as in the following words and proper nouns: *a-pi₄-Sal₄*^{ki} (Gelb, AJSL LIII 39; LV 71), *šu-qa-tum* (meaning uncertain; OrNS 81, 283-284 4).

The sign QA is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *Sal₄* is attested for the sign QA, as in the following word: *Sal₄-la₂-šum* (likely from the word *šalāšum*, “third”, nom. s. noun; ARM XIX 267).

At Nabada, the syllabic value *Sal₄* is attested for the sign QA, as in the following word: *Sal₄-mu* (*šalmū*, “whole”, from the root *š-l-m*, “to be well, whole”, G-stem 3 m.pl. verbal adjective; Subartu 2, 1 o. col. III 4; passim).

At Tuttul, the syllabic values *ka₄* and *qa* are possibly attested for the sign QA, as in the following words and proper nouns: *na-ka₄-ap-ta-an* (*nakaptan* or *nakaptān*, a stable, fold, or pen, acc. s. noun with nunation or du. s. noun;

³¹The precise nature of this initial sibilant is uncertain. See footnote 20.

³²The name for this sign is also given as SAL₂ (Gelb 1961, p. 57) or SILA₃ (Ismail et al. 1996, 37).

KTT 54 o. 9), *qa/ka₄-al-nu-um* (meaning uncertain; KTT 11 r. 6); *qa-ar-nu-um* (personal name from *qarnum*, “horn”, nom. s. noun; KTT 54 o. 2); *ra-pi₂-qa/ka₄-u* (meaning uncertain; KTT 30 o. 6).

Proto-Ea lists the reading of QA as *qa₂-a* (l. 83a).

41. RU

During the Old Akkadian period, the syllabic value *ru* is attested for the sign RU, as in the following words: *e-ru-ub* (*ērūb*, “he entered”, from the root ʔ-*r-b*, “to enter”, G-stem pret. 3 m.s.; HSS 10, 12:9); *i-mu-ru* (*īmūrū*, “they saw”, from the root ʔ-*m-r*, “to see”, G-stem pret. 3 m.pl.; PBS 5 39 x+ii, NS.); *ru-up-šum* (*rupšum*, “width, breadth”, from the root *r-p-š*, “to be wide”, nom. s. noun; HSS 10, 156 x+1, 4).

During the Ur III period, the syllabic value *ru* is attested for the sign RU, as in the following words and proper nouns: *nu-ru-um* (*nūrūm*, “light”, from the root *n-w-r*, “to be light, bright”, nom. s. noun; U 2404; A 7863; TA 1931, 12a, 35); *ku-ru-ub-DINGIR.DINGIR* (*kurub-ilī*, “blessing of the gods”, from the root *k-r-b*, “to bless, pray”, D-stem noun in const. st. + gen. pl. of the noun *ilum* (“god”); TA 1931; 1; A 7767; A 7795; A 7818; A 7820; A 7879; A 7888 r.).

At Ebla, the syllabic value *ru*, is attested for the sign RU, as in the following word and proper nouns: *du-ru-rum₂* (nom. s. noun, meaning uncertain; ARET 15 56 o. vi 6); *a-PI-ru* (PN, meaning uncertain; ARET 15 27 o. ix 7); *iš₁₁-ru-ud* (PN, meaning uncertain; ARET 7 87 o. ii 3; 145 o. ii 3).

At Mari, the syllabic value *ru* is attested for the sign RU, as in the following words and proper nouns: *šar-ru-ba-ni* (*šarru(m)-bāni*, “the king built”; Limet 1976, 153); *na-ru-u₂* (*narû*, “steles”³³, nom. pl. noun; Frayne 1993, RIME 2.01.04.46 composite).

At Nabada, the syllabic value *ru* is likely attested for the sign RU, as in the following words: *ib-ba-ru-ša-nu* (meaning uncertain; Subartu 2, 69 o. ii 7; passim); *i-ša-ru* (*išarū*, “straight; correct, normal”, from the root ʔ-*š-r*, “to be straight”, G-stem nom. pl. noun; Subartu 2, 74 o. ii 3; Subartu 2, 77 r. i 5; Subartu 2, 92 r. ii 1; passim); *za-ru* (meaning uncertain; Subartu 2, 92 r. ii 2).

³³Although this word was originally a loanword from Sumerian (NA.RU₂.A), the additional sign *u₂* on the word indicates that, at least in this case, it was interpreted as Akkadian.

At Tuttul, the syllabic value *ru* is likely attested for the sign RU, as in the following words: *ku-ru-ta-an* (meaning uncertain; KTT 005); *da-du-ma-ru-um* (*dādu(m)-mārum*, “favorite son” or “the favorite is the son”, from the root *d-ṣ-d*, “to be beloved, favorite”, nom. s. noun; KTT 008); *a-ta-am-ru-um* (*atta-amrum*, “you are seen/chosen”, 2 m.s. independent pronoun + nom. s. noun from the root *ṣ-m-r*, “to see”; KTT 010); *a-ḫi-ru-um* (perhaps *āḫirum*, “he is late, delayed”, act. part. from the root *ṣ-ḫ-r* “to be late; to be behind”; KTT 014).

Proto-Ea lists the reading *ru-u₂/u₃* for the sign RU (l. 597).

42. BAD

During the Old Akkadian period, the syllabic values *be* and *b/pi₃* are attested for the sign BAD, as in the following words and proper nouns: *be-li₂-BAD₃* (*bēlī-dūram*, “my lord is my fortification”, nom. s. noun (from *bēlum*) + 1 c.s. poss. suffix (-ī) + acc. s. noun (from *dūrum*); ITT I 1103); *i-be-al* (*ibeṣal*, “he rules over”, from the root *b-ṣ-l*, “to rule over”, G-stem dur. 3 m.s.; R xxiii, xxv); *it-be-la-ba* (perhaps *itbe-lāba*, “the lion rose up” or “he rose up (against) the lion”, from the root *t-b-ṣ*, “to get up, arise, set out”, G-stem pret. 3 m.s.; Kish 1930, 144a; 170d).

During the Ur III period, the syllabic value *be* is attested for the sign BAD, as in the following words and proper nouns: *be-li-du₃-ri* (*bēlī-dūrī*, “my lord is my fortification”, nom. s. noun (from *bēlum*) + 1 c.s. poss. suffix (-ī) + acc. s. noun (from *dūrum*) + 1 c.s. poss. suffix (-ī); ASJ 11, 348f. M₂-18 ii 36. vi 22); *i-be-el* (*ibēl*, “he ruled over”, from the root *b-ṣ-l*, “to rule over”, G-stem pret. 3 m.s.; FAOS 8, 191); *be-li₂-dan* (*bēlī-dan*, “my lord is strong”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + abs. s. noun (from *dannum*); TRU 57, 3).

At Ebla, the syllabic value *be* or *til* is attested for the sign BAD, as in the following phrase: *be-lu ma-tim* or *til-lu ma-tim* (perhaps *bēlu mātīm*, “lord(s) of the land”, nom. s./pl.³⁴ noun (from *bēlum*) + gen. s. noun (from *mātum*) or *tillu mātīm*, “ruin mound of the land”, nom. s./pl.³⁵ noun (from *tillum*) + gen. s. noun; VE 795b).

³⁴Since we would expect this word to appear in the construct state as *bēl/bēlī* (s.) or *bēlī* (pl.) the exact interpretation of this phrase is uncertain.

³⁵See the previous footnote.

At Mari, the syllabic value *be* is attested for the sign BAD, as in the following proper nouns: *sa₂-lim-be-li₂* (*šalim-bēlī*, “my lord is well”, verb. adj. from the root *š-l-m*, “to be well, whole” + nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī); ARM XIX 111; 166-172; passim), *i-be-i₃-li₂* (perhaps *ibbe-ilī*, “my god called”, from the root *n-b-ṣ*, “to call, name”, G-stem pret. 3 m. s. + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); ARM XIX 266; 326; 335; 352).

At Nabada, the syllabic value *be* is attested for the sign BAD, as in the following proper nouns: *šū-be-lim* (*šū-bēlim*, “he is the one of the lord”, 3 m. s. ind. pronoun + gen. s. noun (from *bēlum*); Subartu 2, 1 o. i 4; Subartu 2, 2 r. i 8; passim); *be-la-ma-DINGIR* (meaning uncertain, likely some form of “the lord is god” or “The lord is what? (He is) the god”; Subartu 2, 5 o. v 4); ^d*be-li₂* (DN; Subartu 2, 18 r. i 1).

At Tuttul, the syllabic value *be* is attested for the sign BAD, as in the following words and proper nouns: *be-eh-lu-šum₂-li* (meaning uncertain, but the reading *be* is determined based on the sign that succeeds it; KTT 011 ii 10); *be-eh-li^d-da-gan* (*behlī-dagan* “my lord is Dagan”, nom. s. noun (from *beH/ḥlum* or Akk. *bēlum*) + 1 c. s. poss. suffix (-ī) + DN; KTT 015 ii 2); *be-eh-lu-um* (*behlum* “lord”, nom. s. noun (from *beH/ḥlum* or Akk. *bēlum*); KTT 016 ii 4); *be-eh-li-šū^d-IŠKUR* (*behlīšū-adad* “his lord is Adad”, nom. s. noun (from *beH/ḥlum* or Akk. *bēlum*) + 3 m. s. poss. suffix (-šū) + DN, or *behlī-šū-adad*, “my lord, he is the one of Adad”, nom. s. noun (from *beH/ḥlum* or Akk. *bēlum*) + 1 c. s. poss. suffix (-ī) + 3 m. s. ind. pronoun (šū) + DN; KTT 018 ii 36); *ab-du₂-be-la₂-tim_x*(TIN) (*abdu-bēlatim*, “the servant of the lady”, nom. s. noun (from *abdum*, from the root *ḥ-b-d*, “to work, serve, labor”) + gen. s. noun (from *bēlatum*); KTT 025 i 6).

Proto-Ea lists the readings *ba-ad* (l. 767), *be₂-e* (l. 615), *uš* (l. 103), *ti-il* (var. *ti-el*, *ti-e*; l. 105), and *zi-iz* for the sign BAD (l. 104).

43. NA

During the Old Akkadian period, the syllabic value *na* is attested for the sign NA, as in the following words: *i-na-da-an* (*inaddan*, “he gives”, from the root *n-d-n*, “to give”, G-stem dur. 3 m. s.; D 7791; A 5906 r.); *lu-da-na-at* (*lū dannat*, “(may

she) be strong”, pos. inj. part. ($l\bar{u}$) + 3 f. s. verb. adj. from the root $d-n-n$, “to be strong”; MO, OIP 104, 40 xiii’ 9); $na-da-ni-i\check{s}$ ($nad\bar{a}ni\check{s}$, “for giving”, from the root $n-d-n$, “to give”, G-stem inf. + term. adv. ($-š$); RA XIII 133, U).

During the Ur III period, the syllabic value na is attested for the sign NA, as in proper noun $\check{s}i-da-na-at$ ($\check{s}\bar{i}-dannat$, “she is strong”, 3 f. s. ind. pronoun + 3 f. s. verb. adj. from the root $d-n-n$, “to be strong”; UET 3 1041 r. ii).

At Ebla, the syllabic value na is attested for the sign NA, as in the following words: $a-da-na-tu_3$ ($\bar{a}d\bar{a}ntu(m)$, “lordship, mastery”, nom. s. noun from the W. Sem. root $\bar{a}-d-n$, “to rule, be lord over”; VE 75); $ka_3-nu-na-tum$ ($kan\bar{u}natum$, “brazier”, nom. s. noun; VE 89); $ba-na me_3-\check{s}i_2-im$ ($bayna(y) m\bar{i}\check{s}im$, “the middle of the night”, prep. + gen. s. noun from $m\bar{i}\check{s}um$; VE 817).

At Mari, the syllabic value na is attested for the sign NA, as in the following proper noun: $na-ra-am^d$ SUEN ($nar\bar{a}m-su'en$, “the loved one of Su’en”, nom. s. noun in const. st. from the root $r-\bar{a}-m$, “to love” + DN; Frayne 1993, RIME 2.01.04.51, ex. 1).

At Nabada, the syllabic value na is attested for the sign NA, as in the following geographic names: $na-ba_4-da^{ki}$ (Subartu 2, 2 i 3); $na-gar_3^{ki}$ (Subartu 2, 37 ii’ 2’).

At Tuttul, the syllabic value na is attested for the sign NA, as in the following words and proper nouns: $a-na$ (ana , “for”; KTT 49 r. 19; passim); $\check{s}a_{18} a-mu-na-bi^1-ma$ (proper noun, “of Amunabi”; KTT 50 r. 13); $sa_2-na-an$ ($\check{s}an\bar{a}n$, “rival”, nom. s. noun in const. st. from the root $\check{s}-n-n$, “to equal, rival”; KTT 53 o. 18).

The sign NA does not appear in the extant portions of Proto-Ea.

46. TI

During the Old Akkadian period, the syllabic values ti , di_3 , and $\bar{t}i_3$ are attested for the sign TI, as in the following words: $ip-ti-a-am$ ($ipti\bar{a}am$, “he opened and...”, from the root $p-t-\bar{a}$, “to open”, G-stem pret. 3 m. s. + vent.; CT 32 2 iv, CM); $a-di_3$ (adi , “until”, prep.; CT 32 2 iv, CM); di_3-ni ($d\bar{m}i$, “legal decision; lawsuit, trial”, nom. s. noun in const. st. from the root $d-y-n$, “to judge”; MDP 14 p. 19); $li-di_3-nu-ma$ ($liddin\bar{u}ma$, “may they judge”, from the root $d-y-n$, “to judge”,

G-stem prec. 3 m. pl. + enc. part.; UET 1 275 iii, NS); *i-ti₃-ru* (*itirū*, “they took away”, from the root *t-r*, “to take away, save”, G-stem pret. 3 m. pl.; MDP 4 Pl. 2 iv); *ip-ti₃-ru-um* (*iptirum*, “ransom (money)”, nom. s. noun from the root *p-t-r*, “to loosen, release”; A 7878a).

During the Ur III period, the syllabic values *ti*, *di₃*, and *ti₃* are attested for the sign TI, as in the following proper nouns: *ip-ti-DINGIR* (*ipti-ilum*, “god opened”, from the root *p-t*, “to open”, G-stem pret. 3 m. s. + nom. s. noun *ilum*; UET 3 p. 17, U); *da-a-di₃* (*dādi*, “beloved”; Barton, HLC 3 p. 37, U; AnOr I 297, U); *ba-la-ti₃-šu* (*ba-la-ti-šu*, “his life”, s. noun from the root *b-l-t*, “to live”, + 3 m. s. poss. suffix *-šu*; KAH II 2, BS); *i-ti₃-ib-si-na-at* (*itib-šināt*, “he made them good, sweet”, from the root *t-b*, “to make good, sweet”, G-stem pret. 3 m. s. + 3 f. pl. acc. suffix *-šināt*; A 5508).

At Ebla, the syllabic values *ti*, *di₃*, and *ti₃* are attested for the sign TI, as in the following words: *ti-i₃-tu₃* (*tittu(m)*, “clay”, nom. s. noun; VE 368); *maš-dab₆-ti-nu* (*maštaptin(n)u*, cf. Akk. *muštaptinnu* “punting pole” (?), nom. s. noun; VE 403); *pa₃-di₃-mu* (*pādimu(m)* cf. Ar. *fadm* “one who stutters”, nom. s. noun; VE 180); *ma-ti₃-um* (*matṭiyum*, a type of weapon, nom. s. noun; VE 481).

At Mari, the syllabic value *ti* is likely attested for the sign TI, as in the following word and proper noun: DINGIR-*tu-kul₂-ti* (*ilum tukultī*, “god is my object of trust, support”, nom. s. noun *ilum* + gen. s. noun *tukultum* + 1 c. s. poss. suffix *-ī*; ARM XIX 296); *al-ti-la-nu* (meaning uncertain; ARM XIX 198); NI-*ti-num* (meaning uncertain; ARM XIX 181).

At Nabada, the syllabic values *ti* and *di₃* are attested for the sign TI, as in the following words: *ti-na-tim* (*tīnātīm*, “fig (trees)”, gen. pl. noun; Subartu 2, 98 o. ii 3); *a-di₃* (*adi*, “until”, prep.; Subartu 2, 42 o. ii 11).

At Tuttul, the syllabic value *ti* is possibly attested for the sign TI, as in the following words: *pa₂-ti-u₂-tum* (meaning uncertain, perhaps from the root *p-t*, “to open”; KTT 53 I 12); *še₃-er-ti-im* (*šērtīm*, “morning” or “punishment; penalty”, gen. s. noun; KTT 46 o. 7); *a-la-ak-ti* (*alakti*, “way, course”, gen. s. noun; KTT 73 o. 3).

Proto-Ea lists the reading *ti(-i)* for the sign TI (1. 272).

47. MAŠ

During the Old Akkadian period, the syllabic value *maš* is likely attested for the sign MAŠ, as in the following words: *maš-ga-ni*^(ki) (GN; TMH 5, 50 o. 8; MAD 1, 272 r. 4; ITT 1, 1468 o. 2) and *maš-li-lum* (likely from the root *š-l-l*, “to carry off, plunder”; Yang 1989, Adab 905 r. 2).

During the Ur III period, syllabic value *maš* is attested for the sign MAŠ, as in the following words: *maš-ḫu-um* (*mašḫum*, a beer mug, nom. s. noun; UET 3, 739 o. 6) and *maš-gan*^{ki} (GN; passim).

At Ebla, the syllabic values *maš* and *maš* are attested for the sign MAŠ, as in the following words: *maš-ka₃-nu* (*maškanu(m)*, “added, placed”, nom. s. noun; VE 125); *maš-bi₂-tum* (*mašbi²tum*, “army” cf. Ge. *mašbē²ti*, nom. s. noun; VE 140).

At Mari, the syllabic value *maš* is attested for the sign MAŠ, as in the word *maš-a-na-an* (from the noun *mešenum*, “shoe, sandal”, nom. du. noun; ARM XIX 279; 280; 282; 283; 285; 286; 288; 292; 295; 296; 299; 301).

The sign MAŠ is not attested with a syllabic value at Nabada.

The sign MAŠ is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ma-aš₂* (l. 118) for the sign MAŠ.

48. BAR

During the Old Akkadian period, the syllabic value *bar* is attested for the sign BAR, as in the following words: *a-bar-ti* (*abarti*, “opposite shore, bank”, nom. s. noun in const st. from the root *ᵛ-b-r*, “to cross over”; Frayne 1993, RIME 2.01.04.28 composite o. 15); *u-bar-tum* (*ubartum*, “(resident) alien”, nom. s. noun; MAD 1, 163+165 o. II 20).

During the Ur III period, the syllabic value *bar* is attested for the sign BAR, as in the word *u-bar-tum* (*ubartum*, “(resident) alien”, nom. s. noun; UMTBM 3, 54 o. 12).

At Ebla, the syllabic values *bar* and *par₂* are attested for the sign BAR, as in following words: *ka₃-bar-tum* (*kabārtum*, “great (of rank)”, nom. s. noun from the

root *k-b-r*, “to be big, great”; VE 747); *a-par₂-tum* (*apārtum*, “headpiece”, nom. s. noun from the root *ṽ-p-r*, “to cover the head”; VE 545).

At Mari, the syllabic value *bar* is possibly attested for the sign BAR, as in the word *bar-šum* (meaning uncertain, nom. s. noun likely from the root *b-r-š*, “to pluck out”; ARM XIX 223-234; 243; 261; 262; 264; 265; 439).

At Nabada, the syllabic value *bar* is possibly attested for the sign BAR, as in the following words: *si-bar* (meaning uncertain, possibly Sumerian; Subartu 2, 1 o. ii 2; Subartu 2, 5 o. ii 5; Subartu 2, 145 r. ii 3); *i-mu-bar-um*^{ki} (GN; Subartu 2, 23 r. ii 4).

At Tuttul, the syllabic value *bar* is possibly attested for the sign BAR (perhaps mistakenly written as MAŠ), as in the proper noun *i₃-li₂-ka-bar*^l (MAŠ) (*ilī-kabar*, “my god is great”³⁶, nom. s. noun *ilum* + 1 c. s. poss. suffix *-ī* + s. abs. noun from the root *k-b-r*, “to be big, great”; KTT 49 II 5).

Proto-Ea lists the reading *ba-ar* for the sign BAR (l. 120).

49. NU

During the Old Akkadian period, the syllabic value *nu* is attested for the sign NU, as in the following words and proper nouns: *nu-ru-um* (*nūrum*, “light”, nom. s. noun from the root *n-w-r*, “to be(come) bright, shine”; U 2404; A 7863; TA 1931, 12a, 35); *iš-ku-nu* (*iškunū*, “they placed”, from the root *š-k-n*, “to place”, G-stem pret. 3 m. pl; RTC 86; 106; 144, date NS.; RTC 118, date Škš.); *ma-nu-um-ki*^d AMAR-^dEN.ZU (*mannum-kī-amar-su'en*, “who is like Amar-Su'en?”; UET V 690: 22, U); *ma-nu-um-e-mu-uq* (*mannum-emūq*, “who is strength?”; Fish, CST p. 160 ix, U).

During the Ur III period, the syllabic value *nu* is attested for the sign NU, as in the following words and proper nouns: *nu-ur₂-i₃-li₂* (*nūr-ilī*, “light of my god”, nom. s. noun in const. st. (from *nūrum*) + gen. s. noun (from *ilum*) + 1 c. s. poss. suffix (*-ī*); NATN 715 o. 8); *mi-nu-um* (*mīnum*, “what?”, nom. s. noun; TCS 1, 370 r. 2).

At Ebla, the syllabic value *nu* is attested for the sign NU, as in the following words: *ka₃-nu* (*kānu(m)* or *kawnu(m)*, “to be stable, firm” cf. Akk. *kānum*, nom.

³⁶Although if there is no scribal error this name could be interpreted perhaps as *ilī-kamaš*, “my god is kneeling” or “I am kneeling (before) my god.”

s. noun; *VE* 139); *si₂-ki₂-nu* (*siknu(m)*, “supplied food”, nom. s. noun from the W. Sem. root *s-k-n* “to provide”).

At Mari, the syllabic value *nu* is attested for the sign NU, as in the following word and proper noun: *maš-a-nu* (*mašānu(m)*, “shoe, sandal”, nom. s. noun; ARM XIX 280; 289; 293; 339); ^d*nu-nu* (DN; ARM XIX 321; 384, 8, 9; 408; 418; 430).

At Nabada, the syllabic value *nu* is attested for the sign NU, as in the following words: *ib-ba-ru-ša-nu* (*ibbarūšanu*, meaning uncertain; Subartu 2, 69 o. ii 7); *gi-a-nu* (meaning uncertain, perhaps related to the root *k-ṣ-n*, “to be firm, true”; Subartu 2, 70 o. iii 4, 8; iv 2, 4, 6; r. i 2, 4; ii 4; Subartu 12, 210 1).

At Tuttul, the syllabic value *nu* is attested for the sign NU, as in the following words and proper nouns: *an-nu-ni-tim_x*(DIN) (*annunītim*, a constellation north-east of Pisces; KTT 27 I 5; 31 I 1; 35 I 14; 46 I 2); *ku-nu-ku-um* (*kunukkum*, “seal, sealing”, nom. s. noun from the root *k-n-k*, “to seal”; KTT 54 I 5); *qa-al-nu-um* (meaning uncertain, nom. s. noun; KTT 11 II 6).

Proto-Ea lists the reading *nu-u₂* for the sign NU (l. 450; var. *nu*, *nu-u₄*).

51. KUN

During the Old Akkadian period, the syllabic value *kun* is attested for the sign KUN, as in the proper noun *iš-kun-DINGIR* (*iškun-ilum*, “god placed, established”, from the root *š-k-n*, “to place”, G-stem pret. 3 m. s. + nom. s. noun *ilum*; Gelb 1989, OIP 104, 40 col. 15’ 12).

The sign KUN is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *kun* is attested for the sign KUN, as in the following word: *kun* (*kūn/kûn*, perhaps from the root *k-ṣ-n*, “to be firm, true”; *ARET* 5, 5 o. i 3; *ARET* 5, 16 o. ii 3).

The sign KUN is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *kun* is attested for the sign KUN, as in the word [’]*a₃-kun* (perhaps *akūn*, “I became permanent, true, firm”, from the root *k-ṣ-n*, “to be firm, true”, G-stem pret. 1 c. s.; Subartu 2, 1 o. ii 6; Subartu 2, 4 r. 4 2; Subartu 2, 5 o. iii 6, r. v 6; Subartu 2, 104 o. v’ 8’).

At Tuttul, the syllabic value *kun* is attested for the sign KUN, as in the proper noun *i₃-li₂-kun* (*ilī-ikūn*, “my god became true”, nom. s. noun (from *ilum*) + 1 c. s. poss. suff. (-i) + G-stem pret. 3 m. s. from the root *k-ṣ-n*, “to become firm, true”, or *ilī-kūn*, “become true, O my god!”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + G-stem imper. 2 m. s. from the root *k-ṣ-n*, “to be firm, true”; KTT 21 I 7).

The sign KUN does not appear in the extant portions Proto-Ea.

52. 𠄎U

During the Old Akkadian period, the syllabic value *hu* is attested for the sign 𠄎U, as in the following words and proper nouns: *hu-bu-lum* (*hubullum*, “debt; interest-bearing debt”, nom. s. noun; HSS 10 109, 21; 110, 5); *hu-bu-ul* (*hubul*, “debt; interest-bearing debt”, nom. s. noun in const st.; CL V 6039 v, U); *a-hu-um-DINGIR* (*aḫum-ilum*, “the brother is the god”, nom. s. noun *aḫum* + nom. s. noun *ilum*; CT 5 40 ii+); *a-hu-si-na* (*aḫūšina*, “their brother”, nom. s. noun *aḫum* + 3 f. pl. poss. suffix -šina; ITT I 1379).

During the Ur III period, the syllabic value *hu* is attested for the sign 𠄎U, as in the following proper nouns: *a-hu-a-ḫi* (*aḫu-aḫī*, “the brother is my brother”, nom. s. noun (from *aḫum*) + acc. s. noun (from *aḫum*) + 1 c. s. poss. suffix (-ī); Nisaba 15, 1055 o. 2); ITI *hu-um-tu-um* (*warḫi-ḫumtum*, “the month of 𠄎umtum”, nom. s. noun in const. st. from *warḫum* + gen. s. noun (in the form of a nom. s. noun); SEL 17. 4 1 o. 5)

At Ebla, the syllabic values *hu* and possibly *ḡu*³⁷ are attested for the sign 𠄎U, as in *hu-nu-qa₂-tum* (*ḫunqatum*, “to force, constrain” cf. Akk. *ḫanāqum*; VE 71³⁸); *hu-ba-lum* (*ḫubarum*; “to be noisy” cf. Akk. *ḫabāru*; VE 175³⁹); *na-ba-hu-um* (*napāḫum*, “to blow” cf. Akk. *napāḫum*; VE 229); *hu-ṣi₂-tum* or *ḡu-ṣi₂-tum* (*ḫ/ḡuṣittum* or *ḡuṣibtum*, “strength” cf. Ar. *ḡaṣaba*, Heb. *ḫutspâ*, “insolence, audacity”; VE 562).

At Mari, the syllabic value *hu* is attested for the sign 𠄎U, as in the following words: *hu-ba-tum* (*ḫubattum*, “interest-free loan”, nom. s. noun, or a PN; ARM

³⁷Conti (1990, p. 53) interprets this sign as *ḡu* in some cases, although this interpretation is not certain.

³⁸See also Bonechi 2008, pp. 12-13.

³⁹See also Bonechi 2008, pp. 12-13.

XIX 293 o. 2); *a-hu-wa-qar* (*aḫu-waqar*, “the brother is dear”, nom. s. noun (from *aḫum*) + m. s. stat. noun (from the root *w-q-r*, “to be previous, dear”); ARM XIX 254; 327; 371; 376; 407).

At Nabada, the syllabic value *hu* is attested for the sign HU^{40} , as in the following proper nouns: *a-hu-DU₁₀* (*aḫu-tābu*, “the good, sweet brother”, nom. s. noun (from *aḫum*) + nom. s. adj. (from the Sumerian DU_{10} , “(to be) sweet, good”); Subartu 2, 4 o. ii 1; Subartu 2, 5 o. v 3; Subartu 2, 21 o. ii 5; Subartu 2, 28 o. i 8; Subartu 2, 104 o. iii’ 2’); *ir₃-ib₂-a-hu* (*irib-aḫu*, “the brother entered”, from the root *ṛ-r-b*, “to enter”, G-stem pret. 3 c. s. + nom. s. noun (from *aḫum*); Subartu 2, 5 o. iii 7).

At Tuttul, the syllabic value *hu* is attested for the sign HU , as in the following proper nouns: *a-hu-um* (proper noun, *aḫum*, “brother”, nom. s. noun; KTT 10 II 6; KTT 40 I 5); *hu-ra-ša-an* (*hurāṣān*, “gold”, nom. du. noun; KTT 37 I 2); *i-iš-hu* (meaning uncertain; KTT 8 II 11; KTT 9 II 11).

Proto-Ea lists the reading *hu-u* for the sign HU (l. 125).

54. NAM

During the Old Akkadian period, the syllabic values *nam*, *bir₅*, and *šim₂* are attested for the sign NAM, as in the following words and proper nouns: *ḫa-ra-nam* (*ḫarrānam*, “road, way; journey”; Gelb 1955, OAIC 53 o. 8); *nam-ḫa-ru* (*namḫaru*, “receipt(s), takings”; FM 34, 2); *i-di₃-nam* (*iddinam*, “he gave” + dat. suff. 1 c. s.; FM 35 r.); *na-da-nam* (*nadānam*, “to give”, from the root *n-d-n*, “to give”, G-stem inf.; TMH n.F. I/II 7, U.); *li-iš-bir₅* (*lišbir*, “may he break”, from the root *š-b-r*, “to break”, G-stem prec. 3 m. s.; Frayne 1993, RIME 2.01.01.02 composite, 128); *su-šim₂^{ki}* (GN, “Susa”; MDP XIV no. 76, p. 5; Oppenheim, CCTE pp. 70, 267).

The sign NAM is not attested with a syllabic value during the Ur III period.

⁴⁰Uniquely, the scribes at Nabada differentiated between HU and MUŠEN : HU was written with the sign RI (with two vertical wedges at the beginning of the sign) while MUŠEN was written as HU would later be written, with one vertical wedge at the beginning of the sign. The sign RI does not otherwise occur at Nabada except for in the composite sign IGI+RI (AR), and /ri/ is written *ri₂* (Ismail et al. 1996, 38).

At Ebla, the syllabic values *nam* and *pir*₆ are attested for the sign NAM, as in the following words and proper nouns: *si-nam*^{ki} (GN; *ARET* 1, 15 r. i 5); *pir*₆-*zu*₂ (*pirzu(m)*, “champion” cf. Heb. *perez/pārāz*, nom. s. noun; *VE* 536).

At Mari, the syllabic values *nam* and *bir*₅ are attested for the sign NAM, as in the following word and proper noun: *ki-nam*-AB.BA (*kīnam-abum*, “the father is true”, acc. s. noun + nom. s. noun; ARM XIX 390; 394); *a-bir*₅-*tu*[*m*] (*abirtum* > *ebertum*, “opposite bank”, nom. s. noun from the root ʔ-*b-r*, “to cross over”; ARM XIX 430).

At Nabada, the syllabic value *bir*₅ is attested for the sign NAM, as in the proper noun *su-a-bir*₅ (perhaps *šū-ābir*, “he is the crosser-over”, 3 m. s. ind. pronoun + act. part. (from the root ʔ-*b-r*, “to cross over”); Subartu 2, 75 o. i 4).

The sign NAM is not attested with a syllabic value at Tuttul.

Proto-Ea list the readings *na-am*, *si-im*, and *bi-ir* for the sign NAM (l. 484-486).

55. IG

During the Old Akkadian period, the syllabic values *ig*, *ik*, and *iq* are attested for the sign IG, as in the following words: *ri*₂-*ig*-*mu*-*um* (*rigmum*, “voice; cry; noise”, nom. s. noun; Rasheed 1981, AIHA 4, 2 o. ii 2); *li-li-ik* (*lillik*, “may he go”, from the root ʔ-*l-k*, “to go”, G-stem prec. 3 m. s.; ITT V 6682); *iq-bi*₂-DINGIR (*iqbi-ilum*, “god spoke”, from the root *q-b-ʔ*, “to speak, say”, G-stem pret. 3 m. s. + nom. s. noun *ilum*; U 1700+).

During the Ur III period, the syllabic values *ig*, *ik*, and *iq* are attested for the sign IG, as in the following words and proper nouns: *ri*₂-*ig*-*mu*-*uš*-*dan*^{ki} (GN, *rigmūš(u)-dan*, “his voice is strong”; ZA 51 Tf. 2 r. col. iii 8-9); *ik-ṣu*₂-*ṣu*₂-*ma* (*ikṣuṣūma*, “they ground, grated”, from the root *k-ṣ-ṣ*, “to grind, grate”, G-stem pret. 3 m. pl. + enc. part.; NATN 365 r. 26’); *u*₃-*ha*-*li*-*iq* (*uḥalliq*, “he lost; allowed to escape”, from the root *h-l-q*, “to lose, escape”, D-stem pret. 3 m. s.; Ur C 1, 15).

At Ebla, the syllabic values *ig*, *ik*, and *iq* are likely attested for the sign IG, as in the following words and proper nouns: ^d*a-ma-ri*₂-*ig* (DN; *ARET* 7, 59 o. 2, 3; MEE 12, 36 o. 29, 11; MEE 12, 37 r. 4, 26; *ARET* 2, 6 o. 6, 3; *ARET* 7, 79 o. 5, 1; *ARET* 5, 16 o. 6, 3; *ARET* 15, 41 r. 6, 2); *i-ri*₂-*ik*-*ma*-*lik* (*irrik-malik*, “the king is

long (of life; rule)”, from the root r-r-k , “to be long”, G-stem dur. 3 m. s. + nom. s. noun (in the form of abs.) or DN; *ARET* 15 21 o. 11, 14); *ik-su-ud* (*ikšud*, “he arrived; conquered”, from the root $k-š-d$, “to arrive, conquer”, G-stem pret. 3 m. s.; *ARET* 15 7 o. 2, 12); *ti-iq-ta₃-ra-ab* (*tigtarrab*, “you will draw near; become close”, from the root $q-r-b$, “to be(come) close”, G-stem perf. 2 m. s.; *ARET* 11, 1 r. 9, 5).

The sign IG is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *ig/k/q* is possibly attested for the sign IG, as in the following proper nouns: *iG-^rla[?]-ku-tum* (meaning uncertain; Subartu 2, 1 o. ii 5) and *i-im-x-IG* (meaning uncertain; Subartu 12, 213 o. i 3’).

At Tuttul, the syllabic values *ik*, *iq*, and *ig* are attested for the sign IG, as in the following words and proper nouns: *a-na ni-iq LUGAL* (*ana nīq šarrim*, “for the offering of the king”, prep. + gen. s. noun in const. st. from the root $n-\text{r}-q$, “to run, go (forth)”, + gen. s. noun from *šarrum*; KTT 79a o. 6); *ITI ni-iq-mi-im* (*warah niqmim*, “the month of Niqum”, nom. s. noun in const. st. from *warhum* + gen. s. noun; KTT 79 r. 1’; KTT 81 r. 2); *i-ti-iq* (*ittiq*, “he will go through, past, cross over”, from the root r-t-q , “to go through, past, cross over”, G-stem dur. 3 m. s.; KTT 97 r. 3); *ša ka-ni-ik-šu* (*ša kanīkšu*, “of/concerning his sealed document”, prep. + gen. s. noun from the root $k-n-k$, “to seal”, + 3 m. s. poss. suffix *-šu*; KTT 165 r. 4); *zi-ik-ra-a-na* (meaning uncertain; perhaps related to the root $z-k-r$, “to speak; say; name; swear”; KTT 13 r. 2); *ik-šu-ud-ap-pa-šu* (*ikšud-appašu*, “he defeated (someone)”⁴¹, from the root $k-š-d$, “to arrive, conquer”, G-stem pret. 3 m. s. + acc. s. noun from *appum* + 3 m. s. poss. suffix *-šu*; KTT 295 r. 35); *li-mu ri-ig-ma-nu* (*līmu rigmānu*, “the *līmu* year of Rigmanu”, nom. s. noun in const. st. (in the form of of a nom. s. noun without mimation) + PN; passim).

Proto-Ea lists the reading *ig* for the sign IG (l. 516c).

59. ZI

During the Old Akkadian period, the syllabic values *zi*, *si₂*, and *ši₂* are attested for the sign ZI, as in the following words: *uš-zi-iz* (*ušzīz*, “he set up (a statue)”;

⁴¹Literally, “his nose arrived, conquered.”

MDP IV Pl. 2 ii; Morgan, MSP IV 161, Lullubum); *si₂-im-tum* (*simtum*, “ornament, jewel”, nom. s. noun; YOS IV 227); *hu-su₂-si₂-iš* (*hussusiš*, “for thinking; for reckoning”, from the root *h-s-s*, D-stem inf. + term. adv.; HSS 10, 197: 13); *ha-ši₂-num₂* (*haššinnum*, “ax”; MDP IV Pl. 2 iii); DINGIR-*na-ši₂-ir* (*ilum-nāšir*, “the god is the guarder”, nom. s. noun + act. part. from the root *n-š-r*, “to guard”; TA 1931, 1a, 2 r. vi; TA 1931 10a, 11 x+iii; A 7816 r.; A 7863); *u-ši₂-ib* (*ušib*, “he added”, from the root *w-š-b*, “to add”, G-stem pret. 3 m. s.; HSS 10, 14:8).

During the Ur III period, the syllabic values *zi*, *si₂*, and *ši₂* are attested for the sign ZI, as in the following words: *li-zi-zu* (*lizzizū*, “may they stand”, from the root *ᶜ-z-z*, “to stand”, G-stem prec. 3 m. pl.; ZA 82, 185, 1 o. 4); *uš-zi-iz* (*ušziz*, “he set up (a statue)”, from the root *ᶜ-z-z*, “to stand”, Š-stem pret. 3 m. s.; Elam 3, 26); *ik-bu-si₂-na-at* (meaning uncertain; TCL 2, 5484 o. 22); *li-bur-si₂-im-ti* (*libūr-simtī*, “may my symbol appear/be durable”, from the root *b-ᶜ-r*, “to appear, turn up; be durable” + acc. s. noun + 1 c. s. poss. suffix; AnOr 7, 52 o. o. 6; TCL 2, 5484 o. 17; TRU 275 r. 15); *e-ši₂-dum* (*ēšidum*, “reaper; harvester”, act. part. from the root *ᶜ-š-d*, “to harvest”; MVN 3, 172 o. 3; 250 o. 4; Sumer 43, 194, 20 r. col. iv 4; 207, 35 o. col. ii 9; 208, 40 o. col. ii 4; 210, 41c o. col. ii 12); *wa-ši₂-bu-um* (*wāšibum*, “adder; multiplier”, act. part. from the root *w-š-b*, “to add”; AUCT 1, 448 o. 6).

At Ebla, the syllabic values *zi*, *si₂*, *ši₂*, and *di_x* are attested for the sign ZI, as in the following words: *ni-zi-lu* (*nizlu(m)*, “high-quality oil”, nom. s. noun, cf. Sem. **n-z-l* “to pour; to flow”; VE 250); *si₂-ki₂-lum* (*siklum*, “sluice”, nom. s. noun; VE 612); *ku_x(TIK)-ši₂-lum* (*kušilum*, “pestle”, nom. s. noun; VE 461); *mu-ta₂-bi₂ di-ka₃-ri₂* (*muhtabbi z/dik(a)ri(m)*, “slandorous speech”; VE 215).

At Mari, the syllabic values *zi*, *si₂*, and *ši₂* are attested for the sign ZI, as in the following words: *zi-za-num* (perhaps *zizānum*, “cricket”, nom. s. noun; ARM XIX 177; 178; 187; 192; 198; 199); *u₂-ra-ši₂* (*urāši*, “kid”, nom. s. noun in const st.; ARM XIX 120; 133; 323); *si₂-mi₃-da-tim_x(DIN)* (*simīdātīm*, “type of flour”, gen. f. pl. noun; ARM XIX 248).

At Nabada, the syllabic value *zi* is attested for the sign 𒀵 , as in the proper nouns: *zi-rum₂* (*zīrum*, “seed”, nom. s. noun; Subartu 2, 10 o. ii 6); *i-zi-lum* (meaning uncertain, nom. s. noun; Subartu 2, 33 o. i 6).

At Tuttul, the sign ZI has the syllabic values *zi* and *ṣi₂*, as in the following proper nouns: *zi-ik-ra-a-na* (perhaps from the root z-k-r, “to say; speak; name; swear”; KTT 13 r. 2); *zi-im-ri-ia²* (meaning uncertain, perhaps from the root z-m-r, “to sing”; KTT 19 r. 3); *e-em-ṣi₂-u₂-um* (perhaps from the root m-ṣ-ṣ, “to correspond, comply with”; KTT 11 r. 5); *ia-ṣi₂-u₂* (perhaps from the root w-ṣ-ṣ, “to go out”; KTT 9 r. 6).

Proto-Ea lists the reading *zi-i* for the sign ZI (l. 452).

60. GI

During the Old Akkadian period, the syllabic values *ki₂* and *qi₃* are attested for the sign GI, as in the following words: *ib-ba-al-ki₂-it-ma* (*ibbalkitma*, “he crossed over”, from the root b-l-k-t, “to cross over”, N-stem pret. 3 m. s. + enc. part.; Louvre AO 8959); *sar-ki₂-in* (perhaps *šar(ru)-kīn*, “the king is true”, abs. noun + abs. adj.; ZA XII 335); *u-ki₂-il₃* (*ūkil*, “he trusted”, from the root w-k-l, “to trust”, G-stem pret. 3 m. s.; HSS 10, 94:11); *iš-pi₂-ki₂* (*išpikī*, “stores (of crops); grain-bin”, gen./acc. pl. noun; JRAS 1932 p. 296:38); *la-qi₃-pu₃* (*lā-qīpu*, “unbelievable”, neg. part. + nom. s. adj. (from the root q-ṣ-p, “to (en)trust; believe”); TMH n.F. I/II p. 21, U.); *il₂-qi₃-ma* (*ilqīma*, “he took and...”, from the root l-q-ṣ, “to take”, G-stem pret. 3 m. s. + enc. part.; D 282:6); *sa₃-qi₃-[sa]* (*sāqīša*, “her thigh, loins”, gen. s. noun + 3 f. s. poss. suffix; MAD 5, 8 o. 4).

During the Ur III period, the syllabic values *ki₂* and *qi₃* are attested for the sign GI, as in the following words: *u₂-ki₂-in-šum* (*ukīnšum*, “he established firmly for him”, from the root k-ṣ-n, “to be firm, true”, D-stem pret. 3 m. s. + 3 m. s. dat. suffix; Elam 3, 33); *qi₃-bi-ma* (*qibīma*, “speak!”, from the root q-b-ṣ, “to speak, say”, G-stem imper. 2 m. s. + enc. part.; AS 22, 37, 1 o. 2; ASJ 12, 54, 1 o. 2; BaM 23, 78, 1 o. 2; BIN 9, 475 o. 2; MVN 15, 251 o. 2; NATN 613 o. 3; 948 o. 2; OrNS 40, 400, 13 o. 2).

At Ebla, the syllabic values *gi*, *ki₂*, and *qi₃* are attested for the sign GI, as in the following words: *mar-gi-nu* (*malginu(m)*, “pickaxe”, nom. s. noun; VE 494); *sa₃-ki₂-ra-tum* (*sakīratum*, “barrier”, nom. s. noun; VE 38); *ša-qi₃-lum a-pu₃* (*daqirum* ‘*appu(m)*’, “to be high/big of nose”, nom. s. noun + nom. s. noun; VE 212).

The sign GI is not attested with a syllabic value at Mari.

At Nabada, a syllabic value may be attested for the sign GI, as in the following proper nouns: GI-*a-nu* (perhaps from the verb *kānum*, “to be firm, true”; Subartu 2, 70 o. iii 4, 8; iv 2, 4, 6; r. i 2, 4; ii 4; Subartu 12, 210 1); *iš₁₁*-GI (Subartu 2, 2 o. iii 4; 5, r. ii 4; 7, r. ii 7; 10, o. iv 2, r. i 7; 36, o. iv 1; 40, o. i 5; 66, o. ii 1; 98, r. i 1; 123, r. i 2’).

The sign GI is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *gi-e* (var. *gi-i*) for the sign GI (l. 460).

61. RI

During the Old Akkadian period, the syllabic values *ri*, *re*, and *tal* are attested for the sign RI, as in the following words and proper nouns: *a-ri-ik-i₃-li* (*arrik-ilī*, “I make long (of life; reign) my god”, from the root *ṣ-r-k*, “to be/make long”, G-stem dur. 3 c. s. + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); ITT II/2 p. 14, 3072); *tab-ri-um* (*tabrium*, “fodder crop”, nom. s. noun; FM 44:6 f.); [*e*]-*re-su-nu* (*erressunu*, “their weir, barrage”, acc. s. noun (from *erretum*) + 3 m. pl. poss. suffix (-*šunu*); HSS 10, 11 r. 4); *tal-li-ik* (*tallik*, “you will go”, from the root *ṣ-l-k*, “to go”, G-stem dur. 2 m. s.; D 315:14); *it-tal-ku* (*ittalkū*, “they had gone”, from the root *ṣ-l-k*, “to go”, G-stem perf. 3 m. pl.; Ist. Mus. Lagash 11001 r.).

During the Ur III period, the syllabic values *ri* and *re* are attested for the sign RI, as in the following words and proper nouns: *i-ri-šu-ka₃* (*irīšūka*, “your scent, fragrance”, nom. s. noun (from *irīšum*) + 2 m. s. poss. suffix (-*ka*); NATN 981 r. col. iii 44; 981 r. col. iii 49); *mu-ri-i₃-iq-tum* (proper noun, *muriqtum*, “fender off”, nom. s. noun; OIM A2771 r. 9); *pa-ri-ik-tum* (*pariktum*, “cross-wall; obstructions, hindrances”, nom. s. noun; OIM A33645 o. 3’); *re-um* / ^dUTU-*re-i₃* (*šamaš-rē^ṽi*,

“Šamaš is the shepherd, herdsman”, DN + acc. s. noun⁴²; TCTI 1, 1020 r. 10); *re-eš-ba-ni* (*rēš-bāni*, “head builder”, nom. s. noun in const. st. (from *rēšum*) + act. part. (from the root *b-n-*, “to build, construct, make”); YOS 18, 119 o. 3).

At Ebla, the syllabic values *tal* and possibly *dal* attested for the sign RI, as in *tal-ta₃-i-bu₃* (*taltah(h)ibu(m)*)⁴³; VE 74⁴⁴); *tal-ta₃-bi₂-lu-um/lum* (VE 208); *i-dal*^{ki} (GN; *ARET* 12, 1151 o. i’ 4’).

At Mari, the syllabic values *ri* and *re* are possibly attested for the sign RI, as in the following words: *ku-ra-ri-di* (meaning uncertain; RIME 2.1.4.46 composite 7’); *šu re-ši* (*šū rēši*, “he is the head of..”, 3 m. s. ind. pronoun + acc. s. noun in const. st. (from *rēšum*); ARM XIX 87-91).

At Nabada, the sign RI is not attested with a syllabic value.

At Tuttul, the syllabic values *ri* and *re* are possibly attested for the sign RI, as in the following proper nouns: *ia-ri-bu-um* (perhaps from the root *ṣ-r-b*, “to enter”, nom. s. noun; KTT 7 ii 6); *mi-ri-mi-ru* (meaning uncertain; KTT 55a ii 14); *ta-ri-im-ša-ki-im* (meaning uncertain; KTT 16 ii 10; 20 ii 17); *ne₂-re-eb* (*nēreb(um)*, “entrance”, nom. s. noun; KTT 50 ia 12).

Proto-Ea lists the reading *ri-i* (var. *re-e*; l. 129) for the sign RI.

63. NUN

During the Old Akkadian period, the syllabic value *nun* is possibly attested for the sign NUN, as in the following proper nouns: *iš-nun*^{ki} (GN; MAD 1, 275 o. 3; MAD 1, 318 r. 2; passim); *iš-nun-na*^{ki} (ITT 5, 9253 o. i 2’).

During the Ur III period, the syllabic value *nun* is possibly attested for the sign NUN, as in the following proper nouns: *aš₂-nun*^{ki} (AUCT 3, 29 r. 3); *aš₂-nun-na*^{ki} (AUCT 2, 282 r. 3; passim).

At Ebla, the syllabic value *nun* is possibly attested (though doubtful) for the sign NUN in the following proper nouns: *i₃-nun-na-ad* (meaning uncertain; *ARET*

⁴²Though this is in the form of a genitive singular noun.

⁴³See Krebernik 1982-1983, p. 200.

⁴⁴See also Bonechi 2008, pp. 12-13.

15, 37 re. 1); ³*a₅-nun-gi* (meaning uncertain; *ARET* 5, 6 r. ii 3); ³*a₅-nun-na-at* (meaning uncertain; *ARET* 15, 18 r. x 2).

The sign NUN is not attested with a syllabic value at Mari

The sign NUN is not attested with a syllabic value at Nabada.

The sign NUN is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading of the sign NUN as *nu-un* (var. *nu-u₂*; l. 391).

64. KAB

During the Old Akkadian period, the syllabic values *kab/p*, *qab₂*, and *hup/b₂* are possibly attested, as in the following words and proper nouns: *kap-tur₂-ru* (meaning uncertain; OAIC 43, o. 4); ^{giš}*na-ar-kab-tum* (*narkabtum*, “chariot”, nom. s. noun; VAT 16442 ii); *qab₂-li-um* (*qablūm*, “central”, nom. s. noun; RTC 111; ITT II/2 p. 25, 4452); *qab₂-la-su* (*qablašū*, “his hips; middle”, s. noun (from *qablum*) + 3 m. s. poss. suffix (-šū); D 178); *hup₂-sa-šum* (perhaps related to *hupšum*, “lower class”, nom. s. noun; FM 41:7); *hub/p₂-nim^{ki}* (GN; HSS 10, 92).

During the Ur III period, the syllabic value *q/kab/p* is likely attested for the sign KAB, as in the following words and proper nouns: *a-kap-še-en* (meaning uncertain; ITT III 6545 ii); *q/kab-la-tum* (uncertain, perhaps related to either *qablātum*, “middle”, or *kablātum*, “(furniture) foot”, nom. s. noun; BIN V 55); *na-q/k/ab/p-tum* (“fold, pen; fattening house”?; Fish, CST 240; 241; 255; 272; 278; 283; 284; YOS IV 211 iv; 217:18; CT XXXII 12 iii; Legrain, TRU 5; 91; 93; TCL II 4691 seal; 5524 rev.; 5551 rev.; 5641; BIN V 237; De Genouillac, TD 24; RTC 306 rev. iii; passim).

At Ebla, the syllabic values *kab* and *kap* are attested for the sign KAB, as in the following word and proper noun: *kak-kab* (*kakkab*, “star”, s. noun in const. st./abs.; *VE* 791)⁴⁵; *kap-la-lu^{ki}* (GN; *ARET* 16 27 o. vi 13).

The sign is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *kab* is only possibly attested in the string *šu-kab-ba₄* / *šu-kab-ba* (meaning uncertain; Subartu 2, 15 r i 1; 74 o. iii 1; 76 o. i

⁴⁵Cf. Archi, NABU, 1988/44; Fronzaroli 1984a, 40, n. 27.

1; 77 o. iii 4; 80 o. 1 2; 83 o. ii 1; 87 o iii 1; 100 r. i 3; 107 r ii 4; 109 r i 2; 111 o. ii 5; 115 o. ii 4; 116 o i 5).

The sign KAB is not attested with a syllabic value at Tuttul.

In Proto-Ea, the sign KAB is listed with the reading *ka-ab* (l. 464).

68. DIM

During the Old Akkadian period, the syllabic value *tim* is attested for the sign DIM, as in the following words: *ki-ib-ra-tim* (*kibrātim*, “the world”, gen. s. noun; MDP X Pl. 3, 1a; BE I 120 ii, NS.); *ma-tim* (*mātim*, “land; country”, gen. s. noun; MDP XIV 34).

During the Ur III period, the syllabic value *tim* is attested for the sign DIM, as in the word *ša-nin-u₂-tim* (*šāninūtīm*, “rivalry”, gen. s. noun; RA 9, 001-004, pl. 1, 13).

At Ebla, the syllabic values *dīm* and *tim* are attested for the sign DIM, as in the following words: *ma-dīm* (*maḏdīm*, “numerousness, plenty”, gen. s. noun; *ARET* 11 1, r. xvi 10’); *KALAM-tim* (*mātim*, “land”, gen. s. noun; *passim*); *uš-ta₂-tim-ma* (perhaps *uštātīmma*, “set/brought against each other and...”, from the root *ṽ-t-m*, Št-stem pret. 3 m. s. + encl. part.; *ARET* 5 18, o. iv 4);

At Mari, the syllabic value *tim* is attested for the sign DIM, as in *tim-a-zu* (meaning uncertain; ARM XIX 38-45); *ki-ib-ra-tim* (*kibrātim*, “the world”, gen. s. noun; RIME 2.01.04.51 ex.1, 3; RIME 2.1.4.52 ex. 1 3); LUGAL *ma-tim* (*šar mātim*, “king of the land”, nom. s. noun (Sumerian LUGAL) + gen. s. noun (from *mātum*); RIME 2.3.5.2 ex. 1, 9; RIME 2.3.5.3 ex. 1, 8).

At Nabada, the syllabic value *tim* is attested for the sign DIM, as in the following words: ITI.SAR *ma-se₁₁-tim* (MN; Subartu 2, 9 o. 2; 15, o. i 1); *ti-na-tim* (*tīnātīm*, “clay; earth”, gen. s. noun; Subartu 2, 98 o. ii 3) .

At Tuttul, the syllabic value *tim* is attested once in *ma-ḥi-ir-tim* (*maḥirtīm*, “recipient”, gen. s. noun; KTT 12 o. col. i 2); *ba-al-ta₂-ma-tim* (perhaps *baḷta-mātim*, “the living (one) of the land”, nom. s. noun⁴⁶ (from *baḷtum*) + gen. s. noun (from *mātum*); KTT 35 o. 2).

⁴⁶In the form of an accusative singular noun.

Proto-Ea lists the reading *di-im* (l. 887) for the sign DIM.

70. AG

During the Old Akkadian period, the syllabic values *ak* and *aq* are attested for the sign AG, as in the following words: *i-la-ak* (*illak*, “he goes”, from the root ṣ-l-k , “to go”, G-stem dur. 3 m. s.; ITT V 6682); *aq-bi₂-si-im* (*aqbīšim*, “I spoke to her”, from the root *q-b-ṣ*, “to speak”, G-stem pret. 1 c. s. + 3 f. s. dat. suffix (-*šim*); D 315:13).

During the Ur III period, the syllabic values *ak* and *aq* are attested for the sign AG, as in the following words and proper noun: *i₃-la-ak-ma* (*illakma*, “he goes and...”, from the root ṣ-l-k , “to go”, G-stem dur. 3 m. s. + enc. part.; NATN 365 r. 19’); *u₃-ša-ak-ši-id* (*ušakšid*, “he caused to arrive, conquer”, from the root *k-š-d*, “to arrive, conquer”, Š-stem pret. 3 m. s.; OIM A33645 o. 4’); *i-ta₂-ra-aq-i₃-li₂* (*itarraq ilī*, “my god takes pity”, from the root *t-r-q*, “to take pity, relent”, G-stem dur. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); AUCT 2, 299 r. 19; UET 3, 1585 r. col. vii 1’; 1691 o. 6; 1780 o. 8; 9, 997 r. 6’).

At Ebla, the syllabic value *ag/k/q* is possibly attested for the sign AG, as in the following proper nouns: *ag-lum* (*Hag(a)lum*, nom. s. noun; EV 39); *ga-na-ag¹(SUM)-um* (nom. s. noun; VE 464); *la-aq-la-gum₂* (nom. s. noun; EV 303).

At Mari, the syllabic values *ag/q* and *ak* are attested for the sign AG, as in the following words: *pa₂-ag-ru* or *ba-aq-ru⁴⁷* (*pagru(m)*, “body; corpse”, or *baqru(m)*, “claimed”, nom. s. noun; ARM XIX 303); *sa₂-ak-sa₂-tim_x* (*šakšatum*, “leather containers”, nom. pl. noun; ARM XIX 324).

The sign AG is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic values *aq* and *ag* are possibly attested for the sign AG, as in the following words and proper nouns: *a-aq-bi-u-um* (meaning uncertain, but likely from the root *q-b-ṣ*, “to say”; KTT 41 i 4); *ia-aq-bi-u₂* (meaning uncertain, but likely from the root *q-b-ṣ*; KTT 55a ii 13); *pa₂-aq-da* (*paqdā*, “they (f.) are entrusted, appointed”, stat. f. pl. from the root *p-q-d*, “to entrust; care for; appoint”; KTT 52 i 3); *x-ag-x-um* (personal name, meaning uncertain; KTT 38 o. 3).

⁴⁷This word occurs in the expression UDU *pa₂-ag-ru*, which could also be read UDU *ba-aq-ru*.

Proto-Ea does not include the sign AG.

71. EN

During the Old Akkadian period, the syllabic value *en* is attested for the sign EN, as in the following words and proper nouns: *en-ma* (*enma*, “thus”, conj.; passim in letters; BM 54318 r.; FM 8:8; 9:13; 10:5; RTC 77:4; MDP XIV 7; 32; UET I 275 iii); *en-bu-DINGIR* (*enbu-ili*, “offspring (lit.: ‘fruit, flower’) of the god”, nom. s. noun in const. st.⁴⁸ (from *enbum*) + gen. s. noun (from *ilum*); AIHA 4, 2 o. i 15; 14 o. 3; BIN 8, 121 r. i 9; HSS 10, 39 o. 3; 143 r. 5’; 146 r. 6; 153 o. iv 24, vi 22, r. i 22; 154 o. ii 6, r. i 16’; 155 r. i 5; 157 o. ii 2; 158 r. i 8; MAD 1, 33 o. 2’; 88 o. 3’; 158+328 r. 2; 179 o. 5; 303 r. 6; 319 o. 17; MAD 5, 66 o. iii 4; 98 o. ii 2; MDP 14, 2+10 r. ii 11’); *en-na-num₂* (*ennānum*, “supplication, petition”, nom. s. noun; AIHA 4, 1 o. i 12; 2 r. i 4, 13; 6, o. ii 10; CUSAS 11, 96 o. ii 2; HSS 10,, 172 o. 3’; MAD 1, 2 o. iii 12; 86 o. iii 4’; 99 r. 5’; 150 r. 1; MAD 5, 98 o. ii 6; OIP 104, 40 o. vii 11, viii 11, xi 14; TCBI 1, 208 o. 4).

During the Ur III period, the syllabic value *en* is attested for the sign EN, as in the following words: *en-nam-i₃-li₂* (*ennam-ilī*, “my god (is/provides) mercy, favor”, acc. s. noun (from *ennum*) + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); CT 44, 48 r. 5); *a-kap-še-en* (meaning uncertain; ITT III 6545 ii).

At Ebla, the syllabic values *en*, *ḥe_x*, *ḥen_x*, *ru₁₂*, and possibly *lu_x* are attested for the sign EN, as in the following words: *en-ma* (*enma*, “thus”, conj.; passim in letters); *re₂-ḥe_x-^rmu^r* (*reḥmu(m)*, “uterus” cf. Sem. **raḥm-*, nom. s. noun; VE 324)⁴⁹; *ḥen_x-nu* (*ḥennu(m)*, “a gracious gift”⁵⁰, nom. s. noun; VE 68⁵¹); *pa₃-ta₃-ru₁₂* (*paṭāru(m)*, “to loosen”, inf.; VE 95); *zi-lu-lu_x-um* (perhaps “potter’s studio” (Conti 1990, p. 119); VE 326).

At Mari, the syllabic value *en* is attested for the sign EN, as in the following words: *maš-a-ne₂-en* (*mašānēn*, “two sandals”, du. noun; ARM XIX 37; 287; 290); *ka₃-ša-re₂-en* (*kaššarēn*, “two caravan drivers”, du. noun from the root k-š-r, “to

⁴⁸Although the form of this noun is as a normal nominative noun with dropped mimation.

⁴⁹See also Krebernik, ZA 73 (1983); p. 14.

⁵⁰The etymology of this root, *ḥ-n-n*, was proposed by Hecker in BaE, p. 212.

⁵¹See also Bonechi 2008, pp. 12-13.

tie; bind”; ARM XIX 248); *ki-ba-en* (meaning uncertain, du. noun; ARM XIX 61); *qu₂-pa₂-en* (*quppa²ēn*, “two baskets”, du. noun; ARM XIX 103).

At Nabada, the syllabic value *en* is attested for the sign EN, as in the following words: *en-ma* (*enma*, “thus”, conj.; Subartu 2, 35 r. i 8); *en-na-DINGIR* (*enna-ili*, “favor, mercy of the god”, nom. s. noun in const. state⁵² (from *ennum*) + gen. s. noun (from *ilum*); Subartu 2, 58 r. ii 6).

At Tuttul, the syllabic value *en* is attested for the sign EN, as in the following words: *a-pe₂-en* (perhaps *appēn*, “two noses”, du. noun; KTT 47 i 3); *en-na-ZU* (perhaps *enna-Su[en]*, “the favor, mercy of Suen”, nom. s. noun in const. state⁵³ (from *ennum*) + DN; KTT 21 iii 2).

Proto-Ea lists the reading *en* (l. 416) and another broken value (l. 416a) for the sign EN.

73. SUR

During the Old Akkadian period, the syllabic value *s/šur* for the sign SUR is attested for the sign SUR, as in the following proper nouns: *a-s/šur-DINGIR* (perhaps *āšur-il*, “I took care of god/Il”, from the root *ṣ-š-r*, “to take care of; to check up on”, G-stem pret. 1 c. s. + DN or acc. s. noun (from *ilum*); MDP XIV 30 ii; 77); *s/šur-gu-la^{ki}* (GN; MDP XIV 13).

During the Ur III period, the syllabic value *s/šur* is possibly attested for the sign SUR, such as in the proper noun: *ki-šur-ra^{ki}* (GN; passim; ASJ 2, 18 53 o. 2; CM 26, 78 o. 3; MVN 13, 672 r. 6; SAT 1446 o. 8, r. 4).

The sign SUR is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *s/šur* is possibly attested for the sign SUR, as in the following proper nouns: *ka₃-šur* (GN, related to *ka₍₁₋₃₎-šur^{ki}*, “Gasur”; ARM XIX 64; 114; 324); *a-s/šur-^dda-gan* (perhaps *āšur-dagan*, “I took care of Dagan”, from the root *ṣ-š-r*, “to take care of; to check up on”, G-stem pret. 1 c. s. + DN; ARM XIX 376).

The sign SUR is not attested with a syllabic value at Nabada.

⁵²Although the form appears to be an accusative noun with dropped mimation.

⁵³Although the form appears to be an accusative noun with dropped mimation.

The sign SUR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *su-ru* (l. 214) for the sign SUR.

76. SA

During the Old Akkadian period, the syllabic values *sa* and *ša₁₀* are possibly attested⁵⁴ for the sign SA, as in the following words and proper nouns: *ta₂-sa-am-ma* (*tašāmma*, “you bought”, from the root *š-ṽ-m*, “to buy”, G-stem pret. 2 m. s.; CT 50, 71 r. 4); *li-sa-di₃-in* (*lišaddin*, “may he collect, make to pay”, from the root *n-d-n*, “to give”, Š-stem prec. 3 m. s.; CUSAS 13, 169 r. 7); *li-ša₁₀-num₂* (*lišānum*, “tongue, language”, nom. s. noun; MO; cf. Gelb 1961, 164); *tu-ša₁₀-bu* (*tuššabu*, “you (will) sit”, from the root *w-š-b*, “to sit”, G-stem dur. 2 m. s. + sub. marker; RA XXIII 25:16); *li-ša₁₀-me-ed-ma* (*lišammedma*, “may he cause to take refuge and..”, from the root *ṽ-m-d*, “to lean on, impose”, Š-stem prec. 3 m. s. + enc. part.; HSS 10, 5:7).

During the Ur III period, the syllabic value *sa* is attested⁵⁵ for the sign SA, as in the following words: *u₃-sa-sa₃-ku₈* (meaning uncertain; Elam 4, 15; 8, 17); *u₃-sa-ti₃-ir* (*ušattir*, “he put down in writing”, from the root *š-t-r*, “to write (down)”, D-stem pret. 3 m. s.; Elam 3, 37); *u₃-ta₂-sa-na* (meaning uncertain; MVN 8, 163 Rs. 9).

At Ebla, the syllabic value *sa/ša₁₀* is attested for the sign SA, as in the following words: *sa-³a₃-bu₃* (*saḥābu(m)*, “to pull away”; VE 73); *ra-sa-um* (*rasāḥum*, “to sprinkle with water; to soak” cf. Akk. *russû*; VE 127); *ša₁₀-ša-bu₃* (*šadbu(m)*, “milk” cf. Akk. *šizbu*; VE 82); *ša₁₀-ta₂-um* (*šatālum*, “to discuss; to conversate” cf. Sem. *šl “to ask”; VE 147).

At Mari, the syllabic value *sa/ša₁₀* is possibly attested for the sign SA, as in the proper noun *šum-sa/ša₁₀-ni* (Frayne 1993, RIME 2.01.04.51, ex. 1).

⁵⁴Gelb provides the syllabic value *ša₁₀* in his 1961 *Old Akkadian Writing and Grammar*. This conclusion is based primarily on comparisons with later Old Akkadian dialects, where in similar contexts we would find a /ša/ value. The actual pronunciation of this sign is, however, still uncertain for the Old Akkadian period, although I am including some examples Gelb provides for the reading *ša₁₀*.

⁵⁵As with Old Akkadian, the precise phonetic rendering of the sibilant in this sign is uncertain. So where we might expect a reading /ša/ based on comparisons with later dialects, I am choosing to be conservative and still read the basic value of this sign.

At Nabada, the syllabic value *sa/ša₁₀* is possibly attested for the sign SA only in the proper noun *sa-TAR-gu-ni* (Subartu 2, 40 o. ii 9).

At Tuttul, the syllabic value *sa/ša₁₀* is possibly attested for the sign SA, as in the following proper noun and word: *ša₁₀-am-ši₂-^dda-gan* (*šamši-dagan*, “the sun of Dagan”, nom. s. noun in const. st. (from *šamšum*) + DN; KTT 8 ii 10); *ša₁₀-ra-tu-um* (*šarratum*, “queen”, nom. s. noun; KTT 55a ii 17); [x-]x-*ša₁₀-am-ši₂-a-na* (*šamši-ana*, “Sun the bedouin”⁵⁶; KTT 20 ii 6).

Proto-Ea lists the reading *sa-a* for the sign SA (l. 233).

77. GAN₂

During the Old Akkadian period, the syllabic value *g/kan₂* is attested for the sign GAN₂, as in the following proper noun: *maš-g/kan₂^{ki}* (GN; AIHA 4, 8 r. 9, 13; 38 r 3’; HSS 10, 20 r. ii 7’; 23 r. 1; 26 r. 2; 41 r. 3; 42 r. 2; 45 o. 3; 47 o. 3; 49 r. 3; 55 o. 5; 87 o. 5; 103 r. 6; 151 r. ii 1; 152 r. iv 1; 153 r. v i; 163 o. 5; 195 o. 3).

During the Ur III period, the syllabic value *g/kan₂* is attested for the sign GAN₂, as in the following proper noun: *maš-g/kan₂^{ki}* (GN; AnOr 1, 44 r. 2; 47 o. 4; 49 i 21; BIN 5, 277 o. ii 16, iii 3; BPOA 1, 1196 o. 5; 1552 2; BPOA 2, 2685 2; BPOA 6, 151 o. 9; 299 o. 6; CHEU 100 o. ii 2; CUSAS 3, 260 o. 16; Fs. Limet 28 r. 5; Georgica 7.04 o. 3; MCS 6, 80 o. 3; MVN 2, 334 r. 3; MVN 13, 282 o. 6; Nebraska 37 o. iii 22, iv 26; Nik 2, 236 o. ii 17; Nisaba 23, 46 o. ii 15; Princeton 1, 394 o. 2, r. 1, 2; Princeton 2, 169 o. 4; RA 25, 20 AF 1 r. ii 13; SANTAG 6, 203 o. 4; SAT 2, 997 o. 7; SAT 3, 1396 o. 5; Syracuse 164 o. 3; TRU 159 o. 3; TSU 53 o. 2; USC 6632 o. 2, r. 1; Ist Um 1658 o. 3; 3416 r. 6; 3485+3509 r. i 9).

The sign GAN₂ is not attested with a syllabic value at Ebla.

The sign GAN₂ is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *g/kan₂* is attested for the sign GAN₂, as in the following proper noun: *^dša-ma-g/kan₂* (DN; Subartu 2, 101 o. col. i 3).

The sign GAN₂ is not attested with a syllabic value at Tuttul.

The sign GAN₂ does not appear in the extant portions of Proto-Ea.

⁵⁶For a discussion of these *-(h)ana* names, see Durand and Marti (2004, p. 126).

83. DAR

During the Old Akkadian period, the syllabic values *dar* and *tar₂* are possibly attested for the sign DAR, as in the following proper nouns: *dar-ba-a* (meaning uncertain⁵⁷; MAD I, 7 + 10 o. ii 2’); *eš₄-tar₂-da-na-at* (*eštar-dannat*, “Ištar is strong”, DN + 3 f. s. stat. (from the root *d-n-n*, “to be strong”); MDP 14, 75 o. 13); *wa-tar₂-i₃-li* (*watar-ilī*, “my god is excellent”, 3 m. s. stat. (from the root *w-t-r*, “to exceed; be excellent”) + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); Louvre AO 8638 r.).

During the Ur III period, the syllabic value *tar₂* is attested for the sign DAR, as in the following proper nouns: *šū-eš₁₈-tar₂* (*šū-eštar*, “he is the one of Ištar”; MVN 12, 153 o. 3); *i-din-eš-tar₂* (*idīm-eštar*, “Ištar judged”, from the root *d-ṣ-n*, “to judge”, G-stem pret. 3 f. s. + DN; RA 19, 42, 80 o. 9); *i-tar₂-qi₂-li₂* (perhaps *itarraq-ilī*, “my god relents”, from the root *t-r-q*, “to relent”, G-stem dur. 3 m./f. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); RA 73, 29, 18 r. 13).

At Ebla, the syllabic values *dar* and *tar₂* are attested for the sign DAR, as in the following words: *šar_x?(NE)-u₃ a-dar-tu₃* (*z/dar’u (h)adārtu*, “fermented seeds?” cf. Akk. *zērum* “seed”, Ar. *hadara* “fermented”, nom. s. noun without mimation + nom. s. adj. without mimation; Conti 1990, p. 179); *aš-tar₂* (*attar*, cf. Akk. *Ištar*, DN; Conti 1990, p. 193).

At Mari, the syllabic value *tar₂* is attested for the sign DAR, as in the following proper noun: *eš₄-tar₂-dam-qa₂* (*eštar-damqa*, “Ištar is good”, DN + acc. s. noun without mimation; ARM XIX 303; 324; 325; 340; 384, 14).

At Nabada, the syllabic values *dar* and *tar₂* are possibly attested for the sign DAR, as in the following proper nouns: *NI-ba-dar* (meaning uncertain; Subartu 2, 5 o. v 8, r. v 10; Subartu 2, 40 o. ii 8); *ta-ri₂-aš-tar₂* (perhaps *tāri-aštar*, “Ištar is the leader”, act. part. (from the root *t-r-ṣ*, “to lead away”) + DN; Subartu 12, 150 o. i 6); *tar₂-am₆-EN* (*tarām-bēlim*, “the beloved of the lord”, nom. s. noun in const. st. (from the root *r-ṣ-m*, “to love”) + gen. s. noun (from *bēlum*); Subartu 2, 150 r. v 1).

⁵⁷There are no East Semitic roots that contain these three radicals: *d/t/ṭ-r-b*.

At Tuttul, the syllabic values *tar*₂ and *dar* are attested for the sign DAR in the following proper noun: *i-tar*₂[?]-*ba-al* (perhaps *itâr-ba'al*, “Ba'al relents”, from the root *t*-*r*, “to return, turn back”, G-stem dur. 3 m. s. + DN; KTT 32 i 1); *eš*₁₈-*dar-ra-ma-aš*₂ (*ešdar/eštar-rāmaš(u)*, “Ešdar/Eštar loves him”, DN + act. part. (from *r*-*m*, “to love”) + 3 m. s. acc. suffix (-*šu*)).

Proto-Ea lists the sign DAR (l. 750) but its reading is broken.

84. GUR

During the Old Akkadian period, the syllabic values *gur*, *kur*₃, and *qur* are attested for the sign GUR, as in the following proper nouns: *it-gur-da*^{ki} (GN; MAD 5, 12 r. 8); *zi-kur*₃-GI (possibly from root *z-k-r*, “to remember; name”; RTC 127 iii; ITT I 1472 ii); *i*₃-*lum-qur-ad* (*ilum-qurād*, “the god is a hero”, nom. s. noun (from *ilum*) + abs. noun (from *qurrādum*); UET II Pl. XLVII 19, PSarg.); *il*₃-*šu-qur-ad* (*ilšu-qurād*, “his god is a hero”, nom. s. noun (from *ilum*) + 3 m. s. poss. suffix (-*šu*) + abs. noun (from *qurrādum*); ITT IV p. 67, 7673, U).

During the Ur III period, the syllabic value *qur* is attested for the sign GUR, as in the following words: *šu-qur-tum* (*šūqurtum*, “very valuable (f.)”, nom. s. noun; DTCR 105 o. 10; MVN 16, 966 o. col. ii 26; OIM A2689 o. 5; OIM A2919 r. 3’); *šu-qur-um* (*šūqurum*, “very valuable (m.)”, nom. s. noun; AUCT 1, 658 o. 4).

At Ebla, the syllabic values *qur* and possibly *gur* are attested for the sign GUR, as in the following word and proper nouns: *qur-du[m]-mu* (*qurdum(m)u(m)*, “ax” cf. Heb. *qardōm*, Ar. *quddūm*, nom. s. noun; Conti 1990, p. 138); *a-gur-il* (possibly *agur-il*, “baked brick, building block of (the god) Il”, nom. s. noun (from *agurrum*) in const. st. + DN; *ARET* 3 421 r. ii’ 4); *a-gur-li-im* (possibly *agur-līm*, “baked brick, building block of (the god) Līm”, nom. s. noun (from *agurrum*) in const. st. + DN; *ARET* 7 150 r. iii 3).

At Mari, the syllabic values *gur* and *qur* are attested for the sign GUR, as in the following words: *šu-gur-ri* (*šugurri*, “stamp”, nom. s. noun in const. st. (from *šugurrum*); ARM XIX 334); *gur-pi*₂-*sa-tim*_x (*gurpisātīm*, “pieces of protective

clothing (?)”, gen. pl. noun; ARM XIX 463); *qur-na-tum* (*qurnatum*, “mint” or “oregano”⁵⁸, nom. s. noun; ARM XIX 365 r. 6, 10).

The sign GUR is not attested with a syllabic value at Nabada.

The sign GUR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading the syllabic value *gu-ur* (l. 345) for the sign GUR.

85. SI

During the Old Akkadian period, the syllabic value *si* is possibly attested for the sign SI⁵⁹, as in the following words and proper nouns: *a-na ra-si-im* (*ana rašim*, “in front of”⁶⁰, prep. + gen. s. noun (from *rašum* > *rēšum*); FM 11:12); *si-da-na-at* (*šī-dannat*, “she is strong”, 3 f. s. ind. pronoun + 3 f. s. stat. (from *d-n-n*, “to be strong”); MDP 24, 342 r. 8); *eš₁₈-tar₂-nu-uh₂-si* (*eštar-nuhšī*, “Ištar is my abundance; fertility; fruitfulness”, DN + acc. s. noun (from *nuhšum*) + 1 c. s. poss. suffix (-*ī*); MAD 1, 163 + 165 o. i 21); *i₃-li₂-nu-uh₂-si* (*ilī-nuhši*, “my god is my abundance, fertility; fruitfulness”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + acc. s. noun (from *nuhšum*) + 1 c. s. poss. suffix; MAD 1, 163 + 165 r. ii 5); *si-ip-ri₂* (*šīpri*, “sending; mission; work”, nom. s. noun in const. st. (from *šīprum*); PBS V 36 r. x+i?, ii, iii, NS.).

During the Ur III period, the syllabic values *si* and *šī₂* are attested for the sign SI, as in the following words and proper nouns: *si-ma-ti-lu* (*simat-ilu*, “symbol of (the) god”, nom. s. noun in const. st. (from *simtum*) + gen. s. noun (from *ilum*); ARET 3, 185 o. iv 5’); *ka₃-šī₂-ir-ma* (*kāširma*, “he is a restorer and...”, 3 m. s. act. part. (from the root *k-š-r*, “to restore”) + enc. part.; JCS 38, 3 o. 3); *na-šī₂* (*našī*, “lifted; raised”, verb. adj. (from the root *n-š-ṣ*, “to lift, raise”); RA 25, 81 o. 2); *šī₂-dan-na-at* (*šī-dannat*, “she is strong”, 3 f. s. ind. pronoun + 3 f. s. stat. (from *d-n-n*, “to be strong”); ASJ 11, 339-43 M₂-18 o. col. i 37; col. iv 10; r. col. v 39; r. col. vii 45; 348f. M₂-26 o. col. i 22).

⁵⁸See Thompson, DAB, p. 78.

⁵⁹It may be representing the syllable /ši/.

⁶⁰Lit.: “to the head of”.

At Ebla, the syllabic value *si/š_i₂* is attested for the sign SI, as in the following words: *š_i₂-bu₃-um* (*š_i₂bum* / *š_i₂ybum*, “seniority”, nom. s. noun; Conti 1990, p. 79); *š_i₂-pīl₂-tum* (*š_i₂pirtum*, “assignment”, nom. s. noun; Conti 1990, p. 88); *š_i₂-š_u₁₁* (*š_i₂rš_u(m)*, “root” cf. Akk. *š_urš_um*, nom. s. noun; Conti 1990, p. 138).

At Mari, the syllabic values *si* and *š_i₂* are attested for the sign SI, as in the following words: *ki-si* (*k_isi*, “money-bag; money”, nom. s. noun in const. st. or gen. noun; ARM XIX 110 r.); *da-š_i₂* (*dašš_i₂*, “goats”, acc./gen. pl. noun; ARM XIX 107; 110; 116; 117; 120; 139; 142; 143; 155; 157; 164).

At Nabada, the syllabic value *si* is attested for the sign SI, as in the following proper nouns: *si-a-ḥa* (perhaps *š_i₂-aḥa*, “she is the side; she is beside”, 3 f. s. ind. pronoun + acc. s. noun (from *aḥum*); Subartu 2, 63 o. ii 3, 7; o. iii 4, 5; Subartu 2, 143 o. ii’ 4’; Subartu 2, 145 o. iii 3, 4; Subartu 12, 150 o. iii 4, 5); *u₂-a-si^{ki}* (GN; Subartu 2, 10 o. i 6; Subartu 2, 29 o. iii 9); *si-ma-i₃-li₂* (perhaps *sima(t)-il_i₂*, “the symbol of my god”, nom. s. noun in const. st. (from *s_imtum*) + gen. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*i*); Subartu 2, 63 o. ii 2).

At Tuttul, the syllabic value *si* is attested for the sign SI, as in the following proper nouns: *sa-am-si^d-da-gan* (*šamš_i-dagan*, “the sun of Dagan”, nom. s. noun in const. st. (from *šamšum*) + DN; KTT 8 ii 10); *ia-si-mu-um* (proper noun, meaning uncertain; KTT 17 ii 1); *si-im-a-li-u-um* (*simali_ium*, “the Simalite”, nom. s. noun/PN; KTT 41 i 3).

Proto-Ea lists the reading *si-i* (l. 181) for the sign SI.

86. SU₄

During the Old Akkadian period, the syllabic value *su₄* is attested for the sign SU₄, as in the following word and proper nouns: E₂-*ti-su₄-nu* (*bīt_išunu*, “their house”; OAIC 36 o. 9); *su₄-mu-be-li₂* (*sumu-bēl_i₂*, “the name is my lord”; Adab 1087 o. 2); *su₄-be-lum* (*sū-bēlum*, “he is the one of the lord”; ASJ 4, 50 o. col. ii 7).

During the Ur III period, the syllabic value *su₄* is attested for the sign SU₄, as in the word *su₄* (*su’a/š_ua*, “that, the aforementioned”; passim).

The sign SU₄ is not attested with a syllabic value at Ebla.

At Mari, the syllabic value su_4 is attested for the sign SU_4 , as in the suffix su_4-ni (-s/šuni, “their”; ARM XIX 379).

The sign SU_4 is not attested with a syllabic value at Nabada.

The sign SU_4 is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading $su-u_2$ for the sign SU_4 (l. 183).

88. MA_2

During the Old Akkadian period, the syllabic value ma_2 is attested for the sign MA_2 ,⁶¹ as in the following words and proper nouns: $iš-ma_2-i_3-lum$ ($išma^{\text{a}}-ilum$, “the god heard”, from the root $š-m-^{\text{a}}$, “to hear”, G-stem pret. 3 m. s. + nom. s. noun (from $ilum$); BE I Pl. VI i+); u_2-ma_2 ($ūma$, “I swear”, from the root $^{\text{a}}-m-^{\text{a}}$, “to swear”, G-stem 1 dur. c. s.; R xxxiii, xxvi; RA VIII 136, R; RA VII 105, Mi.; M xxvii; Ist. Mus. Lagash 11001 r.); $[it]-ma_2-u_2$ ($itma^{\text{a}}ū$ “they have sworn”, from the root $^{\text{a}}-m-^{\text{a}}$, G-stem perf. 3 c. pl.; FM 51 rev. x+3).

During the Ur III period, the syllabic value ma_2 is attested for the sign MA_2 , as in the following word: $iš-me-ma_2$ ($išmēma$, “he heard and...”, from the root $š-m-^{\text{a}}$, “to hear”, G-stem pret. 3 m. s. + enc. part.; Elam 2, 112).

At Ebla, the syllabic value ma_2 is attested for the sign MA_2 , as in the following word: $ma_2-ma-du$ ($ma^{\text{a}}madu(m)$, “support” cf. Akk. $nēmedum$, $nēmettum$, nom. s. noun; Conti 1990, p. 140).

At Mari, the syllabic value ma_2 is attested for the sign MA_2 , as in the following proper noun: $iš-ma_2-a-bi$ ($išma^{\text{a}}-abi$, “my father heard”, from the root $š-m-^{\text{a}}$, “to hear”, G-stem pret. 3 m. s. + nom. s. noun (from $abum$) + 1 c. s. poss. suffix (- \bar{i}); ARM XIX 22; 23).

At Nabada, the syllabic value ma_2 is attested for the sign MA_2 , as in the following proper nouns: $iš-ma_2-DINGIR$ ($išma-ilum$, “the god heard”, from the root $š-m-^{\text{a}}$, “to hear”, G-stem pret. 3 m. s. + nom. s. noun (from $ilum$); Subartu 2, 5 o. i 7); $iš-ma_2-DU-DU$ ($išma-DUDU$, “DUDU heard”, from the root $š-m-^{\text{a}}$, “to hear”, G-stem pret. 3 m. s. + PN/DN?; Subartu 2, 35 o. iv 10); $NE-ma_2^{ki}$ (GN; Subartu 2, 35 o. v 2).

⁶¹This likely represents a CVC phonetic reading with a final guttural / ma^{a} /.

At Tuttul, the syllabic value ma_2 is possibly attested for the sign MA₂ in the following word or proper noun: $mu-tu-ma_2^{\text{?}}-hi^{\text{?}}-im$ (meaning uncertain; KTT 12 ii 9).

Proto-Ea does not list the sign MA₂.

90. TAB

During the Old Akkadian period, the syllabic values tab and tab are attested for the sign TAB, as in the following word and proper noun: $tab-ri-um$ (possibly $tabri\text{-}um$, “fodder crop”, nom. s. noun; OAIC 44 o. 6, 7); $\text{tab-}i_3\text{-}li_2$ ($\text{tab-il}\bar{i}$, “my god is good, favorable”, verb. adj. in absolute (from the root $\text{t-}b$, “to be good, sweet”) + nom. s. noun (from $ilum$) + 1 c. s. poss. suffix ($-\bar{i}$); OAIC 35 r. 1).

During the Ur III period, the syllabic values tab and tab are attested for the sign TAB, as in the following words and proper nouns: DINGIR- $mu\text{-}tab\text{-}bil_2$ ($ilum\text{-}muttabbil$, “the god is the servant” or “the servant of the god”, nom./acc. s. noun (from $ilum$) + act. part. in absolute (from the root $w\text{-}b\text{-}l$, “to carry, bring”); BIN 3, 546 o. 15; OIP 115, 304 r. col. iii 10; TCL 2, 5498 o. col. ii 29); DINGIR- $mu\text{-}tab\text{-}el$ ($ilum\text{-}muttabbel$, “the god is the servant” or “the servant of the god”, nom./acc. s. noun + act. part. (from the root $w\text{-}b\text{-}l$, “to bring, carry”); OrAnt 26, 6f., 2 o. 1); tab-be-li_2 ($\text{tab-b}\bar{e}l\bar{i}$, “my lord is good, favorable”, verb. adj. in absolute (from the root $\text{t-}b$, “to be good, sweet”) + nom. s. noun (from $b\bar{e}lum$) + 1 c. s. poss. suffix ($-\bar{i}$); MVN 11 N o. 3; RA 19, 37, 119 o. 6; OIM A4710 o. 8; OIM A5871 o. 12).

At Ebla, the syllabic value t/tab is possibly attested in the proper noun $ti\text{-}sa\text{-}tab$ (perhaps related to $w\text{-}\check{s}\text{-}b$, “to sit”; *ARET* 15, 8 o. viii 6, r. iv 4; *ARET* 15, 10 r. v 7; *ARET* 15, 12 o. iii 1; *ARET* 15, 13 o. xii 11).

At Mari, the syllabic values tab and tap are attested for the sign TAB, as in the following word and proper noun: $tab\text{-}ni\text{-}ma\text{-}ma$ ($tabn\hat{i}\text{-}mama$, possibly “you created, O Mama”, from the root $b\text{-}n\text{-}$, “to build, create”, G-stem pret. 2 f. s. + DN; ARM XIX 288); $gir_3\text{-}tap\text{-}pa_2\text{-}tim_x$ (possibly related to $ger\check{s}ep\check{p}um$, “stool; stepping-stool”, gen. pl. noun; ARM XIX 104).

At Nabada, a value t/tab is possibly attested for the sign TAB, as in the following word: $t/\text{tab}\text{-}la\text{-}a\text{-}lim$ (precise reading and meaning uncertain; Subartu 2, 3 o. ii

8; Subartu 2, 7 o. i 2, r. ii 6; Subartu 2, 14 r. ii 2; Subartu 2, 17 r. i 1, iii 1; Subartu 2, 23 r. i 3; Subartu 2, 125 o. i 3; Subartu 12, 202 2).

The sign TAB is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ta-ab* (l. 144) for the sign TAB.

92. TAG

During the Old Akkadian period, the syllabic value *šum* is attested for the sign TAG, as in the following words and proper nouns: *šum-ma* (*šumma*, “if”, conj.; FAOS 19, p. 89ff, Gir 19 r. 9; FAOS 19, pl. 8, Ki 1 o. 9, r. 4; HSS 10, 5 o. 9, r. 11; HSS 10, 9 r. 1’; STTI 3 r. 7’); *ta₂-ad-di₃-in-šum-ma* (*taddinšumma*, “you give to him and...”, from the root *n-d-n*, “to give”, G-stem dur. 2 m. s. + 3 m. s. dat. suffix + enc. part.; RIME 2.1.4.1, ex. 1 o. 3’); *ma-šum* (*māšum*, “twin”, nom. s. noun/PN; AIHA 4, 3 r. iv 4; CT 44, 48 r. 13; CUSAS 13, 161 o. 6; CUSAS 19, 207 r. 2; JCS 35, 168, 1 o. 2; passim).

During the Ur III period, the syllabic value *šum* is attested for the sign TAG, as in the following words: *a-na-di₃-iš-šum^{um}* (*anaddiššum*, “I will give to him”, from the root *n-d-n*, “to give”, G-stem dur. 1 c. s. + 3 m. s. dat. suffix; SEL 17, 4 o. 7); *i-di₃-šum-ma* (*iddiššumma*, “he gave to him and...”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + 3 m. s. dat. suffix + enc. part.; Ur C 1, 2).

At Ebla, the syllabic value *šum* is attested for the sign TAG, as in the following words: *mi-šum* (*mešum*, a type of tree⁶², nom. s. noun; Conti 1990, p. 137); *qa₂-di₃-šum* (*qādišum*, “pure”, nom. s. verb. adj.; VE 100).

At Mari, the syllabic value *šum* is attested for the sign TAG, as in the following words: *bar-šum* (*baršum*, a type of grain, nom. s. noun; ARM XIX 223-234; 243; 261; 262; 264; 265; 439); *da-šum* (*daššum*, “buck, ram; goat”, nom. s. noun; ARM XIX 166-168).

At Nabada, the syllabic value *šum* is possibly attested for the sign TAG, as in the following words and proper nouns: *i₃-li-la-šum* (meaning uncertain; Subartu

⁶²Cf. Krebernik 73 (1983); p. 17.

2, 42 o. ii 9); *u₉-la-šum* (meaning uncertain; Subartu 12, 148 o. i 4); *NI-lu-šum* (meaning uncertain; Subartu 2, 124 r. i 4’).

The sign TAG does not appear with a syllabic value at Tuttul.

Proto-Ea lists two values for the sign TAG, [*šu-u*]m and [...] (l. 847-8).

93. AB

During the Old Akkadian period, the syllabic values *ab*, *ap*, and *eš₃* are attested for the sign AB, as in the following words and proper nouns: *u-ša-ab* (*ušab*, “he sat”, from the root *w-š-b*, “to sit”, G-stem pret. 3 m. s.; ITT I 1468; ITT 1 1471; II/2 4362; Kish 1930, 170e rev.); *na-ap-hitha-ri₂-su-nu* (*napharīšunu*, “their total; their entirety”, s. noun (from *napharum*) + 3 m. pl. poss. suffix (-*šunu*); JCS 26, 79 6); *ra-ap-šum* (*rapšum*, “wide; extended”, nom. s. verb. adj.; MAD 4, 167); *eš₃-a-ru* (*ēšarū*, “they made well; straight”, from the root *ṣ-š-r*, “to make well, straight”, G-stem pret. 3 m. pl.; Tutub 22 r. 5); *ki-eš₃^{ki}* (GN; ITT I, 1464 o. 8).

During the Ur III period, the syllabic values *ab*, *ap*, and *eš₃* are attested for the sign AB, as in the following words and proper nouns: *ṭa-ab-i₃-li₂* (*tāb-ilī*, “my god is good”, verb. adj. in absolute (from the root *ṭ-ṣ-b*, “to be good, sweet”) + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); UAMI 3, 2283 r. 34’); *na-ap-li-is-DINGIR* (*nāplis-ilī*, “the glance of the god”, nom. s. noun in const. st. (from *nāplisum*) + gen. s. noun (from *ilum*); TrD 60 o. 3); *na-ap-li₂-su₂-um* (*nāplisum*, “look, glance”, nom. s. noun; CCL 2 A.206, 1).

At Ebla, the syllabic values *ab* and *ap* are attested for the sign AB, as in the following words: *iq-ta₂-ra-ab* (*iqtarraḅ*, “he becomes close; draws near”, from the root *q-r-b*, “to be close, near”, Gt-stem dur. 3 m. s.; *ARET* 11 1 r. viii 15; *ARET* 3 178 r. iv 10’); *ra-sa-ap* (*rašap*, meaning uncertain, cf. Ug. *ršp*, head of the netherworld, cf. Akk. *rasāb/pum*, “to smite”; *VE* 806).

At Mari, the syllabic values *ab* and *ap* are attested for the sign AB, as in *na-ra-ab* (perhaps related to *narābum*, “to become moist”, or *nārabtum* (or *nērebtum*), “entranceway, mountain pass”; ARM XIX 318; 363); *na-ap-la₂-da²-an* (meaning uncertain; ARM XIX p. 154).

At Nabada, the syllabic value *ab* is attested for the sign AB, as in the following proper nouns: *ab-ba* (meaning uncertain; Subartu 2, 10 r. ii 5; 40 o. iv 6; 104 o. iv 3'); *da-ab-ri₂* (proper noun, perhaps from *dabrum*, “fierce, mighty”; Subartu 2, 124 o. ii 4).

At Tuttul, the syllabic values *ab* and *ap* are attested for the sign AB, as in the following proper nouns: *a-ab-du-e-mi-im* (*abdu-emim*, “servant of the *emim*”, nom. s. noun in const. st.⁶³ + gen. s. noun; KTT 20 ii 4, 10); *ab-du₂-^dda-gan* (*abdu-dagan*, “servant of Dagan”, nom. s. noun in const. st.⁶⁴ + DN; KTT 24 i 11; 26 i 4; 30 i 3); *ra-ka-ab-tu* (related to *rakābum*, “to ride”, nom. s. noun; KTT 11 ii 8); *ap²-pa²-a-na* (meaning uncertain, value *ap* determined based on the next sign *pa*; KTT 14 ii 6).

Proto-Ea lists the reading *a-ab* (l. 285) for the sign AB.

94. NAB

The sign NAB is not attested with a syllabic value during the Old Akkadian period.

The sign NAB is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *nab* is possibly attested for the sign NAB, as in the following words and proper noun: *nab-zu* (meaning uncertain; *VE* 246); *ḥa-nab-šū-ru₁₂* (meaning uncertain; *VE* 306); *nab-ḥa-il* (perhaps *nabḥa-(^d)il*, “ornament of (the god) Il”, nom. s. noun in const. st. (related to the Akkadian word *nabiḥu*, a type of ornament⁶⁵) + DN; *ARET* 4, 12 r. i 6; *ARET* 15, 10 o. iv 5, v ii).

The sign NAB is not attested with a syllabic value at Mari.

The sign NAB is not attested at Nabada or Tuttul.

Proto-Ea lists the reading *na-ab* (l. 138) for the sign NAB.

97. AZ

During the Old Akkadian period, the syllabic values *az*, *aš*, and *as* are attested for the sign AZ, as in the following words: *i-za-az* (*izâz*, “he divides; gets a share”,

⁶³Although the form appears to be a nominative singular noun without mimation.

⁶⁴Although the form appears to be a nominative singular noun without mimation.

⁶⁵CAD Volume 11, Part 1 p. 24-25.

from the root $z\text{-}z$, “to divide”, G-stem dur. 3 m. s.; R xxvii); *na-aš-ru-um* (*našrum*, “guarded; under surveillance”, nom. s. verb. adj.; A 7764); *la-ma-as-tum* (*lamaštum*, “demoness”, nom. s. noun; OAIC 24 o. 4); *na-as-ḥa* (*nashā*, “torn, pulled out, uprooted (f.pl.)”, G-stem stat. 3 f. pl.; Tutub 54 o. 5; Kh. 1934, 45).

During the Ur III period, the syllabic values *az*, *aš*, and *as* are attested for the sign AZ, as in the following words: *i-za-az* (*izâz*, “he divides; gets a share”, from the root $z\text{-}z$, “to divide”, G-stem dur. 3 m. s.; MDP 14, 93, 44 o. 6’); *aš-ba-su₂* (*ašbassu*, “I seized him”, from the root ṣ-b-t , “to seize”, G-stem pret. 1 c. s. + 3 m. s. dat. suffix (-š_u); NATN 917 o. 1); *na-as-ḥa-at* (*nashat*, “torn, pulled out, uprooted (f.s.)”, 3 f. s. verb. adj.; ZA 82, 185, 1 o. 7; 185 o. 4).

At Ebla, the sign AZ is attested with uncertain readings, as in the following proper nouns: *az-LUM* (*ARET* 12 234 o. iii’ 1’); *i-az-ma-lik* (*ARET* 8 541 o. i 14); *ir₃-az^d-a₃-da* (*ARET* 12 764 o. i’ 3’); *ir₃-da-az* (*ARET* 4 3 o. ix 11).

At Mari, the syllabic value *az* is attested for the sign AZ, as in the word *ma-az-um* (nom. s. noun from the root $m\text{-}z\text{-}z$, “to press, squeeze”; ARM XIX 310).

The sign AZ is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *aš* is attested for the sign AZ, as in the following proper noun: *a-ḥi-ma-ra-aš* (*aḥī-maraš*, “my brother is sick”, nom. s. noun (from *aḥum*) + 1 c. s. poss. suffix (-ī) + stative noun; KTT 8 ii 2; 19 ii 18).

Proto-Ea lists the reading *az!* (l. 576) for the sign AZ.

98. URUDU

During the Old Akkadian period, the syllabic value *da₅* is possibly attested for the sign URUDU, as in the following proper noun: *a-bi₂-da₅*⁶⁶ (proper noun, meaning uncertain; TMH V p. 14).

During the Ur III period, the syllabic value *ta_x* is possibly attested for the sign URUDU, as in the following word: *e-pa-ta_x-[ar/ru]* (*epaṭṭar*, “he loosened; released”, from the root $p\text{-}t\text{-}r$, “to loosen, release”, G-stem dur. 3 m. s.; Sumer 32, 95, 5 o. 2).

⁶⁶Cf. *a-bi₂-da* (MDP 14, 31+38 r. 3; MVN 2, 238 o. 8; MVN 18, 416 o. 4; OIP 104, 40 r. xv 22; OTR 113 r. 4).

At Ebla, the syllabic values tap_x and dab_6 are possibly attested for the sign URUDU, as in the following words: $tap_x-ti-du$ ($taptīdu(m)$, “enclosed” cf. Akk. $pādum$, nom. s. noun; VE 70); $ma-ša-tap_x-ti-nu$ ($maštaptin(n)u$, “potter’s pole” cf. Akk. $muštaptinnum$, nom. s. noun; VE 403); dab_6-bu_3 ($dabbu(m)$, “bear” cf. Akk. $dabû$, nom. s. noun; VE 870).

The sign URUDU is not attested with a syllabic value at Mari.

At Nabada, the syllabic values tap_x and possibly dab_6 or tab_x are attested for the sign URUDU, as in the following words and proper nouns: $tap_x-ḥir-tum$ ($taphīrtum$, a type of temple collection, nom. s. noun; Subartu 2, 44 r. i 5; Subartu 2, 54 o. iv 7; Subartu 2, 59 o. ii 9); dab_6/tap_x-ra (meaning uncertain; Subartu 2 95 o. i 2); dab_6/tab_x-kun (meaning uncertain; Subartu 2, 5 o. v 6).

The sign URUDU is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading $da-ab$ (l. 191) for the sign URUDU.

100. UM

During the Old Akkadian period, the syllabic value um is attested for the sign UM, as in the following word and proper noun: $ar-ba-um$ ($arbaʷum$, “four”, nom. s. noun; IAMN XII Pl. IV; PBS V 36 r. x+ii); $um-mi-ṭa-bat_5$ ($ummī-ṭābat$, “my mother is sweet”, nom. s. noun (from $ummum$) + 1 c. s. poss. suffix ($-ī$) + 3 f. s. stat. (from the root $t-b$, “to be good, sweet”); TMH n.F. I/II p. 24+).

During the Ur III period, the syllabic value um is attested for the sign UM, as in the following words: $na-da-nu-um$ ($nadānum$, “to give”, inf.; JCS 38, 10 r. 8); $nu-su_2-ḥu-um$ ($nussuḥum$, a type of wooden object, nom. s. noun; UET 3, 733 o. 14’); $tu-ru-um$ ($tūrum$, “return; retreat”, nom. s. noun; MVN 8, 165 r. 6; 166 r. 7); $ṭa-bu-um$ ($tābum$, “good; sweet”, verb. adj.; MTBM 170 o. 7; Sumer 43, 195, 21 o. col. ii 6; 204, 31 o. col. i 18; TCTI, 721 r. col. iii 1; OIM A31805 r. 26).

At Ebla, the syllabic value um is attested for the sign UM, as in the following words: $ša-qu_x(TIK)-um$ ($š/taqulum$, “a measured thing” cf. Akk. $šaḳālum$ “to weigh”, nom. s. noun; VE 25); $si-bu_3-um$ ($šībum$ or $šiybum$, “seniority”, nom. s. noun; VE 108); $sa-qa_2-ru_{12}-um$ ($šaḳārūm$, “to pierce”, inf.; VE 220).

At Mari, the syllabic value *um* is attested for the sign UM, as in the proper noun *ku-um-li*-^dIM (ARM XIX 200; 208; 399).

At Nabada, the syllabic value *um* is attested for the sign UM, as in the following words: *me-um* (meaning uncertain, perhaps related to *mā̄ū*, “water”, nom. s. noun; Subartu 2, 7 r. ii 8); *ha-la-bi-um*^{ki} (GN; Subartu 2, 35 o. i 3; ii 5; iv 3; v 3); *i-dur₂-um* (meaning uncertain, nom. s. noun; Subartu 2, 145 r. ii 4).

At Tuttul, the syllabic value *um* is attested for the sign UM, as in the following words: *a-lu-um* (*ālum*, “village, town, city”, nom. s. noun; KTT 35 i 11; 28 i 1); *ba-iq-ru-um* (meaning uncertain, nom. s. noun; KTT 55a ii 6); *bu-ṣu-um* (proper noun, meaning uncertain but perhaps related to *būṣum*, “(a type of) bird; hyena”, nom. s. noun; KTT 15 ii 10); *ku-nu-ku-um* (*kunukkum*, “seal”, nom. s. noun; KTT 54 i 5).

Proto-Ea lists the reading *u₂-um* (l. 184) for the sign UM.

101. DUB

During the Old Akkadian period, the syllabic value *tup* is attested for the sign DUB, as in the following proper nouns: *iš-tup-il* (*ištup-il*, “the god saved (the life)”, from the root *š-t-p*, “to save”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from *ilum*); CT XXXII 8 iii); *ta₂-aš₂-tup-pa₂* (female proper noun from *š-t-p*, “to save”; HSS 10, 139 o. ii 4’).

During the Ur III period, the syllabic value *tup* is attested for the sign DUB, as in the word *iš-tup* (*ištup*, “he saved”, from the root *š-t-p*, “to save”, G-stem pret. 3 m. s.; AnOr 7, 219 r. 15).

At Ebla, the syllabic value *tup* is attested for the sign DUB, as in the following words: *tup-pi₂* (*tuppi*, “tablet”, nom. s. noun in const. st. (from *tuppum*); *ARET* 1 5 r. ii 3; *ARET* 4 14 r. iii 15; *ARET* 8, 531 r. v 6; *ARET* 12 125 o. ii’ 1’); *iš-tup-pu₃* (proper noun from the root *š-t-p*, “to save”; MEE 12 25 o. x 2).

The sign DUB is not attested with a syllabic value at Mari.

The sign DUB is not attested with a syllabic value at Nabada.

The sign DUB is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *du-ub* (l. 188) for the sign DUB.

102. TA

During the Old Akkadian period, the syllabic values *ta* and *ta₂* are attested for the sign TA, as in the following words and proper nouns: *is-ta-ap-pa₂-ar-ma* (*ištapparma*, “he kept sending and...”, from the root *š-p-r*, “to send”, Gt-stem pret. 3 m. s + enc. part.; RIME 2.01.04.02 composite); *tu-ta-na-ap-šum* (*tuta-napšum*, “Tuta is wide, plentiful, abundant”, PN/DN + verb. adj.; RIME 2.01.04.19, ex. 1); *tu-ta₂-ab-šum* (*tutābšum*, “you give well-being to him; you satisfy him”, from the root *t-ḅ-b*, “to be good, sweet”, D-stem dur. 3 m. s. + 3 m. s. dat. suffix; OSP 2, 178 o. 6).

During the Ur III period, the syllabic values *ta*, *da₂*, and *ta₂* are attested for the sign TA, as in the following words and proper nouns: DINGIR-*mu-ta-bil* (*il-muttabbil*, “the servant of god”, DN or nom. s. noun in abs. (from *ilum*) + act. part.; RA 13, 134f., 17 Slegel 1; Sumer 43, 208, 40 o. col. i 8); *li-il-qu₃-ta* (*lilquta*, “may he gather up”, from the root *l-q-t*, “to gather”, G-stem prec. 3 m. s. + sub. marker; Ur C 1, 66); *u₂-ta-ak-ki-il* (*utakkil*, “he inspired trust; he encouraged”, from the root *t-k-l*, “to trust”, D-stem pret. 3 m. s.; PIOL 19, 66 o. 2); *na-da₂-nu-um* (*nadānum*, “to give”, inf.; MVN 8, 163 r. 7); *i-pa₂-ta₂-ar* (*ipattar*, “he loosens, releases”, from the root *p-t-r*, “to loosen”, G-stem dur. 3 m. s.; TMH NF 1/2, 7 r. 10); *ta₂-bu-um* (*tābum*, “good”, verb. adj.; Sumer 43, 206, 34 o. col. ii 13).

The sign TA is not attested with a syllabic value at Ebla.

The sign TA is not attested with a syllabic value at Mari.

The sign TA is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ta* is attested for the sign TA, as in the following words and proper noun: *ia-ta-ni-il* (meaning uncertain, perhaps *yâtan-il*, “the god is mine”, f. pl. poss. pronoun + DN or nom. s. noun in abs. (from *ilum*); KTT 5 ii 3; 15 ii 3); *ša-la-ta-am* (*šallatam*, “plundered thing(s); booty”, acc. s. noun; KTT 55a ii 10); *wa-ar-ka-ta-am* (*warkatam*, “later”, acc. s. noun; KTT 55a ii 19).

Proto-Ea lists the reading *ta-a* (l. 535) for the sign TA.

103. I

During the Old Akkadian period, the syllabic value *i* is attested for the sign I, as in the following words and proper noun: *i-la-ak* (*illak*, “he will go”, from the root ṣ-l-k , “to go”, G-stem dur. 3 m. s.; ITT 5 6682); *i-di₃-in* (*iddin*, “he gives”, from the root *n-d-n*, “to give”, G-stem dur. 3 m. s.; A 4746; RA XXIV 44); *i-bi₂-^dza-ba₄-ba₄* (*ibbi-zababa*, “Zababa named, called”, from the root *n-b-ṣ*, “to name, call”, G-stem pret. 3 m. s. + DN; Kish 1930, 406).

During the Ur III period, the syllabic value *i* is attested for the sign I, as in the following words: *i-be-al* (*ibe³al*, “he ruled over”, from the root *b-ṣ-l*, “to rule over”, G-stem pret. 3 m. s.; RIME 2.1.2.6 composite l. 66); *i-di₂-in* (*iddin*, “he gives”, from the root *n-d-n*, “to give”, G-stem dur. 3 m. s.; ASJ 11, 335 M₂-9 o. 4; 335 M₂-9 r. 6); *i-ma-da-ad* (*imaddad*, “he will measure out, weigh”, from the root *m-d-d*, “to measure, weigh out”, G-stem dur. 3 m. s.; NRVN 52 o. 5); *li-i-mu* (*līmu*, “thousand”, nom. s. noun without mimation; NATN 613 r. 10).

At Ebla, the syllabic value *i*⁶⁷ is attested for the sign I, as in the following words and proper nouns: *i-me-tum* (*(y)imittum*, “right(hand)”, nom. s. noun; VE 534); *i-ša-wu* (*(y)itāwu(m)*, “to exist”, inf.; VE 624; cf. Sem. **ytw*); *a-li-num₂* (*alīnum*, “above; over”, prep.; VE 782; cf. Akk. *elēnum*); *ba-i-ra-tum* (*baḥirātum*, “selected; chosen”, nom. f. pl. verb. adj.; VE 701; cf. Akk. *bêrum*, Sem. **bḥr*).

At Mari, the syllabic value *i* is attested for the sign I, as in *i₃-li₂-i-ti-šu* (*ilī-ittišu*, “my god is with him” or “the gods are with him”, nom. s./pl. noun + prep. + 3 m. s. poss. suffix (-*šu*); ARM XIX 199).

At Nabada, the syllabic value *i* is attested for the sign I, as in the following proper nouns: *i-da-i₃-lum* (perhaps *īda-ilum*, “he knew the god” or “the god knew”, unusual form of the root ṣ-d-ṣ , “to know”, G-stem pret. 3 m. s. + nom. s. noun; Subartu 2, 1 o. iii 5; 5 o. iii 8, r. iii 11; 136 o. ii 3); *il₂-e-i-šar* (*ile³i-šar(um)*, “the king is powerful”, from the root ṣ-l-ṣ , “to be able, powerful”, G-stem dur. 3 m. s. + nom. s. noun; Subartu 2, 4 o. i 6; 21 o. ii 2; 30 o. iv 1; 68 o. i 2; 70 o. ii 3’;

⁶⁷Representing the possible readings /yi/, /li/, and /ḥi/ (Conti 1990, p. 53).

75 o. i 2; 76 o. ii 4; 89 r. i 2; 107 r. i 1); *i-šu-il* (*išū-il*, “he had a god”, from the root 𐎶-š-𐎶, “to have”, + acc. s. noun in abs.; Subartu 2, 10 o. i 8).

At Tuttul, the syllabic value *i* is attested for the sign I, as in the following proper nouns: *i-din-AN* (*iddin-an*, “An gave”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + DN; KTT 25 i 5); *i-šu-ma-da-ri* (perhaps *išū-madāri*, “he had a chief, noble” (?), from the root 𐎶-š-𐎶, “to have”, G-stem pret. 3 m. s. + acc. s. noun in the form of a gen. s. noun; KTT 12 ii 8); *ni-i-iš-AN* (perhaps *nīš-an*, “the life of An”, nom. s. noun in const. st. + DN; KTT 21 iii 3).

Proto-Ea lists the reading *i* (l. 465) for the sign I.

104. IA

During the Old Akkadian period, the syllabic value *ia* is possibly attested for the sign IA, as in the proper noun *ia-ab?-zi-[tum?]* (meaning uncertain; MAD 5, 103 o. 4).

During the Ur III period, the syllabic value *ia* is possibly attested for the sign IA, as in the following words: *bi-li-ia* (meaning uncertain; MDP 10, 22 3); [*ki ku-u*]-*ia-a* (meaning uncertain; MDP 10, 22 4); *na-ri-ia* (*nârīya*, “my stele”, acc. s. noun (from *nârum*) + 1 c. s. poss. suffix (-*īya*); RIME 3/2.01.02.38 composite).

The sign IA is not attested with a syllabic value at Ebla.

The sign IA is not attested with a syllabic value at Mari.

The sign IA is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ia* is possibly attested for the sign IA, as in the following proper nouns⁶⁸: *ia-ta-ni-il* (KTT 5 o. 3; KTT 15 o. 3), *ia-wi-il* (KTT 5 o. 5); *ia-ar-ḫi-el* (KTT 5 o. 6); *ia-su₂-um* (KTT 6 o. 8); *ia-ri-bu-um* (KTT 7 o. 6; 13 o. 7); *ia-ta-nu-um* (KTT 7 o. 8); *ia-ši₂-u₂* (KTT 9 o. 6); *ia-ša-[⌈]ri[⌋]-il* (KTT 12 o. 4); *ia-su^d-da-gan* (KTT 15 o. 6); *ia-si-mu-um* (KTT 17 o. 1); *ia-su-um* (KTT 17 o. 6); *ia-[⌈]ri[⌋]-[im?-li?]-im* (KTT 18 r. 10); *ia-wi^d-iškur* (KTT 18 r. 11); *ia-[⌈]ku[⌋]?-ra-an* (KTT 18 r. 14); *ia[⌈]-pu-ḫu-um* (KTT 18 r. 15), *ia[⌈]-ḫa-[⌈]ta-ru[⌋]-[um?]* (KTT 18 r. 17);

⁶⁸The verbal forms that are included in these proper nouns can be interpreted as Amorite. See Chapter 4, Section 4.6.3 for a discussion of these proper nouns.

「*ia*?-*ki*?-*ru*?-*um*」 (KTT 18 r. 25); *ia*-「*ha*」-*li-um* (KTT 19 o. 12); 「*ia-wi*」-*ma-da-ar* (KTT 19 o. 13); *ia-aḥ-du-li-im* (KTT 55a o. 3, 15); 「*zi*」-*im-ri*-「*ia*」? (KTT 19 o. 3).

Proto-Ea lists the reading *ia* for the sign IA (l. 466).

105. GAN

During the Old Akkadian period, the syllabic values *gan* and *kan* are attested for the sign GAN, as in the following proper nouns: *iš-ku-un*-^d*da-gan* (*iškun-dagan*, “Dagan placed”, from the root *š-k-n*, “to place”, G-stem pret. 3 m. s. + DN; RA 23, 25 o. 2; DPA 14 r. 7; FAOS 19, p. 89ff, Gir 19 o. 2; ITT 1, 1316 o. 2); *er*₂-*am*-^d*da-gan* (*erâm-dagan*, “he loves Dagan” or “Dagan loves (him)”, from the root *r-ṽ-m*, “to love”, G-stem dur. 3 m. s. + DN; MAD 1, 326 o. ii 8); ^d*ša-kan*-UR.SAG (*šakan-qarrādum*, “Šakan is a hero”, DN + nom. s. noun; EK IV Pl. XLIII no. 3 i).

During the Ur III period, the syllabic value *gan* is attested for the sign GAN, as in the following proper noun: *iš-me*-^d*da-gan* (*išme-Dagan*, “Dagan heard”, G-stem pret. 3 m. s. from the root *š-m-ṽ*, “to hear”, + DN; BiMes 25, 176 Wabash 1, 8; PDT 1, 594 o. 12); *tu*₃-*a-ra-am*-^d*da-gan* (*tu'arram-dagan*, “Dagan covers up”, from the root *ṽ-r-m*, “to cover (up)”, D-stem dur. 3 m. s. + DN; SET 59 r. 11).

At Ebla, the syllabic value *gan* is attested for the sign GAN, as in the following proper nouns: *bu*₃-^d*da-gan* (meaning uncertain, aside from DN; *ARET* 4, 23 r. iv 3; *ARET* 8, 522 r. vii 7; *ARET* 8, 534 r. vii 22, x 12'; MEE 12, 35 o. xviii 26); *li-ma*-^d*da-gan* (meaning uncertain, aside from DN; *ARET* 1, 8 r. iv 2; *ARET* 3, 345 o. iii' 13; *ARET* 3, 370 o. iv' 6'; *ARET* 3, 458 r. iii 7).

At Mari, the syllabic value *gan* is attested for the sign GAN, as in the following proper nouns: *a-šur*-^d*da-gan* (ARM XIX 376); *bi-il*₂-*ti*-^d*da-gan* (ARM XIX 391; 375); ^d*da-gan-a-bi* (*dagan-abī*, “Dagan is my father”, DN + acc. s. noun (from *abum*) + 1 c. s. poss. suffix (-ī); ARM XIX 376); ^d*da-gan-ba-ni* (*dagan-bāni*, “Dagan is the creator, builder”, DN + 3 m. s. act. part.; ARM XIX 173; 174; 176; 179; 181; 186; 201; 202; 419); *šu*-^d*da-gan* (*šū-dagan*, “he is Dagan”, 3 m. s. ind. pronun + DN; ARM XIX 433; 434); *šu-mu*-^d*da-gan* (*šumu-dagan*, “the name is Dagan”, nom. s. noun without mimation + DN; ARM XIX 283).

At Nabada, the syllabic value *gan* is attested for the sign GAN, as in the following proper nouns: *i-na^dda-gan* (perhaps *īna-dagan*, “Dagan changed, replaced”, from the root 𒀭-𒀭, “to change, replace”, G-stem pret. 3 m. s. + DN; Subartu 2, 129 o. iv 2); *^dša-ma-gan* (DN; Subartu 2, 84 o. i 1; Subartu 2, 111 r. iii 2).

At Tuttul, the syllabic value *gan* is attested for the sign GAN, as in the following proper nouns: *be-eḫ-li^dda-gan* (*beḫlī-dagan*, “my lord is Dagan”, nom. s. noun (from *beḫlum*, cf. Akk. *bēlum*) + 1 c. s. poss. suffix (-ī) + DN; KTT 15 ii 2); *e-lu^dda-gan* (*ellu-dagan*, “Dagan is pure”, nom. s. adj. without mimation + DN; KTT 6 ii 1); *sa-am-si^dda-gan* (*šamšī-dagan*, “my sun is Dagan”, nom. s. noun (from *šamšum*) + 1 c. s. poss. suffix (-ī) + DN; KTT 8 ii 10).

Proto-Ea lists the reading *ga-an* (l. 694) for the sign GAN.

108. AD

During the Old Akkadian period, the syllabic values *ad*, *at*, and *aṭ* are attested for the sign AD, as in the following words and proper nouns: *i₃-lu-ka₃-sa-ad* (*ilukašād*, perhaps precise meaning uncertain, but likely contains the components *ilum* + a form of the root *k-š-d*, “to conquer, arrive”; RA 8, 158); *eš-tar₂-dam-qa₂-at* (*eštar-damqat*, “Ištar is beautiful”, DN + 3 f. s. stat. from the root *d-m-q*, “to be good, beautiful”; MAD 1, 11 o. 4); *ša-aṭ-pum* (*šaṭpum*, “rescued”, m. s. pass. part.; MAD 5, 4 o. 3; MAD 5, 56 r. i 6; MAD 5, 81 o. 3; MAD 5, 114 o. 5).

During the Ur III period, the syllabic values *ad* and *at* are attested for the sign AD, as in the following words: *i-ma-da-ad* (*imaddad*, “he will measure out, weight”, from the root *m-d-d*, “to weigh out, measure”, G-stem dur. 3 m. s.; NRVN 52 o. 5); *iš-ba-at* (*išbat*, “he seized”, from the root *š-b-t*, “to seize”, G-stem pret. 3 m. s.; Elam 2, 109); *wa-at-ra-at* (*watrat*, “she/it (f.) is excessive, surplus”, 3 f. s. stat. from the root *w-t-r*, “to be excessive, in surplus”; BIN 3, 1 o. 2; MVN 3, 201 o. 2; 11, 180 o. col. i 16; OIP 115, 76 o. 3; StOr 9/1, 26, 22 r. 1; UDT 91 o. col. iv 88).

At Ebla, the syllabic values *ad* and *at* are attested for the sign AD, as in the following words: *a-me-da-ad* (*ameddad*, “I will measure out, weight”, from the root

m-d-d, “to weigh out, measure”, G-stem dur. 1 c. s.; *ARET* 5, 6 r. viii 3); *ma-i-at* (perhaps related to *me’atum*, “hundred”, nom. s. noun in abs.; *VE* 1363).

At Mari, the syllabic values *at* and *aṭ* are attested for the sign AD, as in the following words: *mar-ṣa-at* (*marṣat*, “(she is) sick”, 3 f. s. stat. from the root *m-r-ṣ*, “to be ill, sick”; ARM XIX 14; 16; 17; 23); *kir-ba-at* (*kir(i)bāt(um)*, “blessings”; ARM XIX 212-217; 220; 221; 365); *na-aṭ-ba-ḫu* (*naṭbaḫu*, “butchering knife”, nom. s. noun without mimation; ARM XIX 460).

At Nabada, the syllabic value *at* is attested for the sign AD exclusively in the word *mi-at* “hundred” (passim).

At Tuttul, the syllabic values *ad* and *at* are attested for the sign AD, as in the following words and proper nouns: *ia-ḫa-ad-x*[...] (meaning uncertain; KTT 49 ii 14), *a-ḫu-a-ḫa-ad^l* (*aḫu-aḫad*, perhaps “the one/only brother”, nom. s. noun (from *aḫum*) + the W. Sem. root for “one”; KTT 55a ii 15); *me-at* (*me’at*, “hundred”; KTT 50 ia 5).

Proto-Ea lists the reading *a-ad* (l. 691) for the sign AD.

109. ŠI

During the the Old Akkadian period, the syllabic values *ṣe* and *ṣi* are attested for the sign ŠI, as in the following words and proper nouns: *ṣe-li-tum* (*ṣēlītum*, “on its side, sideways”, nom. f. s. adj.; MAD 5, 50 o. 1); *bu₃-ṣi-num* (*buṣinnum*, “wick”, nom. s. noun; OAIC 41 o. 6); *na-ṣi-ir-i₃-li* (*nāṣir-ilī* “the guardian is my god”, act. part. from the root *n-ṣ-r*, “to guard”, + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); OAIC 6, r. 3).

During the Ur III period, the syllabic values *ṣi* and *ṣe* are attested for the sign ŠI, as in the following proper nouns: ^dEN.ZU-*na-ṣi-ir* (*su’ en-nāṣir*, “Suen is the guard”, DN + act. part. from the root *n-ṣ-r*, “to guard”; CUNES 52-04-84 o. 1); *ṣi-il-be-li₂* (*ṣil-bēlī*, “the protection is my lord”, nom. s. noun in abs. + acc. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*); MVN 4, 71 o. 13); *ṣe-lu-uš^d-šul-gi* (*ṣēlūš(u)-šulgi*, “(by) his side is Šulgi”, nom. s. noun (from *ṣēlum*) + 3 m. s. poss. suffix (-*šu*) + DN; CT 32, pl. 19-22 BM 103398 o. i 20; r. i 15, 27; TCL 2, 5504 r. i 1).

The sign ŠI is not attested with a syllabic value at Ebla.

The sign ŠI is not attested with a syllabic value at Mari.

At Nabada, a syllabic value for the sign ŠI is possibly attested in the proper noun *i-ŠI-BAD₃* (meaning uncertain; Subartu 2, 5 o. ii 7).

The sign ŠI is not attested with a syllabic value at Tuttul.

The sign ŠI does not appear in the extant portions of Proto-Ea.

110. IN

During the Old Akkadian period, the syllabic value *in* is attested for the sign IN, as in the following words: *i-di₃-in* (*iddin*, “he gave”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s.; AIHA 4, 42 o. ii; 44 r. i 8; CTMMA 1, 6 r. i 14; HSS 10, 94 r. 3; MAD 1, 282 r. 2; MAD 4, 12 r. 2; MAD 5, 65 o. 9; MAD 5, 101 o. ii 8; Nisaba 19, 197 r. i 4', 13'; OAIC 4 o. 5; Tutub 50 o. 4); *in* (*in*, “in”, prep.; passim); *ta₂-di₃-in* (*taddin*, “you gave”, from the root *n-d-n*, “to give”, G-stem pret. 2 m. s.; AAICAB 1/1, pl. 5, 1928-425 r. 4).

During the Ur III period, the syllabic value *in* is attested for the sign IN, as in the following words: *i-ta-di₃-in* (*ittadin*, “he had given”, from the root *n-d-n*, “to give”, G-stem perf. 3 m. s.; TMH NF 1/2, 7 r. 9; ZA 82, 185, 1 r. 12), *iš-du-ki-in* (*išdu-kīn*, “the foundation is firm”, nom. s. noun without mimation (from *išdum*) + verb. adj. from the root *k-ṽ-n*, “to be firm, true”; PDT 2, 958 o. col. iii 22; TCTI 2, 3342 r. 7); *u₃-ki-in-šu* (*ukīnšu*, “he made him/it firm, true”, from the root *k-ṽ-n*, “to be firm, true”, D-stem pret. 3 m. s. + 3 m. s. acc. suffix (-*šu*); ASJ 12, 56, 2 r. 11).

At Ebla, the syllabic value *in* is attested for the sign IN, as in the following word: *in-qu₃* (*inqu(m)*, *enqu(m)*, “ring; loop”, nom. s. noun, cf. Akk. *unqum*; VE 498).

At Mari, the syllabic value *in* is attested for the sign IN, as in the word *in* (*in*, “in”, prep.; RIME 2.01.04.51, ex. 1).

At Nabada, the syllabic value *in* is attested for the sign IN, as in the following words: *in* (*in*, “in”, prep.; passim); *ši-in* (*šin(a)*, “they (f.)”, 3 f. pl. ind. pronoun; Subartu 2, 77 o. i 2).

At Tuttul, the syllabic value *in* is attested for the sign IN, as in the following proper nouns and word: *i-ṣi₂-ki-in^d-da-gan* (perhaps *iṣi-kīn-dagan*, “the true tree of Dagan”, nom. s. noun (from *iṣum*) + verb. adj. from the root *k[→]-n*, “to be firm, true” + DN; KTT 6 o. 5); *i-di-in-u₂-ga-ar* (perhaps *iddin-ugār*, perhaps “he gave a community”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + acc. s. noun in abs.; KTT 12 o. 3); *in* (*in*, “in”, prep.; KTT 25 o. 3, 6; passim).

Proto-Ea lists the reading (*i*)-*in* for the sign IN (l. 677).

113. 𒄀

During the Old Akkadian period, the syllabic value *hir* is possibly attested for the sign 𒄀, as in the following proper noun: *ma-ma-hir* (*mā-māhir*, “O what is the opponent!”⁶⁹; ETB 2, 74 o. 5; OSP 1, 47 o. i 11) .

During the Ur III period, the syllabic value *hir* is still attested for the sign 𒄀, as in the following proper nouns: *i₃-li₂-ma-hir* (*ilī-māhir*, “my god is the opponent”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + act. part. from the root *m-h-r*, “to face, confront; oppose, receive”; Sumer 32, 98f., 11 o. col. i 4); *ma-hir-ri₂* (*mahīri/ī*, “exchange rate, market price”, gen. pl. noun or nom. s. noun in const. st. from the root *m-h-r*, “to face, confront; oppose, receive”; Elam 2, 115).

At Ebla, the syllabic value *hir* is attested for the sign 𒄀, as in the word [’]*a_x*(NI)-*hir-tum* ([’]*aḫirtum*, “remainder”, nom. s. noun; VE 465).

At Mari, the syllabic value *hir* is attested for the sign 𒄀, as in the following words: *sa₃-hir-tum* (*saḫirtum*, “foodstuff”, nom. s. noun; ARM XIX 212; 213; 215; 216; 220; 221); *hir-tim_x* (*hīrtim*, “spouse”, gen. s. noun; ARM XIX 258, 16).

At Nabada, the syllabic value *hir* is attested for the sign 𒄀, as in the following word: *tap_x*(URUDU)-*hir-tum* (*taphīrtum*, “temple collection (possibly of beer)”, nom. s. noun; Subartu 2, 44 r. i 5; Subartu 2, 54 o. iv 7; Subartu 2, 57 r. ii 4; Subartu 2, 59 o. ii 9; Subartu 2, 131 o. iv 2’).

The sign 𒄀 is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *he₂-er* for the sign 𒄀 (l. 761).

⁶⁹This interpretation is doubtful. The name may not be Semitic in origin.

114a. EZENxBAD

During the Old Akkadian period, the syllabic value u_9 ⁷⁰ is possibly attested for the sign EZENxBAD, as in the word u_9 -*bar-tum* (*ubartum*, “(resident) alien”, nom. s. noun; OSP 1, 120 r. i 3).

The sign EZENxBAD is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value u_9 is attested for the sign EZENxBAD⁷¹, as in the following words: u_9 -*ba-ra-du-um* (*(h)ubarātum*, “(resident) aliens”, nom. s. noun, cf. Akk. *ubārum*; VE 91); qa_3 -*ma-u_9* (*qamā(h)u(m)*, “to crush; to burn”, nom. s. noun without mimation, cf. Akk. *qamûm*; VE 169); na - u_9 ⁷²-*lum* (*na’ulum* or *nahhulum*, “to rest”, inf., cf. Akk. *nālum*; VE 801⁷²); ma - u_9 (*māyū*, “water”, nom. pl. noun; VE 626); na - za - u_9 (*nazālu(m)*, “to pour”, inf., cf. Akk. *nazālum*; VE 607).

The sign EZENxBAD is not attested with a syllabic value at Mari.

At Nabada, the syllabic value u_9 is possibly attested for the sign EZENxBAD, as in the following words: u_9 -*bi₂-la* (*ūbila*, “bearer”, a form of the root *w-b-l*, “to carry, bear”; Subartu 2, 6 r. i 2); *bi-zi-la-u_9* (meaning uncertain, possibly not Semitic; Subartu 2, 23 r. iii 2); u_9 -*kun* (a proper noun (?), possibly not Semitic or possibly from the root *k-ṣ-n*, “to be firm, true”; Subartu 2, 146 o. i 2).

The sign EZENxBAD is not attested with a syllabic value at Tuttul.

Proto-Ea lists a reading for the sign EZENxBAD, but it is broken (l. 765).

115. SUM

During the Old Akkadian period, the syllabic value $šum_2$ ⁷³ is attested for the sign SUM, as in the following proper nouns: LU_2 -*i-di₃-šum₂* (*awīlam/awīlum-iddiššum*, “he gave for him a man” or “the man gave for him”, acc./nom. noun (from *awīlum* + the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + 3 m. s. dat. suffix (-*šum*); AAS 6 o. 2); a_3 -*ra-šum₂* (*arāšum*, “to sow, cultivate”, inf.; HSS 10, 69 o. 4; cf.

⁷⁰Cf. Gelb et al. 1991, 107 ad 35 i 5’.

⁷¹With the possible renderings /ḫu/, /hu/, /yu/, and /lu/.

⁷²See also Bonechi 2008, pp. 12-13.

⁷³Gelb (1961, 73) mentions that the syllabic value $šum_2$ for SUM fits with the proposed etymology of the Sumerian word for “onion” as coming from the Semitic root ṭ-ṣ-m.

ᶜa₃-ra-šum, MDP 14, 6 o. ii 5); mu-lu-šum₂ (mullušum, “with the hair plucked/torn out”, verb. adj.; Tutub 38, o. i 8’; cf. mu-lu-šum, MDP 14, 77 o. 4).

The sign SUM is not attested with a syllabic value during the Ur III period.

At Ebla, the sign SUM is attested with the syllabic value šum₂⁷⁴, as in the following word: pi₅-šum₂ (piššum or pittum, “a ration of oil”, cf. Akk. piššatum; VE 502).

The sign SUM is not attested with a syllabic value at Mari.

At Nabada, a syllabic value, or values, is possibly attested for the sign SUM⁷⁵, as in the following proper nouns: ha-sum (perhaps hassum, “wise, clever”, nom. s. noun; Subartu 2, 1 o. 8); šu-šum₂-am (šū-šumam, “he is the name”, 3 m. s. ind. pronoun (-šu) + acc. s. noun (from šumum); Subartu 2, 5 o. col. iii 3); zu-SUM (meaning uncertain; Subartu 2, 5 r. col. i 5); nu-na-SUM (meaning uncertain; Subartu 2, 35 o. col. iii 9).

At Tuttul, a syllabic value is possibly attested for the sign SUM in the proper noun be-eb-SUM-li (meaning uncertain; KTT 11 col. ii 10).

Proto-Ea lists the readings si₃ and šu-um for the sign SUM (l. 274-275).

120. AM

During the Old Akkadian period, the syllabic value am is attested for the sign AM, as in the following words: na-ra-am (r-ᶜ-m, narâm “beloved of”, nom. s. noun in const. st.; MDP 4 p. 8; CT XXI lc; YOS IX 62; OIP XLIII 155 no. 55; OIP XLIII 135, 144f., Diyala); ti-a-am-tim (t-ᶜ-m, tîām_{tum} “sea”, gen. s. noun; cf. Sem. *thm; S ii, vii, viii; R xvii; RA VII 104).

During the Ur III period, the syllabic value am is attested for the sign AM, as in the following lexemes and proper nouns: da-am-qu₂-um (proper noun, damqum, “good, beautiful”, verb. adj.; PDT 1, 252 Siegel 1); i-ša-am (išām “he purchased”, from the root š-ᶜ-m, “to buy, purchase”, G-stem pret. 3 m. s.; FAOS 17, 126); li-di₃-na-am (liddinam “may he give to me”, from the root n-d-n, “to give”, G-stem prec. 3 m. s. + dat. suffix 1 c. s.; NATN 613 r. 10).

⁷⁴Possibly to be read /tūm/.

⁷⁵The precise nature of the initial sibilant is unclear; it is either attested as sum or as šum₂.

At Ebla, the syllabic value *am* is attested for the sign AM, as in the following words and proper nouns: *ir₃-am-ma-lik* (proper noun from the roots *r-b³-m* and *m-l-k*, “he loves the king” or “the king loves (him)”); *ARET* 15, 31 o. col. vi 4); *si-mi-a-am* (proper noun, meaning uncertain; *ARET* 13, 14 r. col. viii 14); *ib-ra-am* (proper noun, meaning uncertain; *ARET* 15, 8 o. col. x 9); *li-ma-am* (from *l̄imūm* possibly “thousand”, acc. s. noun; *ARES* 4 EB r. col. iii 7).

At Mari, the syllabic value *am* is attested for the sign AM, as in the word *amḥur* (*amḥur* “I received”, from the root *m-ḥ-r*, “to face, oppose; confront, receive”, G-stem pret. 1 c. s.; *ARM* XIX 326-330).

At Nabada, the syllabic value *am* is possibly attested for the sign AM, as in the following proper nouns: *šū-šum₂-am* (*šū-šumam*, “he is the name”, 3 m. s. ind. pronoun (-šū) + acc. s. noun (from *šumum*); *Subartu* 2, 5 o. col. iii 3); *a-ḥu-me-am* (meaning uncertain, but likely contains the element *aḥum*, “brother”; *Subartu* 2, 5 r. col. i 10).

At Tuttul, the syllabic value *am* is attested for the sign AM, as in the following words and proper nouns: *a-mu-ra-am* (*amurram*, “Amorite”, acc. s. noun; *KTT* 26 o. 7; 47 o. 5); *ta-am-ka-ru-um* (*tamkārūm* “merchant”, nom. s. noun; *KTT* 49 r. 13); *wa-ar-ka-ta-am* (*warkatam*, “back”, acc. s. noun; *KTT* 55a r. 19).

Proto-Ea lists the reading *am* for the sign AM (l. 279).

122. NE

During the Old Akkadian period, the syllabic values *bi₂*, *pi₅*, *bil*, *pil*, *ne*, *de₃*, and *te₄* are attested for the sign NE, as in the following words and proper nouns: *i-bi₂-^dza-ba₄-ba₄* (*ibbi-Zababa* “Zababa named”, from the root *n-b³*, “to name, call”, G-stem pret. 3 m. s. + DN; *Kish* 1930, 406); *be-li₂-ra-bi₂* (*bēlī-rabi* “my lord is great”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + verb. adj.; *ITT* II/2 p. 14, 3072); *qi₂-bi₂-ma* (*qibīma*, “speak thus!”, from the root *q-b³*, “to say, speak”, G-stem imp. 2 m. s. + enc. part.; *passim*); *u₃-la e-pi₅-iš* (*ula ēpiš* “he will not make” (lit.: “he is not a maker”), neg. part. + act. part. from the root *ṣ-p-š*, “to make, do”; *FM* 53: 15); *i-ta-pi₅-i₃-li* (*ītapi-ilī* “my god has become

visible”, from the root *w-p-ʾ*, “to be(come) apparent, visible”, G-stem perf. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. (-*ī*); passim); *pil-sum_x*(ZUM) (proper noun from p-l-s, *naplasum* “to look”; AnOr VII 372 iii); *a-ga-de₃^{ki}* (GN; passim); *e-de₃-šum-ma* (*eddešumma* “anew”, adverb; MDP II p. 58); *iš-te₄* (*ište* “with; from”, prep.; HSS 10, 64 4; MDP XIV 26; FM 15; passim).

During the Ur III period, the sign NE is attested with the syllabic values *bi₂*, *pi₅*, *bil*, *pil*, *ne*, and *li₉*, as in the following words and proper nouns: *i₃-bi₂-i₃-li₂* (proper noun, *ibbi-ili* “the god named (me)”, from the root *n-b-ʾ*, “to call, name”, G-stem pret. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); TCTI 1, 875 o. col. ii 19); *ra-bi₂-li₂* (proper noun, *rabi-ilī* “my god is great”, verb. adj. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); MVN 6, 509 o. 6); *ra-bi₂-li₉* (proper noun, *rabi-ilī* “my god is great”, verb. adj. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); BCT 1, 43 o. 4; OrSP 47-49, 168 o. 4; PDT 2, 1013 r. 8); DINGIR-*ha-pi₅-it* (proper noun, *ilum-hāpit*, “the god is triumphant”, nom. s. noun + act. part. from the root *h-p-t*, “to triumph, prevail”; PIOL 19, 382 o. 4); DINGIR-*mu-ta-bil* (*ilum-muttābil*, “the god is (my) carrier”, nom. s. noun + act. part. from the root *w-b-l*, “to carry, bring”; RA 13, 134f., 17 Siegel 1; Sumer 43, 208, 50 o. col. i 8); *a-pil-tum* (proper noun, *āpiltum*, “answerer”, f. s. act. part.; NATN 351 r. 4; SNAT 334 o. 1, 8); *un-ne-nu* (proper noun, meaning uncertain⁷⁶; Sumer 43, 196, 22 o. col. ii 17).

At Ebla, the syllabic values *bi₂*, *pi₅*, *ne*, *b/pil* and possibly *šar_x* are attested for the sign NE, as in the following words and proper nouns: *iš-bi₂-lu* (*ʾitbīru(m)*, “finely ground”, nom. s. noun; cf. Akk. *šebērum*, Sem. **tbr*; VE 77); *li-bi₂-tum* (*libbittum*, “brick”, nom. s. noun; VE 146); *ta₃-ta₂-pi₅-lu* (*ta>tap(p)ilu(m)*, “interpreter”⁷⁷, nom. s. noun; VE 179); *pi₅-a-tum* (*pīatum*, “temple”⁷⁸, nom. s. noun; VE 251); *ne-ki₂-su₂* (*nekkissu(m)*, “account”⁷⁹; cf. Akk. *nikkassum*, nom. s. noun; VE 420); *ʾa₃-pil* (*ʾāpil*, “answerer”, act. part. from the root *ʾ-p-l*, “to answer”; ARET 15,

⁷⁶the syllabic value *ne* is deduced based on the shared consonant /n/ between the first and second syllables.

⁷⁷See Fronzaroli 1980a, pp. 91-95.

⁷⁸See Fronzaroli 1984a, p. 177.

⁷⁹See M. Krebernik, ZA 73 (1983), p. 16; F.M. Fales, SLE, p. 178.

22 o. vii 10; MEE 12, 26 r. v 3¹; passim); *šar_x-bu_x*(NI) (*darbu*, from the W. Sem. root **d-r-b*, “to hit, beat”; cf. Ge. *zaraba*; VE 257).

The sign NE is not attested with a syllabic value at Mari.

At Nabada, the syllabic values *bi₂*, *de₃*, and *rum₂* (from the compound grapheme NE+RU) are attested for the sign NE, as in the following words and proper nouns: *u₉-bi₂-la* (*ubila*, “he carried”, from the root *w-b-l*, “to bring, carry”, G-stem pret. 3 m. s.; Subartu 2, 6 r. col. i 2); *u₂-ḫu-ra-bi* (*uḫu-rabi*, “*uḫu* is great”, PN + verb. adj. from the root *r-b-*, “to be big, great”; Subartu 2, 10 r. col. iii 8); *aš-de₃*⁸⁰ (*ašde*, “from”, prep.; Subart 2, 7 r. ii 1; passim); *ba-rum₂* (proper noun, possibly related to either *bārûm*, “diviner”, or *bârum*, “to appear; be durable”; Subartu 2, 1 o. col. i 7); *ar-rum₂* (*arrum*, possibly a type of agricultural or animal husbandry profession, nom. s. noun; Subartu 2, 3 o. col. ii 2).

The sign NE is not attested with a syllabic value at Tuttul.

Proto-Ea lists the readings *ba-ra* (l. 615a), *be₂-e* (l. 615), *i-zi* (l. 616), [*ku*]-*um* (l. 615b), *ne-i* (l. 613), and *še-em₃* (l. 615d) for the sign NE.

124. BIL₂

During the Old Akkadian period, the syllabic values *bil₂* and *pil₂* are attested for the sign BIL₂, as in the following words: [*w*]*a-bil₂-su* (*wābilšû*, “his carrier”, act. part. from the root *w-b-l*, “to carry, bring” + 3 m. s. poss. suffix (-*šû*); FM 36: 23); *u-bil₂* (*ubbil*, “he carried, brought”, from the root *w-b-l*, “to carry, bring”, G-stem pret. 3 m. s.; HSS 10, 65 7; 92 6; 94 4; 108 20; 112 x+8; 118 7; 150 3; 160 iv x+4; D 169 ii; 318 13; MDP XIV 8; BIN VIII 215; 216; 220; 247); *sa-pil₂-tim* (*šapiltim*, “lower”, gen. s. noun; RIME 2.01.05.05, ex. 01 o. iii 1).

During the Ur III period, the syllabic values *bil₂*, *pil₂*, and *pi₆* are attested for the sign BIL₂, as in the following proper nouns: *be-li₂-mu-ta₂-bil₂* (*bēlī-muttabbil*, “my lord is (my) carrier”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*) + act. part. from the root *w-b-l*, “to carry, bring”; NATN 832 r. 3); *a-pil₂-ki-in* (proper noun, *apil-kīn* “the heir is true”, nom. s. noun in abs. (from *aplum*) + verb. adj.

⁸⁰The nature of the initial dental is uncertain.

in abs. from the root *k-ṣ-n*, “to be firm, true”; OIP 115, 92 o. 2); *pi₆-ša-ḫi*-DINGIR (proper noun from the root *p-š-ḫ*, “to cool down; rest”; UET 3, 1549 o. 8).

At Ebla, the syllabic values *bil₂* and *pil₂* are attested for the sign BIL₂, as in the following lexemes: *mu-ta₂-bil₂-tu₃* (*muttābiltu(m)*, (<*multābiltum* <*muštābiltum*), a kind of tax or tribute, nom. s. noun without mimation; VE 529⁸¹); *si-pil₂-tum* (*šipirtum*, “assignment”, nom. s. noun; cf. Akk. *šiprum*, *šipirtum*; VE 150).

The sign BIL₂ is not attested with a syllabic value at Mari.

The sign BIL₂ is not attested with a syllabic value at Nabada.

The sign BIL₂ is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *bi-il* for the sign BIL₂ (l. 617).

129. KUM

During the Old Akkadian period, the syllabic values *kum*, *qum*, and *kun₃* are attested for the sign KUM, as in the following words and proper nouns: *ad-di₃-kum* (*addikkum* “I gave to you”, from the root *n-d-n*, “to give”, G-stem pret. 1 c. s. + 2 m. s. dat. suffix; FM 8); *ar-kum* (proper noun, *arkum* “long”, verb. adj.; passim); *ma-at-qum* (proper noun, *matqum* “sweet”, verb. adj.; RTC 109); *da-qum* (proper noun, *daqqum* “thin”, verb. adj.; passim); *iš-kun₃* (*iškun* “he placed”, from the root *š-k-n*, “to put, place”, G-stem pret. 3 m. s.; Gelb 1961, 77 without citations); *iš-kun₃*-DINGIR (*iškun-ilum* “(the) god placed”, from the root *š-k-n*, “to put, place” + nom. s. noun; Gelb 1961, 77 without citations).

During the Ur III period, the syllabic values *kum* and *um* are attested for the sign KUM, as in the following proper nouns: *ma-li-kum* (*mālikum*, “king, ruler, adviser”, nom. s. noun; OIP 115, 293 o. 8); *bu-ru-qum* (*burrūqum*, “having flashing eyes”, verb. adj.; AUCT 2, 112 o. 4; Syracuse 202 o. 4); *dam-qum* (*damqum*, “beautiful”, verb. adj.; CT 32, 19-22 o. i 18; 19-22 r. v 21).

At Ebla, the syllabic value *k/qum* is attested for the sign KUM, as in the following proper nouns: *kum-(^d)i-šar* (*kum-išar*, “shrine of (the god) Išar”, nom. s. noun in const. st. + DN; ARET 4, 14 o. iv 10; passim); *kum-^dma-lik* (*kum-malik*,

⁸¹See also Bonechi 2008, pp. 12-13.

“shrine of (the god) Malik”, nom. s. noun in const. st. + DN; *ARET* 1, 5 r. xii 19; *ARET* 8, 533 o. x 5); *ma/mi-kum*-^dKU-*ra* (*mā/mī-kum-kurra*, “what/who is the shrine of Kurra”, interr. pronoun + acc. s. noun in const. st. + DN; *ARET* 4, 24 r. vi 9; *ARET* 1, 5 r. iii 22; passim).

At Mari, the sign KUM is attested with the syllabic values *kum* and *qum*, as in: *za-kum* (*zakûm* “pure”, verb. adj.; ARM XIX 316, 317); *na-ru-qum* (*narūqum* “leather satchel”, nom. s. noun; ARM XIX 307).

At Nabada, the syllabic value *kun₃* is attested for the sign KUM, in the proper noun *ta₂-kun₃-aš-dur₂* (*takūn-ašdur*, “you are firmly established, O Ašdur”; Subartu 2, 124 r. col. i 5’).

At Tuttul, the syllabic value *kum* is attested for the sign KUM in the proper noun *ma-al-kum* (*malkum*, “king”, nom. s. noun; KTT 39 o. 1; 25 o. 15).

Proto-Ea lists the readings *gu-um* and *na-ga₂* for the sign KUM (l. 606-607).

134. IL

During the Old Akkadian period, the syllabic value *il* is attested for the sign IL, as in the following words and proper nouns: ^dUTU-*il-la-at* (*šamaš-illat*, “Šamaš is family”, DN + acc. s. noun in const. st.; RTC 108); *li-il-qu₃-ta* (*lilquta*, “may he tear out”, from the root *l-q-t*, “to tear out”, G-stem prec. 3 m. s.; PBS V 34 x; RA XXI 66; 71; S ix, xi, xv; R xciii; xix; xx; xxi; xxiv; xxv; xxvi; xxvii; RA VIII 136; 139; BE I 2; MDP II p. 66; ZA IV 406).

During the Ur III period, the syllabic value *il* is attested for the sign IL, as in the following proper nouns: *il-su-dan* (*ilšu-dan*, “his god is strong”, nom. s. noun (from *ilum*) + 3 m. s. poss. suffix (-šū) + verb. adj. in abs.; RA 19, 43, 103 r. 4); *nu-ḫi-il* (*nuhḫi-ilī*, “my god is calmed”, verb. adj. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); MVN 9, 136 r. 14; NATN 382 o. 4); *u₂-ta-ak-ki-il* (*utakkil*, “he trusts”, from the root *t-k-l*, “to trust”, D-stem dur. 3 m. s.; PIOL 19, 66 o. 2); *wa-bi₂-il* (*wābil*, “carrier”, act. part. from the root *w-b-l*, “to carry, bring”; ASJ 9, 265, 67 o. 7).

At Ebla, the syllabic value *il* is attested for the sign IL, primarily in proper nouns containing the theophoric element ^dil (*il(um)*, “god”), such as the following proper nouns: *a-ba₄-^dil* (*aba-il*, “the father is the god Il”, nom. s. noun + DN; *ARET* 12, 1266 r. col. iii 2; *ARET* 12, 1392 r. col. i 2’; *ARET* 3, 404 r. col. iv’ 2’); *a-ma-^dil* (*ama-il*, “the mother is the god Il”, nom. s. noun + DN; *ARET* 12, 1341 r. col. i’ 3’); *a-š_u-ur-^dil* (*aššur-il*, perhaps “I take care of the god Il”, from the root *š-r*, “to check, take care of, check up on”, G-stem pret. 1 c. s. + DN; *ARET* 12, 343 r. col. ii 2; *ARET* 3, 128 r. col. iii 2’; *ARET* 3, 629 r. col. iii 2’).

At Mari, the syllabic value *il* is attested for the sign IL, as in the proper noun *bi-il-ti-^dda-gan* (*bilti-dagan*, “the tribute of Dagan”, nom. s. noun in const. st. + DN; ARM XIX 391; 375).

At Nabada, the syllabic value *il* is attested for the sign IL, as in the following proper nouns: *i-TI-il* (perhaps *iddi-il*, “god lay down”, or *itti-il*, “with god”; Subartu 2, 2 o. col. 3 2); *ip-tur₂-il* (*iptur-il*, “god released; dispelled”, from the root *p-t-r*, “to loosen, release, dispel”, G-stem pret. 3 m. s. + DN; Subartu 2, 5 o. col. iii 9); *i-š_u-il* (*iš_u-il*, “he has a god”, from the root *š-š-*, “to have” + DN; Subartu 2, 10 o. col. i 8).

At Tuttul, the syllabic value *il* is attested for the sign IL, as in the following proper nouns: *ia-ta-ni-il* (meaning uncertain, perhaps a form of *etēnum*, “to be smitten; affected”, plus *il(um)*, “god”; KTT 5 o. 3; KTT 15 o. 3); *ia-wi-il* (meaning uncertain, perhaps a form of *ewâm*, “to become (like)”, plus *il(um)*, “god”; KTT 5 o. 5); *ma-na-bal-ti₄-il* (*manna-bālti-il*, perhaps “who is the thorn of god?”; KTT 10 o. 9); *i-ba-ni-il* (*ibanni-il*, “the god builds”, from the root *b-n-*, “to build, create”, G-stem dur. 3 m. s. + DN; KTT 11 o. 9); *ia-ša-ri-il* (meaning uncertain, perhaps a form of *ešērum*, “to be well, direct”, plus *il(um)*, “god”; KTT 12 o. 4); *i-qa-ni-il* (perhaps *iqanni-il*, “he keeps possession of god” or “god keeps possession”; KTT 14, o. 2); *e-pa₂-i₃-il* (meaning uncertain; KTT 16 o. 12; KTT 17 o. 12); *a-ba-ni-il* (*abanni-il*, “I created, built up the god”; KTT 20 o. 1).

Proto-Ea lists the reading *el* (variant *il*) for the sign IL (l. 636).

135. DU

During the Old Akkadian period, the syllabic values *du*, *tu₃*, and *tu₃* are attested for the sign DU, as in the following words and proper nouns: *du-mu-qi₂-im* (*dummuqim*, “to make beautiful”, gen. D-stem inf. from the root *d-m-q*, “to be good, beautiful”; MDP IV Pl. 2 iii); *iš-du-du₂* (*išdudū*, “they pulled; measured out”, from the root *š-d-d*, “to pull (out), measure (out)”, G-stem pret. 3 m. pl.; D 336: 12); *qu₃-du-si-iš* (*quddušiš*, “for purifying”, from the root *q-d-š*, “to be(come) pure”, D-stem inf. + term.-adv. suffix; FM 47: 11); *tu₃-kul₂-tum* (*tukultum*, “trust”, nom. s. noun; MAD 1, 163+165 o. col. iii 16); *tu₃-kil^d-en-lil₂* (*tukil-enlil*, “the help of Enlil”; CT I lc+); *li-iš-ba-al-ki-tu₃* (*lišbalkitū*, “may they strip; may they tear out”; MDP II p. 63 ii); *li-ip-tu₃-ur* (*liptur*, “may he loosen, deduct”, from the root *p-t-r*, “to loosen, release”, G-stem prec. 3 m. s.; MDP XIV 32 ii).

During the Ur III period, the syllabic values *du*, *tu₃*, and *tu₃* are attested for the sign DU, as in the following words and proper nouns: *du-mu-qi₂-im* (*dummuqim*, “to make beautiful”, from the root *d-m-q*, “to be good, beautiful”, D-stem gen. inf.; Elam 3, 40); *mu-du-lu* (perhaps *muddulu(m)*, “salted meat”, nom. s. noun without mimation; TRU 356 o. 2); *i-tu₃-ra-am* (*itūram*, “he returned here”, from the root *t-r*, “to return”, G-stem pret. 3 m. s. + vent.; ZA 82, 185, 2 r. 9); *tu₃-šā-ba-lam* (*tušabbalam*, “he sent here”, from the root *w-b-l*, “to carry, bring”, Š-stem pret. 3 m. s. + vent.; TCS 1, 370 r. 8); *pu-tu₃-re-eš^d-šū^d-EN.ZU* (perhaps *putūrēš-šū-su^{en}*, “his release is Šu-Suen”, nom. s. noun from the root *p-t-r*, “to loosen, release” + 3 m. s. poss. suffix (-šū) + DN; NATN 577 Siegel 3); *pu-tu₃-ur* (perhaps *puttur*, “released”, from the root *p-t-r*, “to loosen, release”; Sumer 32, 95, 5 o. 1).

At Ebla, the syllabic values *du*, *tu₃*, and *tu₃* are attested for the sign DU, as in the following words: *tap_x(URUDU)-ti-du* (*taptūdu(m)*, cf. Akk. *pādum*, “to confine, imprison”⁸²; VE 70); *ma₂-ma-du* (*ma²madu(m)*, “support”, nom. s. noun without mimation, cf. Akk. *nēmedum*, *nēmettum*; VE 482); *ku_x(TIK)-ru₁₂-ma-tu₃* (*kurummatu(m)*, “food; a type of bread”, nom. s. noun without mimation, cf. Akk. *kurummatum*; VE 39); *šū-ba-tu₃* (*šub(a)tu(m)* or perhaps *tub(a)tu(m)*, “residence;

⁸²Cf. M. Civil, BaE, p. 84.

dwelling”, nom. s. noun without mimation, cf. Akk. *šubtum*; VE 88); *tu₃-bu-a-tum* (*tūbuwātum*, “goodness”, nom. s. noun, cf. Akk. *tūbat{=u}* (MSL 13, 98:80-81); VE 61); *sa-ra-tu₃-um* (*šaratum*, likely related to the Akkadian word *šārtum*, “hair”⁸³, nom. s. noun, cf. Akk. *šarātum*; VE 260).

The sign DU is not attested with a syllabic value at Mari.

At Nabada, a syllabic value is possibly attested for the sign DU, as in the following proper noun: *a-ḫu-DU^{ki}* (GN; Subartu 2, 3 r. col. 2 3; Subartu 2, 39 r. col. i 6; Subartu 2, 125 o. col. iii 3).

At Tuttul, the syllabic value *du* is attested for the sign DU, as in the following proper nouns: *ba-du-di_x(TAR)-el* (KTT 5 o. 10); *da-du-ma-ru-um* (*dādu-mārum*, “the favorite is the son”, nom. s. noun (from *dādum*) + nom. s. noun (from *mārum*); KTT 8 o. 5); *a-ab-du-a-na-ta* (*abdu-anata*, “servant of *anata*”, nom. s. noun (from *abdum*) + PN; KTT 10 o. 10); *ḫa-mi-du-um* (KTT 12 o. 10); *a-ab-du-e-mi-im* (*abdu-emim*, perhaps “servant of the father-in-law”, nom. s. noun in const. st. (from *abdum*) + gen. s. noun (from *emum*); KTT 20 o. 4, 10).

Proto-Ea lists the reading *du-u₂* (variant *du-u₃*) for the sign DU (l. 497).

137. TUM

During the Old Akkadian period, the syllabic values *tum* and *dum* are attested for the sign TUM, as in the following words and proper nouns: *iš-tum* (*ištum*, “from; after”, prep.; S iv, ix; UET I 275 i; CT XXXII 2 iv; passim); *ki-ib-ra-tum* (*kibrātum*, “(world’s) quarters”, gen. f. pl. noun; IAMN XII Pl. IV; PBS V 36 r. x+ii); *ik-su-dum* (possibly from *kašādum*, “to reach; arrive; conquer”; E+; U 1706+); *be-li₂-dum-qi₂* (*bēli-dumqi*, “lord of goodness”, nom. s. noun in const. st. (from *bēlum*) + gen. s. noun without mimation (from *dumqum*); passim); *pa₂-aq-dum* (*paqdam*, “entrusted”, verb. adj.; passim).

During the Ur III period, the syllabic values *tum* and *ṭum* are attested for the sign TUM, as in the following words and proper nouns: *a-pil-tum* (*āpiltum*, “answerer”, act. part. from the root *ṣ-p-l*, “to answer”; NATN 351 r. 4’); *e-zi₂-ib-tum* (*ezibtum*,

⁸³See Bonechi 2008, pp. 2-3.

“deposit”, nom. s. noun; MVN 20, 107 o. 2); *ki-na-tum* (*kinattum*, “employee”, nom. s. noun; ASJ 11, 339-43 M₂-18 o. col. ii 11; v 21); *wa-qar-tum* (*waqartum*, “rare”, nom. s. noun; UET 3, 1383 o. 2); *wa-at-ra-at-ḥa-tum* (*watrat-ḥattum*, perhaps “the sceptre is excellent”, verb. adj. in abs. + nom. s. noun; DV 5, 457 o. 3).

At Ebla, the syllabic values *tum*, *dum*, and *ṭum* are attested for the sign TUM, as in the following words: *qa₂-ra-dum* (*qarrādum*, “hero”, nom. s. noun; VE 271); *na-di₃-dum* (*nādidum*, “bandit; vagabond; migrant worker”, nom. s. noun, cf. Sem. *n-d-d, “to flee; move”; VE 309); *ma-ba-tum* (*mawbatum*, “back”, nom. s. noun, cf. Sem. *w-b-; VE 308; VE 310); *sa₃-ki₂-ra-tum* (*sakīratum*, “barrier”, nom. s. noun, cf. Akk. *sekērum*, “to bar; close”; VE 38); *ḥi-ṭum* (*ḥirṭum*, “tip; point”, nom. s. noun, cf. Sem. *ḥ-r-ṭ, “to incise; to record”, cf. Heb. *ḥeret*, “stylus”; VE 479); *ṭi₃-ṭum* (*ṭittum*, “clay”, nom. s. noun; VE 649).

At Mari, the syllabic value *tum* is attested for the sign , as in the following words: *bi-tum* (*bītum*, “house”; ARM XIX 152; 154; 155; 156); *tab-u₂-tum* (meaning uncertain; ARM XIX 280; 281; 286; 289; 339); *sa₃-ḥir-tum* (*sahirtum*, “foodstuff”; ARM XIX 212; 213; 215; 216; 220; 221).

At Nabada, the syllabic values *tum* and *dum* are attested for the sign TUM, as in the following proper nouns: *da-dum* (*dādum*, “beloved, favorite”, nom. s. noun; Subartu 2, 1 o. col. iii 3; Subartu 2, 28 o. col. ii 4); *a-ḥa-tum* (perhaps from *aḥātum*, “sister”, nom. s. noun; Subartu 2, 15 r. col. i 2; Subartu 2, 83 o. col. ii 2; Subartu 2, 109 o. col. ii 5; Subartu 2, 115 o. col. ii 3; Subartu 2, 116 o. col. ii 2; Subartu 2, 145 o. col. ii 1; Subartu 12, 150 o. col. ii 1, col. iv 5, r. col. vi 8; Subartu 12, 179 o. 2’); *ku-tum* (*kūtum*, “jug, can”, nom. s. noun; Subartu 2, 35 o. col. iii 13); *za-la-tum* (meaning uncertain, nom. s. noun; Subartu 2, 38 o. col. iii 2, 5); *tap_x(URUDU)-ḥir-tum* (*taphīrtum*, a temple collection, nom. s. noun; Subartu 2, 59 o. col. ii 9).

At Tuttul, the syllabic value *tum* is likely attested for the sign TUM, as in the following proper nouns: *bi-za-tum* (meaning uncertain, nom. s. noun; KTT 22 o. 1, r. 1; KTT 23 r. 7); *ṣi-tum* (*ṣītum*, “exit (tax)”, nom. s. noun; KTT 27 r. 1; KTT 28 r. 2; KTT 29 r. 1; KTT 30 r. 2; passim); *za-am-ra-tum* (*zamrātum*, type of

sheep; KTT 28 o. 5; KTT 49 r. 5); *ni-iš-tum* (perhaps related to *nišum*, “people, population”, or *nīšum*, “lifting, raising; (oath on the) life”, nom. s. noun; KTT 29 o. 1); *hu-tu-tum* (*huttutum*, meaning uncertain, nom. s. noun; KTT 30 o. 5; KTT 42 o. 3); *a-za-tum* (meaning uncertain; KTT 31 o. 1); *bi-ri₂-tum* (*birītum*, “space between, distance”, nom. s. noun; KTT 42 o. 4, r. 3); *ta₂-am-ra-tum* (*tāmrātum*, perhaps “audience gifts”, nom. pl. noun; KTT 52 o. 1); *pa₂-ti-u₂-tum* (perhaps related to *pattum*, “border (district)”, nom. s. noun; KTT 53 o. 2, 12); *u₂-ru-uš-tum* (*uruštum*, meaning uncertain, nom. s. noun; KTT 53 o. 10).

Proto-Ea lists the reading *tu-um* (variant *tum*) for the sign TUM (l. 635).

138. UŠ

During the Old Akkadian period, the syllabic value *uš* is attested for the sign UŠ, as in the following words and proper nouns: *uš-ba-la-ka₃-tu₃* (from *šubalkutum*, “to strip”; MDP IV Pl. 2 iv); *i-pu-uš* (*īpuš*, “he made”, from the root *ᵛ-p-š*, “to make, do”, G-stem pret. 3 m. s.; MDP X Pl. 3); *ri-mu-uš* (*rīmuš*, “his gift”, s. noun + 3 m. s. poss. suffix (-š(*u*)); passim).

During the Ur III period, the syllabic value *uš* is attested for the sign UŠ, as in the following words and proper nouns: *e-pu-uš* (*ēpuš*, “I made”, from the root *ᵛ-p-š*, “to make, do”, G-stem pret. 1 c. s.; BaM 23, 78, 1 r. 5); *ri₂-ig-mu-uš-dan* (*rigmuš(u)-dan*, “his voice is strong”, nom. s. noun (from *rigmum*) + 3 m. s. poss. suffix (-šu) + verb. adj. in abs.; ZA 51 Tf. 2 r. col. iii 8; Tf. 2 r. col. iii 9); *uš-zi-iz* (*ušzīz*, “he caused to divide”, from the root *z-ᵛ-z*, “to divide”, Š-stem pret. 3 m. s.; Elam 3, 26).

At Ebla, the syllabic values *uš* and *iš_x* are attested for the sign UŠ as in the following words and proper nouns: *hu-du-uš-um* (*huduššum*, a type of stone or weapon, nom. s. noun; S 4 EB o. col. ii 6); *il₂-uš^d-da-mu* (*ilūš(u)-damu*, “his god is Damu”, nom. s. noun (from *ilum*) + 3 m. s. poss. suffix (-šu) + DN; ARET 7, 4 o. col. vi 3; T 15, 24 r. col. vii 2; T 15, 55 o. col. iv 5); *iš_x(UŠ)^d-da-mu* (*iš-damu*, meaning uncertain, perhaps “for Damu”, prep. + DN; ARET 15, 20 o. vii 11).

The sign UŠ is not attested with a syllabic value at Mari.

The sign UŠ is not attested with a syllabic value at Nabada.

The sign UŠ is not attested in with a syllabic value at Tuttul.

Proto-Ea does not list the sign UŠ outside of complex logograms.

139. IŠ

During the Old Akkadian period, the syllabic value *iš* is attested for the sign IŠ, as in the following words: *iš-de₃* (*išde*, “from, with”, prep.; Tutub 12 r. 4; JCS 1, 348, 12 r. 2); *qa₂-ti-su* (*qātīšu*, “his hand”, s. noun (from *qātum*) + 3 m. s. poss. suffix (-*šu*); MAD 5, 8 r. 9); *i₃-li₂-iš-ta₂-kal* (*ilīš(u)-takal*, “his god is trustworthy”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + verb. adj. in abs.; JCS 1, 348, 12 r. 6; MAD 1, 57 r. 5’).

During the Ur III period, the syllabic value *iš* is attested for the sign IŠ, as in the following words and proper nouns: *i-di₂-iš* (*idiš*, “he was/became (re)new(ed)”, from the root *ᵛ-d-š*, “to be(come) new, renewed”, G-stem pret. 3 m. s.; SAT 1, 152 o. 2); *i-qi₂-iš* (*iqīš*, “he gave; presented”, from the root *q-ᵛ-š*, “to give, present”, G-stem pret. 3 m. s.; MDP 14, 93, 44 o. 3’); *iš-bi-ir* (*išbir*, “he broke”, from the root *š-b-r*, “to break”, G-stem pret. 3 m. s.; Fragment C 7 II 9); *iš-me^d-da-gan* (*išme-dagan*, “Dagan heard”, from the root *š-m-ᵛ*, “to hear”, G-stem pret. 3 m. s. + DN; BiMes 25, 176 Wabash 1, 9; PDT 1, 594 o. 12).

At Ebla, the syllabic value *iš*, with the additional possible reading /it/, is attested for the sign IŠ, as in the following words: *te-ri₂-iš-tu* (*teḫrištu(m)*, “low; arable land”, nom. s. noun, cf. Akk. *erēšum*, “to cultivate”, cf. Sem. **ḥ-r-t*, “to plow”; VE 790); *iš-bi₂-lu* (*ᵛitbīru(m)* or *išbīru(m)*, “finely ground”, nom. s. noun, cf. Akk. *šebērum*, “to break”, cf. Sem. **t-b-r*; VE 77).

At Mari, the syllabic value *iš* is attested for the sign IŠ, as in the following word and proper noun: *iš* (*iš*, “from”, prep.; ARM XIX 106-110; 291; 323; passim); *iš-ma₂-a-bi* (*išma(ᶜ)-abī*, “my father heard”, from the root *š-m-ᵛ*, “to hear”, G-stem pret. 3 m. s. + nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-*ī*); ARM XIX 22; 23).

At Nabada, the syllabic value *iš* is attested for the sign IŠ, as in the following proper nouns: *iš-ma₂-DINGIR* (*išma(ᶜ)-ilum*, “the god heard”, from the root *š-m-ᵛ*, “to hear”, G-stem pret. 3 m. s. + nom. s. noun; Subartu 2, 5 o. col. i

7); *iš* (*iš*, “from”, prep.; Subartu 2, 35 o. col. v 5); *iš-ma₂-DU-DU* (*išma(ε)-DUDU*, “DUDU heard”, from the root *š-m-*⁻, “to hear”, G-stem pret. 3 m. s. + DN/PN?; Subartu 2, 35 o. col. iv 10).

At Tuttul, the syllabic value *iš* is attested for the sign IŠ, as in the following words and proper nouns: *iš* (*iš*, “from”, prep.; KTT 29 o. 7); *i-iš-ḫu* (meaning uncertain; KTT 8 r. 11; KTT 9 r. 11); *ni-i-iš-AN* (*nīš-šamî*, “subject of heaven”, nom. s. noun in const. st. (from *nīšum*) + gen. s. noun; KTT 21 r. 3).

Proto-Ea lists the reading *iš* (variant *i-ši*) for the sign IŠ (l. 247).

140. BI

During the Old Akkadian period, the syllabic value *bi* is attested for the sign BI, as in the following words: *li-se₁₁-bi-lam* (*lišebilam*, “may he bring here”, from the root *w-b-l*, “to carry, bring”, Š-stem prec. 3 m. s.; MAD 10, 10 r. 7); *iš-pi₂-ki* (*išpikî*, “stores (of crops); grain bin”, acc./gen. pl. noun; Kienast, Burkhardt, and Volk, FAOS 19, p. 89ff, Gir 19).

During the Ur III period, the syllabic values *bi*, *pi₂*, and *pe₂* are attested for the sign BI, as in the following words and proper nouns: *i-bi-^dEN.ZU* (*ibbi-su²en*, “Su²en named/called”, from the root *n-b-*⁻, “to call, name”, G-stem pret. 3 m. s. + DN; AAS 173 r. 23; AUCT 2, 319 r. 5; BaM 23, 78, 1 I 1; BIN 3, 363 o. 2; DV 5, 481 r. col. iv 27, ITT 2/1, 3193 o. 3; MVN 8, 101 o. 3; 11, 145 o. 6; passim); *qi₃-bi-ma* (*qibîma*, “say thus”, from the root *q-b-*⁻, “to say, speak”, G-stem imp. 3 m. s. + enc. part.; ASJ 22, 37, 1 o. 2; ASJ 12, 54, 1 o. 2; BaM 23, 78, 1 o. 2; BIN 9, 475 o. 2; passim); *a₂-pi₂-la-tum* (*apilātum*, “heiresses”, nom. f. pl. noun; AUCT 2, 33 o. col. i 11; BIN 3, 122 o. 4; 594 o. 15); *e-pe₂-šu* (*epēšu(m)*, “to make; build”, inf.; Elam 5, 16; Elam 6, 15).

At Ebla, the syllabic value *bi* is attested for the sign BI, as in the following proper nouns: *i-bi-i₃-li-im* (possibly *ibbi-lim*, “the god named”, from the root *n-b-*⁻, “to call, name”, G-stem pret. 3 m. s. + PN/DN; *ARET* 11, 1 o. col. xv 1; *ARET* 2 o. col. x 18); *i-bi-^dzi-kir* (*ibbi-zikir*, “Zikir named”, from the root *n-b-*⁻, “to call, name”, G-stem pret. 3 m. s. + DN; MEE 12 35 o. col. ix 3; MEE 12 35 o. col. v 46).

At Mari, the syllabic value *bi* is attested for the sign BI, as in the following words: ITI *a-bi* (*arḫi abi*, “the month of Abi”, nom. s. noun in const. st. + PN; ARM XIX); *bi-tum* (*bītum*, “house”, nom. s. noun; ARM XIX 152; 154; 155; 156).

At Nabada, the likely value *b/pi* is attested for the sign BI in the geographic name *ḥa-la-b/pi-um*^{ki} (GN; Subartu 2, 35 o. col. i 3; col. ii 5).

At Tuttul, the syllabic values *bi*, *pi*₂, *be*₂, and possibly *pe*₂ are attested for the sign BI, as in the following words and proper nouns: *bi-ri*₂-*im* (*bīrim*, “divination”, gen. s. noun; KTT 35 o. 7-8); *u*₂-*ra-bi* (*urabbi*, “he promoted; increased; brought up”, from the root *r-b-*→, “to be(come) big, great”, D-stem pret. 3 m. s.; KTT 49 r. 3); *ka*₃-*pi*₂-^dIM (*kappi-adad*, “the wing of Adad” or “the hand of Adad”, nom. s. noun in const. st. + DN; KTT 25 o. 4); *a-li-be*₂-*lu* (*ali-bēlu(m)*, possibly either “at the place of the lord” or “surely he is my lord” or “the lord is Ali”, gen./nom. s. noun; KTT 9 r. 3); *a-p/be*₂-*en* (meaning uncertain, but BI value determined based on initial vowel of the following sign; KTT 47 o. 3).

Proto-Ea lists the reading *bi-i* (variant *be-i*) for the sign BI (l. 615).

141. ŠIM

The sign ŠIM is not attested with a syllabic value during the Old Akkadian period.

The sign ŠIM is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *šim* is attested for the sign ŠIM in the word *ma*₂-*ra-šim* (gen. s. noun; *ARET* 11, 3 o. iv 1, 6).

At Mari, the syllabic value *šim* is attested for the sign ŠIM in the word *da-šim* (*daššim*, “goat”, gen. s. noun; ARM XIX 324).

The sign ŠIM is not attested with a syllabic value at Nabada.

The sign ŠIM is not attested with a syllabic value at Tuttul.

The sign ŠIM is not present in the extant portions of Proto-Ea.

145. GAG

The sign GAG is not attested with a syllabic value during the Old Akkadian period.

The sign GAG is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *kak* is attested for the sign GAG in the word *kak-kab* (*kakkab*, “star”, abs. noun, cf. Sem. **k-k-b*; VE 791).

At Mari, the syllabic value *kak* is possibly attested in the proper noun *puzur₄-kak-ka₃* (*puzur-kakka*, “the protection of Kakka”, nom. s. noun in abs. + PN; ARM XIX 316; 317; 318).

The sign GAG is not attested with a syllabic value at Nabada.

The sign GAG is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ga-ag* (variants *ga-a* and *ga-ga?*) for the sign GAG (l. 88).

146. NI

During the Old Akkadian period, the syllabic values *ni*, *i₃*, *li₂*.⁸⁴ are attested for the sign NI, as in the following words and proper nouns: *ib-ni* (*ibni*, “he built”, from the root *b-n-*, “to build, create”; R xxvii; UET I 274 v, Mi.; MDP VI Pl. I, 1; YOS I 10; Syria XXI 162ff.; passim); *uz-ni-su* (*uznīšu*, “his ear(s)”, s./pl. noun + 3 m. s. poss. suffix (-*šu*); MDP II p. 66); *be-li₂* (*bēli/bēlī*, “the lord/my lord”, gen. s. noun (+ 1 c. s. poss. suffix, -*ī*); D 191; A 4746; passim); *i₃-li₂* (*ilī/ilī*, “the god/the gods/my god”, gen. s. noun/pl. noun (+ 1 c. s. poss. suffix, -*ī*); passim in proper nouns); *ka₃-li₂-i₃-li* (*kallī-ilī*, “my all is my god”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); OIP 104, 40 o. col. xx’ 11; xxiii’ 8; r. col. xv’ 15).

During the Ur III period, the syllabic values *ni*, *i₃*, and *li₂* are attested for the sign NI, as in the following words and proper nouns: *a-bu-ba-ni* (*abu-bāni*, “the father is the creator”, nom. s. noun (from *abum*) + act. part. from the root *b-n-*,

⁸⁴I. J. Gelb has also posited the syllabic value *ia₃* for the sign NI and provides the following examples (1961, 82), however they can all be alternatively interpreted with a different value for NI: *ia₃-ar-mu-ti^{ki}* (vs. *i₃-ar-mu-tu^{ki}*; RIME 2.01.01.11 composite); *be-li₂-ia₃-a* (vs. *be-li₂-i₃-a*: *bēlīya*, “my lord”; CT XXXII 1 i;); *be-el-ti-ia₃-a* (vs. *be-el-ti-i₃-a*: *bēltīya*, “my lady”; CT XXXII 1 i; CT XXXII 4 xi).

“to build, create”; DV 5, 368 o. 7; MVN 8, 157 r. 7); *dan-ni-a* (proper noun from *d-n-n*, “to be strong”; AnOr 1, 240 o. 6; MVN 3, 125 Siegel 2; 174 o. 5; 369 o. 6; OIP 115, 25 r. 7; SDU 6 o. 12; Princeton 1, 7 o. 2); *ma-ni-ki-ni* (*manni-kīni*, “who is true?”, inter. + verb. adj.; CT 10, 30-31 o. col. i 21); *i-ṣur-i₃-li₂* (*iṣṣur-ilī*, “my god guarded (me)”, from the root *n-ṣ-r*, “to guard, watch (over)”, G-stem pret. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); MVN 9, 180 o. 9, 15, 254 Siegel 2; NRVN 21 o. 3; 21 Siegel 2; NATN 185 Siegel 3; 504 Siegel 2; OIP 121, 73 o. 3; PDT 1, 556 r. 15; RA 19, 30, 10 r. 9; 33, 72 r. 10; SAT 1, 112 o. 7; TMH NF 1/2, 96 r. 9; 96 Siegel 1, 108 Siegel 3; UDT 91 o. col. vii 189); *i-tar₂-aq-i₃-li₂* (*itarraq-ilī*, “my god relents”, from the root *t-r-q*, “to take pity, relent”, G-stem dur. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); TCTI 2, 2665 r. 9); *i₃-su₂-ḥu-šū-ma* (*issuḥūšūma*, “they tore him/it out”, from the root *n-s-ḥ*, “to tear out”, G-stem pret. 3 m. pl. + 3 m. s. acc. suffix (-*šu*) + enc. part.; AnOr 1, 275 r. 9); *šū-ma-li₂-ik* (*šū-malik*, “he is the king”, 3 m. s. ind. pronoun + acc. s. noun in abs.; MVN 16, 920 r. 12); *ṭab-be-li₂* (*ṭāb-bēī*, “my lord is good”, verb. adj. in abs. + acc. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*); MVN 11 N o. 3; RA 19, 37, 119 o. 6; OIM A4710 o. 8; OIM A5871 o. 12).

At Ebla, the syllabic values *ni*, *i₃*, *li₂*, *bu_x*, and *ᵛa_x* are attested for the sign NI, as in the following words: *ni-zi¹*(GI)-*lu* (*nizlu(m)*, “top quality oil”, nom. s. noun without mimation; VE 250); *ṣa-ni-um* (*ṣanvum*, “power; force”, nom. s. noun, cf. Sem. **ṣ-n-*ᵛ, “to be strong”; VE 511); *i₃-ri₂-sa-tum* (*rištum* or *ršatum*, “desire; request”, nom. s. noun; VE 234); *i₃-sa-tu₃* (*ṣātu(m)*, “fire”, nom. s. noun without mimation; VE 783); *li₂-a-num₂* (*liānum*, “bison”, nom. s. noun; VE 731); *ᵛa_x-ḥir-tum* (*ḥirtum*, “rest; remainder”, nom. s. noun; VE 465); *bu_x-tu₃-tu₃* (*buṭuttu(m)*, “pistachio”, nom. s. noun without mimation; VE 462).

At Mari, the syllabic values *ni*, *li₂*, *i₃*, and *ne₂* are attested for the sign NI, as in the following words and proper nouns: *maš-a-ni* (*mašāni*, “sandal; shoe”, gen./acc s. noun; ARM XIX 291); ^dEN.LIL₂-*ba-ni* (*enlil-bāni*, “Enlil built”, DN + act. part. from the root *b-n-*ᵛ, “to build, create”; ARM XIX 32; 52-54; 59; 60; 84; 86; 97; 268; 316; 317; 400; 409); ^dIM-*i₃-li₂* (*adad-ilī*, “Adad is my god”, DN +

acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*i*); ARM XIX 285); *maš-a-ne₂-en* (*mašānēn*, “shoes; sandals”, du. noun; ARM XIX 37; 290).

At Nabada, the syllabic values *li₂* and *i₃* are attested for the sign NI, as in the following proper nouns: ^d*be-li₂* (*bēli*, “(of the god) Bēl”, DN; Subartu 2, 18 r. 1; passim); *i-da-i₃-lum* (perhaps *īda-ilum*, “he knew the god” or “the god knew”, from the root *ᵛ-d-ᵛ*, “to know”, G-stem pret. 3 m. s. + nom./acc. noun; Subartu 2, 1 o. col. iii 5; Subartu 2, 5 r. col. iii 11).

At Tuttul, the syllabic values *ni*, *ne₂*, *i₃*, and *li₂* are attested for the sign NI, as in the following words and proper nouns: *i-ba-ni-il* (*ibanni-il*, “the god creates”, from the root *b-n-ᵛ*, “to build, create”, G-stem dur. 3 m. s. + DN/nom. s. noun in abs.; KTT 11 r. 9); *ni-i-iš-AN* (*nīš-šamîm*, “subject of the heavens”, nom. s. noun in const. st. (from *nīšum*) + gen. s. noun (from *šâmum*); KTT 21 r. 3); *ne₂-er-bu-um* (*nerbum*, perhaps “entrance”, nom. s. noun; KTT 36 o. 6; 37 o. 6; 38 o. 7; 39 o. 6; 40 o. 7; 42 o. 5; 43 o. 2; 44 o. 4); *i₃-li₂-ka-bar* (*ilī-kabar*, “my god is great”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*i*) + verb. adj. in abs.; KTT 49 r. 5).

Proto-Ea lists the readings *i* (l. 90), *ne-e* (l. 91), *za-al* (l. 92), *di-gi* (l. 93), *mu-u₂* (l. 94), *ša-ar* (l. 95), *li-i* (l. 96), *i-li* (l. 97).

147. IR

During the Old Akkadian period, the syllabic values *ir* are *er* are attested for the sign IR, as in the following words and proper nouns: *i-si-ir* (*īšir*, “he was fair, direct”, from the root *ᵛ-š-r*, “to be straight, fair, direct”, G-stem pret. 3 m. s.; ZA IV 406); *si-ir-kum* (*širkum*, “gift”, nom. s. noun; passim); *u₃-a-še-er-^dda-gan* (*u^aaššer*, “Dagan made fair”, from the root *ᵛ-š-r*, “to be straight, fair, direct”, D-stem pret. 3 m. s. + DN; ITT V 6718).

During the Ur III period, the syllabic values *ir* and *er* are attested for the sign IR, as in the following words and proper nouns: *ka₃-si-ir* (*kāsir*, “barrage”, act. part. in abs. from the root *k-s-r*, “to block, pave”; JCS 38, 3 o. 3); *na-wi-ir-^dUTU^{ši}* (*nawir-šamši*, “the shining of Šamaš”, nom. s. noun in const. st. (from *nawrum*

> *nūrum*) + DN; AUCT 3, 25 o. 2); *e-er*-^dIŠKUR (meaning uncertain, but the syllabic value *er* is determined based on the previous sign; MVN 11, 141 r. 12).

At Ebla, the syllabic values *ir* and *er* are likely attested for the sign IR, as in the following words: *ir-ru*₁₂ (*(w)irru(m)*, “intestine”, nom. s. noun without mimation; VE 51); *te₉-er-iš-tu₃-um* (*te(h)rīštum*, “cultivated land”, nom. s. noun; VE 790 A).

At Mari, the syllabic values *ir* and *er* are possibly attested for the sign IR, as in the following word and proper nouns: *in te-er* (“in ...”; meaning uncertain, but the syllabic value of *er* is determined based on the preceding sign; ARM XIX 34-37); *a-me-er*-^d*nu-nu* (*āmi/er-nunu*, “watcher of Nunu”, act. part. in const. st. from the root *ṣ-m-r*, “to watch” + DN; ARM XIX 384); *i/er-maš*-^d*da-gan* (meaning uncertain; ARM XIX 373).

The sign IR is not attested with a clear syllabic value at Nabada.

At Tuttul, the syllabic value *ir* is attested for the sign IR in the word *i₃-ir-bu-um/bum* (*irbum*, “entrance (fee, tax)”, nom. s. noun; passim).

Proto-Ea lists the reading *ir* for the sign IR (l. 89).

148. MAL

During the Old Akkadian period, the syllabic values *ba₄* and *ma₃* are attested for the sign MAL, as in the following proper nouns: ^d*za-ba₄-ba₄* (DN; passim); DINGIR-*a-ba₄* (*ilum-aba*, “the god is the father”, nom. s. noun + acc. s. noun; passim); *ma₃-ga-an*^{ki} (GN; Gelb, AJSL LV 73; Gelb 1961, 83; passim).

During the Ur III period, the syllabic values *ba₄* is attested for the sign MAL, as in the following proper noun: *šū*-^d*za-ba₄-ba₄* (*šū-zababa*, “he is (the one of) Zababa”, 3 m. s. ind. pronoun + DN; FAOS 2, 131 r. 1’; Nisaba 15, 945 seal 1 l. 2; Nisaba 27, 26 o. 5; PDT 1, 561 o. 6); .

At Ebla corpus, the syllabic value *ba₄* is possibly attested for the sign MAL, as in the following proper nouns: *gi-ku-la-ba₄*^{ki} (cf. perhaps *kun-kul-aba*^{ki} at Tell Abu Salabikh; Krebernik 1982, 187); *ga-a-ba₄* (meaning uncertain; MEE 2, S. 340).

At Mari, the syllabic value ba_4 is attested for the sign MAL, as in the proper noun $i-din-il_3-a-ba_4$ (*iddin-ilaba*, “Ilaba gave”, from the root $n-d-n$, “to give”, G-stem pret. 3 m. s. + DN; ARM XIX 110; 290; 321; 324; 365, 12; 368; 369).

At Nabada, the syllabic value ba_4 is attested for the sign MAL, as in the following proper nouns: $na-ba_4-da^{ki}$ (GN; passim); $a-ba_4-la-da^{ki}$ (GN; passim); ba_4-ba_4-tum (perhaps *bābātum*, “commercial goods”, nom. pl. noun; Subartu 02, 145: r. col. 1 l. 7).

The sign MAL is not attested with a syllabic value at Tuttul.

Proto-Ea (MSL 14, 17ff., l. 728-729) lists two possible readings for MAL/GA₂: [ga₂]-a and [x]-x.

153. PA

During the Old Akkadian period, the syllabic value pa is possibly attested for the sign PA in the following proper noun: $a-pa-al^{ki}$ (GN; ITT I 1099).

During the Ur III period, the syllabic values $haṭ$ and pa are attested for the sign PA, as in the following proper nouns: $^d\check{s}u-^dEN.ZU-li-la-bi-ir-haṭ-ṭam$ (*šū-suen-lilabbir-ḥaṭṭam*, “may Šu-Suen’s sceptre be made long”, PN + the root $l-b-r$, “to be long”, G-stem prec. 3 m. s. + acc. s. noun (from *ḥaṭṭum*); UET 3, 1452 o. 7); $^d\check{s}ul-gi-pa-li_2-il$ (*šulgi-pālil*, “Šulgi is the guardian”, DN + act. part. from the root $p-l-l$, “to guard, watch over”; AOAT 203, 58 ff. o. col. iii 15; BIN 5, 128 o. 6; CST 190 o. 5; CT 32, 23 r. 19; CTMMA 1, 17 r. col. iii 77; MVN 15, 189 r. 17; OrSP 18, 17 r. 25; PDT 2, 959 r. col. vi 7; SET 63 r. col. iii 67; UDT 92 r. 33).

At Ebla, the syllabic value pa for the sign PA is only attested in the geographic names $da-ri_2-pa-nu^{ki}$ (GN; *ARET* 16, 27 r. vii 4), $kap-pa-lu^{ki}$ (GN; *ARET* 16, 27 r. xi 13), and $na-pa-ku-tu^{ki}$ (GN; *ARET* 16, 28 r. iii 12).

The sign PA is not attested with a syllabic value at Mari.

The sign PA is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value pa is possibly attested for the sign PA in the following words with uncertain meanings: $ap^{\text{?}}-pa^{\text{?}}-a-na$ (KTT 14 r. 6); $pa-<aq>-da-a$ (KTT 51 r. 4); $pa-x-ta^{\text{?}}-ru$ (KTT 12 r. 5).

Proto-Ea lists the reading *pa-a* for the sign PA (l. 487).

156. GIŠ

During the Old Akkadian period, the syllabic values *is*, *iš*, and *iz* are attested for the sign GIŠ, as in the following words and proper nouns: *i-pa₂-li₂-is* (*ipallis*, “he looks”, from the root *p-l-s*, “to look (at)”, G-stem dur. 3 m. s.; U 1582; Jean, ŠA, p. 79; passim); *uš-zi-iz* (*ušziz*, “he erected”, from the root *ṽ-z-z*, “to stand, serve”, Š-stem pret. 3 m. s.; MDP IV Pl. 2 ii; Morgan, MSP IV 161); *ni-iš-ru-um* (proper noun from *n-ṣ-r* “to watch; to guard”, nom. s. noun; AIHA 4, 3 o. col. i 5).

During the Ur III period, the syllabic values *ez*, *iz*, *is*, and *iš* are attested for the sign GIŠ, as in the following words and proper nouns: *ez-bu-um* (*ezbum*, “abandoned”, verb. adj.; AUCT 1, 540 o. 10; 3, 498 Siegel 3; DCEPHE 301 o. 3; MVN 9, 171 o. 7; NATN 259 o. 13; 306 r. 11; Sumer 43, 197, 23 o. col. i 12; 199, 25 r. col. iii 9); *uš-zi-iz* (*ušziz*, “he erected”, from the root *ṽ-z-z*, “to stand, serve”, Š-stem pret. 3 m. s.; Elam 3, 26); *na-ap-li-is-DINGIR* (*naplis-ilim*, “the gaze of the god”, nom. s. noun in const. st. (from *naplisum*) + gen. s. noun; TrD 60 o. 3); *iš-ba-at* (*išbat*, “he seized”, from the root *ṣ-b-t*, “to seize”, G-stem pret. 3 m. s.; Elam 2, 109).

At Ebla, the syllabic value *iz* is attested for the sign GIŠ in the word *iz-mu* (*izmu(m)*, an extispicy technique at Mari, nom. s. noun without mimation; *ARET* 16, 27 o. vi 13).

At Mari, a syllabic value or values *is/iš/iz* are possibly attested for the sign GIŠ, as in the following words: ^{giš}*ki-is-kar₃-ra-tum* (a type of wooden object, nom.s. noun; ARM XIX 460); *bi-ri₂-iz-zi-ri₂-im* (meaning uncertain, gen. s. noun; ARM XIX 248).

The sign GIŠ is not attested with syllabic values at Nabada.

The sign GIŠ is not attested with syllabic values at Tuttul.

Proto-Ea lists the reading *mi-eš* for the sign GIŠ (l. 641).

160. AL

During the Old Akkadian period, the syllabic value *al* is attested for the sign AL, as in the following words and proper nouns: *ib-ba-al-ki₂-it-ma* (*ibbalkitma*, “he crossed over”, from the root *b-l-k-t*, “to cross (over)”, N-stem pret. 3 m. s.; MAD 4, 10 o. 5); *ma-a-al-tum* (*mayyaltum*, “bed”, nom. s. noun; VAT 16442 ii; RTC 221 iv; RTC 221 v; RTC 239 r. i); *eš₁₈-dar-ma-al-ka-at* (*ešdar-malkat*, “Ešdar is queen”, DN + acc. s. noun in abs.; MAD 1, 163+165 o. col. iii 25); .

During the Ur III period, the syllabic value *al* is attested for the sign AL, as in the following words and proper nouns: *i-ša-qa₂-al* (*išaqqal*, “he will pay”, from the root *š-q-l*, “to pay”, G-stem dur. 3 m. s.; NATN 715 A o. 3’); *ip-pa₂-al-su-šum* (*ippalsūšum*, “they gazed at him”, from the root *p-l-s*, “to look, gaze (at, toward)”, N-stem pret. 3 m. pl. + 3 m. s. dat. suffix (-šum); Elam 8, 9).

At Ebla, the syllabic value *al* is attested for the sign AL, such as in the following proper nouns: ^d*ba-al-tum* (DN; *ARET* 15, 33 o. iii 8; *ARET* 15, 43 o. ix 18); *iš₁₁-a-^dal* (DN; *ARET* 15, 37 o. viii 11).

At Mari, the syllabic value *al* is attested for the sign AL in the month name ITI *ma-al-ka₃-ni* (PN; ARM XIX 390; 394; passim).

The sign AL is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *al* is attested for the sign AL, as in the following words and proper nouns: *al* (*al*, “at the place of; on, over, above; against; more than”, prep.; KTT 41 o. 2); *ma-al-kum* (*malum*, “king; ruler”, nom. s. noun; KTT 39 o. 1); *qa-al-nu-um* (meaning uncertain, nom. s. PN; KTT 11 r. 6).

Proto-Ea lists the reading *a-al* for the sign AL (l. 675).

161. UB

During the Old Akkadian period, the syllabic value *ub* is attested for the sign UB, as in the following words: *u-ub-lam* (*ublām*, “he brought”, from the root *w-b-l*, “to carry, bring”, G-stem pret. 3 m. s. + vent.; A 708); *e₃-ru-ub* (*ērūb*, “he entered”, from the root *ṣ-r-b*, “to enter”, G-stem pret. 3 m. s.; A 5899; A 5926); *ik-ru-ub-ma*

(*ikrubma*, “he prayed and...”, from the root *k-r-b*, “to bless, pray”, G-stem pret. 3 m. s. + enc. part.; Speleers, RIAA 4 ii, Der).

During the Ur III period, the syllabic values *ub* and *up* are attested for the sign UB, as in the following words and proper nouns: DINGIR-*ku-ru-ub* (*ilum-kurub*, “Bless, O god!”, voc. nom. s. noun + G-stem imp. 2 m. s. from the root *k-r-b*, “to bless, pray”; DCEPHE 268 o. 3; 268 Siegel 1; MVN 7, 270 o. 2; Sumer 43, 201, 27 r. col. iii 19; TrD 61 o. 2; YOS 4, 254 r. col. iv 78); *ku-ru-ub*-^dIŠKUR (*kurub-adad*, “Bless, O Adad!”, G-stem imp. 2 m. s. from the root *k-r-b*, “to bless, pray” + DN; StOr 9/1, 28, 24 o. 7); *šu-up-ra-šu-ma* (*šupraššūma*, “send him here!”, from the root *š-p-r*, “to send”, G-stem imp. 2 m. s. + 3 m. s. poss. suffix (-*šu*) + enc. part.; NATN 613 r. 9).

At Ebla, the syllabic value *ub/p* is possibly attested for the sign UB, as in the following proper nouns: *du-ub*^{ki} (GN; passim); *lu-ub*^{ki} (GN; passim); *u₃-nu-ub*^{ki} (GB; *ARET* 8, 523 r. vii 19; *ARET* 8, 526 r. ix 14, 17).

The sign UB is not attested with a syllabic value at Mari.

The sign UB is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ub/p* is possibly attested for the sign UB, as in the word *u-ub*-^{a₃}*ar* (meaning uncertain; KTT 26 o. 6; KTT 38 o. 1).

Proto-Ea lists the reading (*u₂*)-*ub* for the sign UB (l. 385).

162. MAR

During the Old Akkadian period, the syllabic value *mar* is attested for the sign MAR, as in the following proper nouns: *ad-mar* (PN, meaning uncertain; MAD 1, 329b o. 5); *i-za-mar*-^dtišpak (*izammār-tišpak*, “Tišpak sings”, from the root *z-m-r*, “to sing”, G-stem dur. 3 m. s. + DN; MAD 1, 336 o. 5); *mar-ru-ut*^{ki} (GN; MAD 1, 17 r. 3’).

The sign MAR is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *mar* is attested for the sign MAR, as in the following words: *mar-ḥaš-tum* (*marḥaštum*, a bronze object, nom. s. noun; *VE* 480); *mar-*

*qum*₃ (*marqum*, “broth”, nom. s. noun; *VE* 602); *mar-^ṽbi₂^ṽ-ṣu₂* (*marbiṣu(m)*, “bed”, nom. s. noun; *VE* 836).

At Mari, the syllabic value *mar* is attested for the sign MAR, as in the word *mar-ṣum* (*marṣum*, “sick”, verb. adj.; *ARM* XIX 18; 51-54; 56; 58; 60).

The sign MAR is not attested with a syllabic value at Nabada.

The sign MAR is not attested with a syllabic value at Tuttul.

The sign MAR does not appear in the extant portions of Proto-Ea.

163. E

During the Old Akkadian period, the syllabic value *e* is attested for the sign E, as in the following words: *a e-ru-ub* (*a ērub*, “may he not enter”, neg. part. + the root *ṽ-r-b*, “to enter”, G-stem pret. 3 m. s.; *HSS* 10 12:9); *ka₃-me₂-e* (*kamê*, “bound; tied”, unusual stative form of *kamīum*; *CT* XXXII 5, 98917).

During the Ur III period, the syllabic value *e* is attested for the sign E, as in the following words and proper nouns: *e-pe₂-šū* (*epēšū*, “to make; do”, inf. without mimation; *Elam* 5, 16; *Elam* 6, 15); *e-zi₂-ib-tum* (*ezibtum*, “deposit”, nom. s. noun; *MVN* 20, 107 o. 2); *ma-nu-um-e-mu-uq* (*mannum emūq*, “who is strength?”, interr. pronoun + acc. s. noun in abs.; *CST* 159f., r. col. ix 29).

At Ebla, the syllabic value *e* is attested for the sign E, as in the following proper nouns: *il₂-e-i-šar* (*ilē^ṽi-šar(um)*, “the king is powerful” or *il^ṽe-i-šar*, “(the god) Išar was powerful”, from the root *l-ṽ-ṽ*, “to be able, powerful”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from *šarrum*) / *DN*; *passim*); *il₂-e-da-mu* (*il^ṽe-damu*, “(the god) Damu was powerful”, from the root *l-ṽ-ṽ*, “to be able, powerful”, G-stem pret. 3 m. s. + *DN*; *ARET* 4, 4 o. vi 11).

At Mari, the syllabic value *e* is attested for the sign E, as in the word *iti e-bir₅-tim_x* (*warah ebirtim*, “the month of the *ebirtum*”, nom. s. noun in const. st. (from *warḫum*) + gen. s. noun (from *ebirtum*); *ARM* XIX 403).

At Nabada, the syllabic value *e* is attested for the sign E, as in the following proper nouns: *il₂-e-i-šar* (*ilē^ṽi-šar(um)*, “the king is powerful”, or *il^ṽe-i-šar*, “(the god) Išar was powerful”, from the root *l-ṽ-ṽ*, “to be able, powerful”, G-stem pret. 3 m.

s. + nom. s. noun in abs. (from *šarrum*) / DN; Subartu 2, 4 o. col. i 6; Subartu 2, 5 r. col. i 6; Subartu 2, 21 o. col. ii 2; Subartu 2, 68 o. col. i 2; Subartu 2, 75 o. col. i 2; Subartu 2, 76 o. col. ii 4; Subartu 2, 89 r. col. i 2; Subartu 2, 107 r. col. i 1).

At Tuttul, the syllabic value *e* is attested for the sign E, as in the following words: *a-ab-du-e-mi-im* (perhaps *abdu-emim*, “servant of the father-in-law”, nom. s. noun in const. st. (from *abdum*) + gen. s. noun (from *emum*) KTT 20 r. 4); *e-lu^dda-gan* (*ellu-dagan*, “Dagan is pure”, verb. adj. + DN; KTT 6 r. 1).

Proto-Ea lists the reading *e* for the sign E (l. 216).

165. UN

During the Old Akkadian period, the syllabic value *un* is attested for the sign UN, as in the following words: *iš-ku-un* (*iškun*, “placed; imposed”, from the root *š-k-n*, “to place”, G-stem pret. 3 m. s.; RTC 119:6); *su-ku₈-un* (*šukun*, “place!”, from the root *š-k-n*, “to place”, G-stem imp.; PBS V 36 r. iv).

During the Ur III period, the syllabic value *un* is attested for the sign UN, as in the following words and proper nouns: *i-ku-un-pi₂^dUTU* (*ikūn-pî-šamaš*, “the word (lit.: “mouth”) of Šamaš became true”, from the root *k-ṣ-n*, “to be firm, true”, G-stem pret. 3 m. s. + nom. s. noun + DN; SAT 3, 1845 r. 17); *iš-ku-un^dda-gan* (*iškun-dagan*, “Dagan placed”, from the root *š-k-n*, “to place”, G-stem pret. 3 m. s. + DN; ZA 68, 42 Smith College 475 r. 11).

The sign UN is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *un* is attested for the sign UN, as in the proper noun *ku-un^dda-gan* (*kûn-dagan*, “be firm, O Dagan!”, from the root *k-ṣ-n*, “to be firm, true”, G-stem imp. + DN; ARM XIX 248).

The sign UN is not attested with a syllabic value at Nabada

At Tuttul, the syllabic value *un* is possibly attested for the sign UN, as in the proper noun *zi-la₂-un* (meaning uncertain; KTT 53 o. 16; KTT 54 o. 11).

Proto-Ea lists the reading *un* for the sign UN (l. 595).

169. U₂

During the Old Akkadian period, the syllabic value u_2 is attested for the sign U₂, as in the following words and proper noun: u_2 -*la-lum* (*ulālum*, “weak”, nom. s. noun; CT VII 7 i); u_2 -*la ip-ru-us* (*ūla iprus*, “he did not withhold”, neg. part. + the root *p-r-s*, “to divide, withhold”, G-stem pret. 3 m. s.; MDP IV Pl. 2 iv).

During the Ur III period, the syllabic value u_2 is attested for the sign U₂, such as in the following words and proper nouns: u_2 -*ṣi₂-nu-ri* (*ūṣi-nūri/ī*, “the/my light went out”⁸⁵, from the root *w-ṣ-ṣ*, “to go out; to set”, G-stem pret. 3 m. s. + nom. s. noun (from *nūrum*) (+ 1 c. s. poss. suffix (-*ī*); AUCT 1, 552 o. 5); DINGIR- u_2 -*pi₂* (perhaps *upi*, “he became visible”, from the root *w-p-ṣ*, “to be(come) visible”, G-stem pret. 3 m. s.; ITT 5, 3 10032 Siegel 2); *i-di₃-u₂* (*iddi³ū*, “they threw down”, from the root *n-d-ṣ*, “to throw (down)”, G-stem pret. 3 m. pl.; AIHA 40 o. 9); *ša-nin-u₂-tim* (*šāninūtīm*, “rivalry”, gen. s. noun; RA 9, 001-004, pl. 1, 13); u_2 -*ša-ak-li-il* (*ušaklil*, “he completed; made perfect”, from the root *k-l-l*, “to complete, make perfect”, Š-stem pret. 3 m. s.; Sumer 43, 199, 25 o. col. ii 3).

The sign U₂ is not attested with a syllabic value at Ebla.

At Mari, the syllabic value u_2 is attested for the sign U₂, as in the following words: u_2 -*ra-ṣum* (*urāṣum*, “kid”, nom. s. noun; ARM XIX 114; 117; 119; 135; 137; 139; 145; 146; 152; 160); u_2 (*u*, “and”, prep.; passim).

At Nabada, the syllabic value u_2 is possibly attested in the following proper nouns: u_2 -*a-si^{ki}* (GN; Subartu 2, 29 o. col. ii 5); u_2 -*ḫu-ra-bi₂* (*uḫu-rabi*, “Uḫu is great”, PN/DN + verb. adj.; Subartu 2, 10 r. col. iii 8); *ra-u₂^{ki}* (GN; Subartu 2, 10 r. col. ii 8).

At Tuttul, the syllabic value u_2 is possibly attested for the sign U₂, as in the following words and proper nouns: u_2 -*ra-bi* (*urabbi*, “he brought up; made great, big”, from the root *r-b-ṣ*, “to be(come) big, great”, D-stem pret. 3 m. s.; KTT 49 r. 17); *e-em-ṣi₂-u₂-um* (meaning uncertain; KTT 11 r. 5); *ia-aq-bi-u₂* (meaning uncertain; KTT 55a r. 13).

Proto-Ea lists the reading u_4 for the sign U₂ (l. 230).

⁸⁵Or, “the sun set”.

170. GA

During the Old Akkadian period, the syllabic values *ga*, *ka₃*, and *qa₂* are attested for the sign GA, as in the following words and proper nouns: *ga-mi-ru-um* (*gāmīrum*, act. part. from the root *g-m-r* “to conquer”; OAIC 16 r. 5); *u-ka₃-al* (*ukâl*, “he holds (back)”, from the root *k-ṣ-l*, “to hold (back)”, D-stem pret. 3 m. s.; BIN VIII 203); ^dEN.ZU-*ka₃-si-id* (*swen-kāšid*, “Su’en is the conquerer”, DN + act. part. in abs. from the root *k-š-d*, “to arrive, conquer”; Porada, CPML no. 284); *qa₂-at-num* (*qatnum*, “thin”, verb. adj.; MAD 1, 317 o. col. ii 9); *qa₂-qa₂-ad um-ma-nim* (*qaqqad-ummānim*, “head of the army”, nom. s. noun in const. st. (from *qaqqadum*) + gen. s. noun (from *ummānum*); Speleers, RIAA 4 ii).

During the Ur III period, the syllabic values *ga*, *ka₃*, and *qa₂* are attested for the sign GA, as in the following words and proper nouns: ^dAMAR.EN.ZU-*ga-mi-il* (*amar-su`en-gāmīl*, “Amar-Su’en is merciful”, PN + act. part. in abs. from the root *g-m-l*, “to do favour, spare”; HSS 4, 47 r. 7; SAT 3, 1366 r. 18); *la ga-ma-al* (*lā gamāl*, meaning unclear, neg. part. + the root *g-m-l*, “to do favour, spare”; UET 3, 417 o. 1; 433 o. 2; 439 o. 2; 467 o. 2; 479 o. 2; 492 o. 2; 499 o. 2; 576 o. 2; 604 o. 2; 610 o. 2; 690 o. 2, 9; 570 o. 2); *be-li₂-ka₃-šī-id* (*bēlī-kāšid*, “my lord is the conquerer”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + act. part. from the root *k-š-d*, “to arrive, conquer”; Orient 16, 33 r. col. iv 80); *pa₂-ar-ka₃-at* (*parkat*, “transversed”, verb. adj. in abs.; OIM A33645 o. 3’); *i-ša-qa₂-al* (*išaqqa*, “he will weigh, pay”, from the root *š-q-l*, “to pay, weigh”, G-stem dur. 3 m. s.; NATN 715 A o. 3’); *u₃-qa₂-di₃-id* (*uqaddid*, “he made (s.th.) bow; he subjected”, from the root *q-d-d*, “to bow down”, D-stem pret. 3 m. s.; Elam 2, 102).

At Ebla, the syllabic values *ga*, *ka₃*, and *qa₂* are attested for the sign GA, as in the following words: *ga-ma-lu-um* (*gamālum*, “to do favour, spare”, inf.; VE 236); *ga-ša-lum* (*gašālum* or *gaḏārum*, “to eradicate”, inf.; VE 415); *ka₃-nu-na-tum* (*kanūnatum*, “brazier”, nom. s. noun; VE 89); *maš-ka₃-nu* (*maškanu*, “addition”, nom. s. noun in abs.; VE 125); *qa₂-ma-u₉* (*qamā(h)u(m)*, “to grind; burn”, inf.; VE 169); *sa-qa₂-ru₁₂-um* (*šaqaṛum*, “to pierce; stab”, inf.; VE 220).

At Mari, the syllabic values ga , ka_3 , and qa_2 are attested for the sign GA, as in the following words and proper nouns: $ga-bi-a-nu$ (perhaps $gabiānu$, related to $gabbum$, “totality, all (of)”; ARM XIX 315); ITI $ma-al-ka_3-ni$ ($waraḥ malkāni$, “the month of Malkani”, MN; *passim*); $na-ru-qa_2-tim_x$ ($narūqātīm$, “leather satchels”, gen. pl. noun; ARM XIX 323); $eš_4-tar_2-dam-qa_2$ (proper noun, $eštar-damqa(t)$, “Ištar is beautiful”, DN + verb. adj.; ARM XIX 303; 324; 325; 340; 384).

At Nabada, the syllabic value ka_3 is possibly attested for the sign GA, as in the following word or proper noun: $a-ka_3-lum$ ($akālum$, “to eat”; Subartu 2, 45 r. col. ii 3).

At Tuttul, the syllabic values ga and ka_3 are attested for the sign GA, as in the following words and proper nouns: $i-di-in-u_2-ga-ar$ ($iddin-ugār$, perhaps “he gave a community”, from the root $n-d-n$, “to give”, G-stem pret. 3 m. s. + acc. s. noun in abs. (from $ugārum$); KTT 12 r. 3); ka_3-pi_2 -^dIM ($kappi-adad$, “the wing/hand of Adad”, nom. s. noun in const. st. (from $kappum$) + DN; KTT 25 o. 4); ka_3-ta_2-pum ($katappum$, a type of object, nom. s. noun; KTT 53 o. 5, 10, 15).

Proto-Ea lists the reading $ga-a$ for the sign GA (l. 480).

171. IL₂

During the Old Akkadian period, the syllabic value il_2 is attested for the sign IL₂, as in the following word and proper noun: il_2-qi_3-ma ($ilqīma$, “he took and...”, from the root $l-q-$, “to take”, G-stem pret. 3 m. s. + enc. part.; MAD 1, 282 o. 6); $il_2-e-da-num_2$ (proper noun, $ile-dannum$, “the god is strong”, nom. s. noun (from $ilum$) + verb. adj.; RTC 203 r. 10’).

The sign IL₂ is not attested with a syllabic value during the Ur III period.

The sign IL₂ is not attested with a syllabic value At Ebla.

At Mari, the syllabic value il_2 is attested for the sign IL₂, as in the proper noun $il_2-e-da-bi-bu$ ($ile-dābibu$, “the god is the advocate”, nom. s. noun (from $ilum$) + act. part. from the root $d-b-b$, “to talk, speak”; ARM XIX 338).

At Nabada, the syllabic value il_2 is attested for the sign IL₂, as in the following proper noun: $il_2-e-i-šar$ (ile ” $i-šar(um)$, “the king is powerful”, or il $e-i-šar$, “(the god)

Išar was powerful”, from the root $l\text{-}\rightarrow\text{-}$, “to be able, powerful”, G-stem pret./dur. 3 m. s.; Subartu 2, 4 o. col. i 6; Subartu 2, 5 r. col. i 6).

The sign IL₂ is not attested with a syllabic value at Tuttul.

Proto-Ea does not list a reading for the sign IL₂.

173. KAL

During the Old Akkadian period, the syllabic values *dan* and *kal* are attested for the sign DAN, as in the following proper nouns: *i₃-li₂-dan* (*ilī-dan*, “my god is strong”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + G-stem stat. 3 m. s.; passim); *si-dan-na-at* (*šī-dannat*, “she is strong”, 3 f. s. ind. pronoun + 3 f. s. stat. (from *d-n-n*, “to be strong”); AIHA 4, 1 o. ii 15); *i₃-li₂-i₃-ta₂-kal* (*ilīš(u)-takal*, “his god is trustworthy”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + verb. adj. in abs.; JCS 1, 348, 12 r. 6; MAD 1, 57 r. 5’).

During the Ur III period, the syllabic value *dan* is attested for the sign DAN, as in the following proper nouns: ^d*šul-gi-dan* (*šulgi-dan*, “Šulgi is strong”, DN + stat. in abs. (AAICAB 1/1, pl. 3 5, 1911-227); ^d*er₃-ra-dan* (*erra-dan*, “Erra is strong”, DN + stat. in abs.; Nisaba 1, 289 o. 12; UMTBM 3 73 o. 8); *i₃-li₂-dan* (*ilī-dan*, “my god is strong”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + stat. in abs.; ITT 2, 767 o. 4).

The sign KAL is not attested with a syllabic value at Ebla.

The sign KAL is not attested with a syllabic value at Mari.

The sign KAL is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *dan* is attested for the sign KAL in the proper noun *a-sa₃-dan* (from *dannum*, “strong”; KTT 36 o. 1).

Proto-Ea lists the readings *ka-al*, *da-an*, *su-ub*, *sa₃-a*, *la-(a)*, *ri-ib*, *sa₃-ag*, *e-lum*, *su₂-un*, and *mu-ru-uš* for the sign KAL (l. 335-344).

174. E₂

During the Old Akkadian period, the syllabic value ^a*a₃* is attested for the sign E₂, as in the following words: *na-^aa₃-as₂-su* (*na^assu*, “his life”, s. noun (from

*na*ṣum > *nī*ṣum) + 3 m. s. poss. suffix (-ṣu); Adab 708 o. 9); ṽ_{a3}-*wa-a-ti* (*awātī*, “words”, pl. noun (from *awātum*); Adab 708 r. 7); *la*-ṽ_{a3}-*ra-ab* (proper noun, *lā*-ṽ_{a3}-*arāb*, neg. part. + the root ṽ-r-b cf. Ar. **ḥrb* “to combat”; MAD 1, 5 + 117 + 133 r. 3’); ṽ_{a3}-*ru-ub* (ṽ_{a3}-*arub*, “I entered”, from the root ṽ-r-b, “to enter”, G-stem pret. 1 c. s.; MAD 5, 109 r. 2).

During the Ur III period, the syllabic value ṽ_{a3} is attested for the sign E₂, such as in the word *na*-ṽ_{a3}-*si-ṣu* (*na*ṽ_{a3}-*si-ṣu*, “his life”, s. noun (from *na*ṣum > *nī*ṣum) + 3 m. s. poss. suffix (-ṣu); Ur C 1, 56).

At Ebla, the syllabic value ṽ_{a3} is attested for the sign E₂, as in the following words: *sa*-ṽ_{a3}-*bu*₃ (*sa*ṽ_{a3}-*ābu*(*m*), “to peel off”, inf.; VE 73); *qar*-ṽ_{a3}-*tum* (*qabatum*, “jar”, nom. s. noun cf. He. *qallahat*; VE 106); ṽ_{a3}-*za-zu* (ṽ_{a3}-*azzāzu*, “clairvoyant”, nom. s. noun without mimation; VE 216).

At Mari, the syllabic value ṽ_{a3} is attested for the sign E₂, as in the following words: ṽ_{a3}-*pa*₂-*aš* (ṽ_{a3}-*apaš*, “I made; did”, from the root ṽ-p-š, “to make, do”, G-stem pret. 1 c. s.; ARM XIX 96).

At Nabada, the syllabic value ṽ_{a3} is attested for the sign E₂, as in the following proper nouns: ṽ_{a3}-*kun* (*akūn*, “I was reliable”, from the root *k*-ṽ-*n*, “to be firm, true”, G-stem pret. 1 c. s.; Subartu 2, 1 o. col. ii 6; Subartu 2, 4 r. col. iv 2; Subartu 2, 5 o. col. iii 6; Subartu 2, 5 r. col. v 6; Subartu 2, 104 o. col. v’ 8’); ṽ_{a3}-*uz* (meaning uncertain; Subartu 2, 5 o. col. iii 2); *tu*-ṽ_{a3}-*na-ṣu* (*tu’annašū*, “you (pl.) weaken”, from the root ṽ-n-š, “to be(come) weak”, D-stem dur. 2 m. pl.; Subartu 2, 29 o. col. iii 7; r. col. ii 5); ṽ_{a3}-*ad*^{ki} (GN; Subartu 2, 126 o. col. i 2).

At Tuttul, the syllabic value ṽ_{a3} is attested for the sign E₂, as in the following word and proper noun: ¹*na*-ṽ_{a3}-*ri*₂-*im* (perhaps related to *nārum*, “river” or “musician”; KTT 27 o. 1); *pa*₂-*ti*-ṽ_{a3}-*an* (perhaps related to the root *p-t*-ṽ, “to open”; KTT 54 o. 13).

Proto-Ea lists the reading *e* for the sign E₂ (l. 221).

178. RA

During the Old Akkadian period, the syllabic value *ra* is attested for the sign RA, as in the following words and proper nouns: *i₃-lum-ra-bi* (*ilum-rabi*, “the god is great”, nom. s. noun + G verbal adj. m. s.; BIN VIII, 11 iv); *ki-ib-ra-tim* (*kibrātīm*, “world”, gen. pl. noun; MDP 10 Pl. 3); *ra-gi-im* (*raggim*, “bad; evil”, verb. adj.; YOS IX 62); *in ra-ma-ni-ka₃* (*in ramānīka*, “yourself”, prep. + gen. s. noun (from *ramānum*) + 2 m. s. poss. suffix (-*ka*); JRAS 1932 p. 269:32).

During the Ur III period, the syllabic value *ra* is attested for the sign RA, as in the following words and proper nouns: *la i₃-tu-ra-am* (*lā itūram*, “he did not return here”, neg. part. + the root *t-ṣ-r*, “to return”, G-stem pret. 3 m. s. + vent.; ASJ 12, 54 r. 4); *na-ra-am-i₃-li₂* (*narām-ilī*, “beloved one of my god”, nom. s. noun in const. st. + gen. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); CUSAS 3, 1402 3); *ki-ib-ra-tim* (*kibrātīm*, “the world”, gen. pl. noun; RIME 3/2.1.2.23, ex. 1 o. 5).

At Ebla, the syllabic values *ra* and *la* is attested for the sign RA, as in the following words: *sa₃-ki₂-ra-tum* (*sakīratum*, “barrier”, nom. s. noun; VE 38); *ra-qu₃* (*raqqu(m)*, “thin; fine”, G-stem verb. adj. m. s. without mimation; VE 76); *ra-wa-bu₃* (*rawābum*, “to be numb; to be languid from satiety or sleep”, inf.; VE 135).

At Mari, the syllabic value *ra* is attested for the sign RA in the word *u₂-ra-ṣum* (*urāṣum*, “kid”, nom. s. noun; ARM XIX passim).

At Nabada, the syllabic value *ra* is atested for the sign RA, as in the following proper nouns: *šar-ra-bu₃* (perhaps *šar-rabû*, “the king is great”, nom. s. noun in abs. (from *šarrum*) + G-stem stat. 3 m. s.; Subartu 2, 17 o. col. ii 2); *ra^{ki}* (GN; Subartu 2, 42 o. col. iii 4); *ra-u₂^{ki}* (GN; Subartu 2, 10 r. col. ii 8).

At Tuttul, the syllabic value *ra* is attested for the sign RA, as in the following proper nouns: *a-ḫi-ma-ra-aṣ* (*aḫī maraṣ*, “my brother is sick”, nom. s. noun (from *aḫum*) + 1 c. s. poss. suffix (-*ī*) + verb. adj. in abs.; KTT 8 o. 2); *ra-ka-ab-tu* (*rakabtu*, “chariot”, nom. s. noun without mimation; KTT 1, o. 8); *i₃-li₂-ra-pi₂* (*ilī-rāpi*, “my god is a healer”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + act. part. from the root *r-p-ṣ*, “to heal”; KTT 17 o. 7); .

Proto-Ea lists the reading *ra-(a)* for the sign RA (l. 551).

184. SAR

During the Old Akkadian period, the syllabic value *sar*⁸⁶ is attested for the sign SAR, as in the following words and proper nouns: *sar-ru-ba-ni* (*šarru-bāni*, “the king is the builder”, nom. s. noun without mimation + act. part. from the root *b-n-*, “to build, create”; ITT I 1372+); *a-ḫu-i-š/sar* (*aḫu-išar*, “the brother is Išar”, nom. s. noun without mimation + DN; BIN VIII 144).

During the Ur III period, the syllabic value *šar* is attested for the sign SAR, as in the following word and proper noun: *šar-ru-um-ma* (*šarrumma*, “...the king, and...”, nom. s. noun + enc. part.; RA 24, 44 o. 1); *šar-ru-um-ba-ni* (*šarrum-bāni*, “the king is the creator”, nom. s. noun + act. part. from the root *b-n-*, “to build, create”; AAICAB 1/4, Bod S 323 o. 9); *i-šar-i₃-li₂* (*išar-ilī*, “Išar is my god”, DN + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); AnOr 1, 100 r. 3).

At Ebla, the syllabic value *sar* is attested for the sign SAR, as in the following word: *sar-sa-rum₂* (*šaršārum*, “saw”, nom. s. noun, cf. Akk. *šaššārum*, Ug. *ššrt*, Sem. **w-ś-r/n-ś-r* “to saw”; VE 766).

At Mari, the syllabic value *sar* is attested for the sign SAR, as in the following word and proper noun: *sar-ru* (*šarru*, a type of foodstuff, nom. s. noun without mimation; ARM XIX 214; 258); *sar-ru-ba-ni* (*šarru-bāni*, “the king is the creator”, nom. s. noun without mimation + act. part. from the root *b-n-*, “to build, create”; ARM XIX 196; 400).

At Nabada, the syllabic value *sar* is attested for the sign SAR, as in the following proper nouns: *il₂-e-i-sar* (*ile-išar*, “the god is Išar”, nom. s. noun (from *ilum*) + DN; Subartu 2, 4 o. col. i 6); *EN-i-sar* (*bēlum-išar*, “the lord is Išar”, nom. s. noun + DN; Subartu 2, 5 o. col. ii 4); *sar-ra-bu₃* (*šar-rabû*, “the king is great”, nom. s. noun in abs. (from *šarrum*) + verb. adj. without mimation; Subartu 2, 17 o. col. ii 2).

At Tuttul, the syllabic value *sar* is attested for the sign SAR, as in the following proper nouns: *ti-ir-sar-ri* (*tīr-šarrī*, “courtier of the gods”, nom. s. noun in const. st. (from *tīrum*) + gen. pl. noun (from *šarrum*); KTT 121 r. 2; KTT 136 o. 7).

⁸⁶It is debatable whether or not this should be read *sar* or *šar* during this time period (see footnote 21).

Proto-Ea does not list the sign SAR.

186. QAR

During the Old Akkadian period, the syllabic values *gar*₃ and *qar* are attested for the sign QAR, as in the words *na-gar*^{ki} (GN; RA XLII 6:18); *qar-dum* (*qardum*, “strong”, verb. adj.; HSS 10, 108 o. 13, r. 13).

During the Ur III period, the syllabic value *qar* is attested for the sign QAR, as in the following proper nouns: *a-ḥu-wa-qar* (*aḥu-waqar*, “the brother is dear”, nom. s. noun + verb. adj. in abs.; U 136+); *wa-qar-tum* (proper noun, *waqartum*, “(she is) dear”, verb. adj.; UET III 1383+).

The sign QAR is not attested with a syllabic value at Ebla.

At Mari, the syllabic values *kar*₃ and *qar* are attested for the sign QAR, as in the following proper nouns: *kar₃-ka₃-mi₃-si-um* (PN; ARM XIX 299); *a-ḥu-wa-qar* (*aḥu-waqar*, “the brother is dear”, nom. s. noun (from *aḥum*) + verb. adj. in abs.; ARM XIX 254; 327; 371; 376; 407).

At Nabada, a syllabic value *qar/gar*₃/*kar*₃ is possibly attested for the sign QAR, as in the following proper noun: *iš₁₁-QAR*^{ki} (GN; Subartu 2, 2 o. col. iii 3; Subartu 2, 3 o. col. v 5; passim).

The sign QAR is not attested with a syllabic value at Tuttul.

Proto-Ea does not list the sign QAR.

187. ID

During the Old Akkadian period, the syllabic values *i/ed*, *iṭ*, *a*₂ are attested for the sign ID, as in the following words and proper nouns: *li-sa-mi₃-id-ma* or *li-sa-me-ed-ma* (*lišāmidma*, “may he cause to take refuge”, from the root *ṣ-m-d*, “to lean on; impose”, Š-stem prec. 3 m. s.; HSS 10, 5 o. 7); *ka₃-si-id-il₃-a-ba₄* (*kāšid-ilaba*, “Ilaba is the conquerer”, act. part. from the root *k-š-d*, “to arrive, conquer”, + DN; ITT 2, 2926 o. 1); *su₂-ta₂-a₂-ri₂-ib* (*šutārib*, “enter!”, from the root *ṣ-r-b*, “to enter”, G-stem imp. 2 m. s.; FAOS 19, p. 89ff, Gir 19 o. 21); *ra-a₂-bum* (*ra^ṣabum*, “vessel”, nom. s. noun; MDP 14 r. 7).

During the Ur III period, the syllabic values *id*, *iṭ*, and *a₂* are attested, as in the following proper nouns: ^dEN.ZU-*na-qi₄-id* (*sw^wen-nāqid*, “Suen is the herdsman”, DN + acc. s. noun in abs.; UET III 1048); *eṭ-lum* (*eṭlum*, “young man”, nom. s. noun; Fish, CST 728 iii); *a₂-ki-ti* (*akīti*, a month name and festival; UET II Pl. XLIX 44); *a₂-gu-ḫu-um* (*aguḫhum*, a garment; UET III p. 171+); *be-li₂-a₂-ri₂-ik* (*bēlī-arik*, “my lord is long (of life/reign)”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-ī) + verb. adj.; RA XXV 20 ii).

At Ebla, a syllabic value *id/t/ṭ* is possibly attested for the sign ID, as in the proper noun ID-*i^daš₂-da-bil₂* (perhaps, *īdi-ašdabil*, “(the god) Ašdabil knew”, *iddi-ašdabil*, “(the god) Ašdabil threw down”, *iṭṭi-ašdabil*, “(the god) Ašdabil beat, whipped”; MEE 12, 35 o. xi 1).

At Mari, the syllabic value *id* is attested for the sign ID, as in the following proper nouns: *id-lal₃-d^dda-gan* (*idlal-dagan*, “he sang the praises of Dagan”, from the root *d-l-l*, “to praise; to sing praise”, G-stem pret. 3 m. s. + DN; ARM XIX 212-217); *id-lal₃-e₂-a* (*idlal-ea*, “he sang the praises of Ea”, from the root *d-l-l*, “to sing; sing praise”, G-stem pret. 3 m. s. + DN; ARM XIX 369); *i-ki-id-li-im* (meaning uncertain; ARM XIX 205).

The sign ID is not attested with a syllabic value at Nabada.

The sign ID is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading (*i*)-*id* for the sign ID (l. 463a).

191. DA

During the Old Akkadian period, the syllabic values *da*, *ta₂*, and *ṭa* are attested for the sign DA, as in the following words and proper nouns: *i-na-da-an* (*inaddan*, “he will give”, from the root *n-d-n*, “to give”, G-stem dur. 3 m. s.; MAD 1, 283); *da-num₂* (*dannum*, “strong”, verb. adj.; MDP 14 p. 5); *ta₂-mu-ur-ma* (*tāmurma*, “you saw and...”, from the root *ṣ-m-r*, “to see”, G-stem pret. 2 m. s. + enc. part.; HSS 10 8:5); *at-ta₂* (*atta*, “you”, 2 m. s. ind. pronoun; CT 50, 71 r, 3); *ta₂-di₃-in* (*taddin*, “you gave”, from the root *n-d-n*, “to give”, G-stem pret. 2 m. s.; AAICAB 1/1, pl. 5, 1928-425 r. 4); *i-ṭa-ba-aḫ-si-ma* (*iṭabbahšīma*, “he will

slaughter it and...”, from the root *t-b-h*, “to slaughter”, G-stem dur. 3 m. s. + 3 f. s. acc. suffix (-š*i*) + enc. part.; MDP 14 90).

During the Ur III period, the syllabic values *da*, *ta*₂, and *ta* are attested for the sign DA, as in the following words: *la ta-ma-da-ad* (*lā tamaddad*, “you will not measure (out)”, neg. part. + the root *m-d-d*, “to measure (out)”, G-stem dur. 2 m. s.; Nisaba 15, 1072 r. 3); *u₂-la a-ma-da-ad* (*ula amaddad*, “I will not measure (out)”, neg. part. + the root *m-d-d*, “to measure (out)”, G-stem dur. 1 c. s.; Nisaba 15, 1072 r. 7); *lu u₂-qa₂-ta₂* (*lū uqatta*, “let him bring (it) to an end”, precative part. + the root *q-t-*, D-stem dur. 3 m. s.; Nisaba 15, 952 o. 5); *aš-ta₂-na-pa-ra-ma* (*aštanapparamma*, “I will repeatedly send”, from the root *š-p-r*, “to send”, Gtn-stem dur. 1 c. s. + vent. + enc. part.; TCS 1, 370 r. 2).

At Ebla, the syllabic values *da*, *ta*₂, and *ta* are attested for the sign DA, as in the following words: *a-da-na-tu₃* (*ʾadāntu(m)*, “lord; patron”, nom. s. noun without mimation; VE 75); *da-du* (*dawdu(m)* / *dūdu(m)*, “beloved”, nom. s. noun without mimation; VE 584); *ta₂-ta₂-pu_x(NI)* (*tatāpu(m)*, “beer malt”, nom. s. noun in mimation, cf. Akk. *titāpū*; VE 668); *ta₂-li-mu* (*talīmu(m)*, “favorite brother”, nom. s. noun without mimation; VE 99); *pa₂-ta-ru₁₂* (*paṭāru(m)*, “to loosen; undo”, inf. without mimation; VE 95); *ta-bu₃* (*ṭawbu(m)* / *ṭābu(m)*, “good”, verb. adj. without mimation; VE 121).

At Mari, the syllabic values *da* and *ta*₂ are attested for the sign DA, as in the following words: *da-šum* (*daššum*, “goat”, nom. s. noun; ARM XIX 150-151; 166-168); *bi-ta₂-an* (*bītān*, “two houses”, du. noun; ARM XIX 164).

At Nabada, the syllabic values *da* and *ta*₂ are attested for the sign DA, as in the following proper nouns: *na-ba₄-da^{ki}* (GN; passim); *da-d/tum* (proper noun, perhaps *dādum*, “beloved”, nom. s. noun; Subartu 2, 1 o. col. iii 3); *i-da-i₃-lum* (perhaps *īda-ilum*, “he knew the god” or “the god knew”, from the root *ʾ-d-*, “to know”, G-stem pret. 3 m. s. + nom. s. noun; Subartu 2, 1 o. col. iii 5); *ta₂-kun₃-aš-dur₂* (*takūn-ašdur*, “may you exist, Ašdur”; Subartu 02, 124).

At Tuttul, the syllabic value *ta*₂ is attested for the sign DA, as in the following proper nouns: *ta₂[?]-ab-ni^dIŠTAR₂* (*tabnî-ištar*, “you created, O Ištar”, from the root

b-n-, “to build, create”, G-stem pret. 2 f. s. + DN; KTT 22 o. 4); *ta₂-ma-ra-tum* (perhaps *tāmarātum*, “audience gifts”, nom. pl. noun; KTT 52 o. 1).

Proto-Ea lists the reading *da-a* for the sign DA (l. 462).

192. AŠ₂

During the Old Akkadian period, the syllabic value *aš₂* is attested for the sign AŠ₂, as in the following word and proper noun: *na[∘]a₃-aš₂* (*na[∘]ašum*, “life”, nom. s. noun; JRAS 1932 p. 296:28); *ta₂-aš₂-ma₂-tum* (*tašmātum*, from the root *š-m-ε*, “to hear”, nom. s. noun; MAD 5, 54 o. 3).

During the Ur III period, the syllabic value *aš₂* is attested for the sign AŠ₂, as in the following words and proper nouns: *aš₂-lum* (*ašlum*, a type of plant, nom. s. noun; UET III 770; 1498 i); *ba-aš₂-ti-a* (*bâštīya*, “my vigor”, gen. s. noun (from *bâstum*) + 1 c. s. poss. suffix (-*i*); UET III 1542); *ḥa-aš₂-ḥa-me-er* (perhaps related to the root ḥ-š-ḥ, “to grind”; CT XXI 6, 89126).

At Ebla, the syllabic values *az_x* and *aš₂* are attested for the sign AŠ₂, as in the following words: *az_x-bu₃* (*∘azbu(m)*, “hyssop”, nom. s. noun without mimation, cf. Heb. *∘ēzōb*, Akk. *zūpum*; VE 474); *aš₂-ka₃-lum* (*∘aškālum*, “cluster; bunch”, nom. s. noun; VE 660).

At Mari, the syllabic value *aš₂* is attested for the sign AŠ₂, as in the following word: *∘a₃-pa₂-aš₂* (*a[∘]paš* / *āpaš*, “I made; did”, from the root *∘-p-š*, “to make, do”, G-stem pret. 1 c. s.; ARM XIX 96).

At Nabada, the syllabic value *aš₂* is attested for the sign AŠ₂, as in the following words: *aš₂-de₃* (*ašde*, “from”, prep.; Subartu 2, 7 r. col. ii 1; passim); *aš₂-ti* (*ašti*, “with”, prep.; Subartu 2, 7 r. col. iii 6); *aš₂-tum* (*aštum*, meaning uncertain; Subartu 2, 35 o. col. iv 7).

At Tuttul, the syllabic value *aš₂* is attested for the sign AŠ₂ in the proper noun IŠTAR₃-*ra-ma-aš₂* (*ištar-rāmaš(u)*, “Ištar is his beloved”, DN + acc. s. noun (from *rāmum*) + 3 m. s. poss. suffix (-*šu*); KTT 53 o. 9).

The sign AŠ₂ does not appear in the extant portions of Proto-Ea..

193. MA

During the Old Akkadian period, the syllabic value *ma* is attested for the sign MA, as in the following words: *ma-na-ma* (*mannama*, “anyone who...”, pronoun; RIME 2.1.2.4 composite, 99); *en-ma* (*enma*, “thus”, conj.; RA 23, 25 o. 1) .

During the Ur III period, the syllabic value *ma* is attested for the sign MA, as in the following words and proper nouns: *um-ma* (*umma*, “thus”, conj.; TCS 1, 370 o. 1); *aš-ta₂-na-pa₂-ra-ma* (*aštapparamma*, “I will repeatedly send there”, from the root *š-p-r*, “to send”, Gtn-stem dur. 1 c. s. + vent. + enc. part.; TCS 1, 270 r. 2); *qi₂-bi₂-ma* (*qibīma*, “speak thus!”, from the root *q-b-ʾ*, “to say, speak”, G-stem imp. 2 m. s. + enc. part.; TCS 1, 371 o. 2); *ma-nu-um-ki-a-ḫi-a* (*mannum-kī-aḫīya*, “who is like my brother?”, interr. pronoun + conj. + acc. s. noun (from *aḫum*) + 1 c. s. poss. suffix (-*ī*); TIM 2, 91 o. 3).

At Ebla, the syllabic value *ma* is attested for the sign MA, as in the following words: *ku_x(TIK)-ru₁₂-ma-tu₃* (*kurummatu(m)*, “food”, nom. s. noun without mimation; VE 39); *ḫa-ma-lum* (*ḫamārum*, “to hide”, inf., cf. Ar. *ḫamara*, “to hide; conceal”; VE 118); *ma-ḫi-lum* (*māḫirum*, “reciever”, act. part. from the root *m-h-r*, “to face, confront, oppose; receive”; VE 157).

At Mari, the syllabic value *ma* is attested for the sign MA, as in the following proper noun and words: ITI *ma-al-ka₃-ni* (*warḫi malkāni*, “the month of *Malkānu*”, MN; ARM XIX 184); *ma-ka₃-lu* (*mākālu(m)*, “bowl”, nom. s. noun without mimation; ARM XIX 389); ^{giš}*ma-an-za-tum* (a type of wood or wooden object, nom. s. noun; ARM XIX 460); *ma-ša-ra-tum* (*mašsarātum*, “guards”, nom. pl. noun; ARM XIX 365).

At Nabada, the syllabic value *ma* is attested for the sign MA, as in the following proper nouns: *be-la-ma-DINGIR* (meaning uncertain; Subartu 2, 5 o. col. v 4); *ma-wa^{ki}* (GN; Subartu 2, 6 o. col. ii 3); ITI.SAR *ma-se₁₁-tim* (MN; Subartu 2, 9 o. 2).

At Tuttul, the syllabic value *ma* is attested for the sign MA, as in the following words and proper nouns: *a-ḫi-ma-ra-aš* (*aḫī-maraš*, “my brother is sick”, nom. s. noun (from *aḫum*) + 1 c. s. poss. suffix (-*ī*) + verb. adj. in abs.; KTT8 r. 2; KTT 19 r. 18); *ma-al-kum* (proper noun, *malkum*, “ruler; king”, nom. s.

noun; KTT 25 o. 15; KTT 39 o. 1); *sa₂-li-ma-an* (likely from the root *š-l-m*, “to be whole; well”; KTT 42 r. 1, 2).

Proto-Ea lists the reading *ma-a* for the sign MA (l. 269).

194. GAL

During the Old Akkadian period, the syllabic value *kal₂* is attested for the sign GAL, as in the following word and proper nouns: *a-ta₂-kal₂* (*atakkal*, “I will trust”, from the root *t-k-l*, “to trust”, G-stem dur. 1 c. s.; De Genouillac, TSA 18 v); *kal₂-bum* (*kalbum*, “dog”, nom. s. noun; OIP XIV 103); *kal₂-la-tim* (*kallatim*, “bride”, gen. s. noun; CT XXXII o. i).

During the Ur III period, the syllabic values *gal* and *kal₂* are attested for the sign GAL, as in the following words and proper nouns: *gal-la-bi* (proper noun from *gallabum*, “barber”; U 585); *a-ta₂-kal₂-šum* (*atakkalšum*, “I will trust him”, from the root *t-k-l*, “to trust”, G-stem dur. 1 c. s. + 3 m. s. dat. suffix; U 102+); ^dšul-gi-iš-ti-*kal₂* (*šulgi-ištikal*, DN + perhaps an unusual form of the root *t-k-l*, “to trust”; Barton, HLC III Pl. 132, 335).

At Ebla, the syllabic value *kal₂* is attested for the sign GAL, as in the following word: *kal₂-la-tu₃* (*kallatum*, “bride; daughter-in-law”, nom. s. noun without mimation; VE 322).

The sign GAL is not attested with a syllabic value at Mari.

The sign GAL is not attested with a syllabic value at Nabada.

The sign GAL is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ga-la* for the sign GAL (l. 518c).

197. GIR

During the Old Akkadian period, the syllabic values *gir*, *kir*, and *qir/qer* are attested for the sign GIR, as in the following words: *me-gir-DINGIR.DINGIR* (*megir-ilī*, “favourite of the gods”, nom. s. noun in const. st. (from *megrum/migrum*) + gen. pl. noun; MAD 1, 296 r. 2); *kir-ru* (*kirru(m)*, a type of vessel, nom. s. noun without mimation; HSS 10, 170 o. col. ii 7); *qir/qer-bi₂-su* (*qirbišu*, “from

it(s midst)”, s. noun (from *qerbum*) + 3 m. s. poss. suffix (-*šu*); HSS 10, 5 o. 13; MDP XIV 12; BIN VIII 143; JCS I 348f.).

During the Ur III period, the syllabic values *gir*, *kir*, *qir*, and *piš* are attested for the sign GIR, as in the following words: ^dš^du-^dEN.ZU-*mi-gir-eš*₁₈-*dar* (*šu-su^een-migir-ešdar*, “Šu-Suen is the favorite of Ištar”, PN + acc. s. noun in const. st. (from *migrum*) + DN; BIN 5, 29 r. 1); *kir-ru-um* (*kirrum*, perhaps a kind of vessel⁸⁷ or a kind of sheep⁸⁸, nom. s. noun; HLC 57 o. col. iii 15); ^dšulgi-*na-piš-ti* (*šulgi-napištī*, “Šulgi is my life”, DN + acc. s. noun (from *napištum*) + 1 c. s. poss. suffix (-*ī*); A 2964).

At Ebla, the syllabic value *kir* is attested for the sign GIR, as in the following proper nouns: *a-zi-kir* (meaning uncertain, but likely related to the root *z-k-r*, “to remember, name”; passim); *a-a^dzi-kir* (DN; ARM 12 772 r. i’ 3’); *taš-ma₂-^dzi-kir* (*tašma-zikir*, “you heard, O Zikir”, from the root *š-m-^r*, “to hear, listen”, G-stem pret. 2 m. s. + DN; passim); *du-bi₂-zi-kir* (DN; passim).

At Mari, the syllabic value *kir* is attested for the sign GIR, as in the words: *kir-ba-at* (from the root *k-r-b*, “to bless”; ARM XIX 212-217; 220-221; 365); *ki-kir* (*kikirrum*, perhaps a type of bread; ARM XIX 378-380).

The sign GIR is not attested with a syllabic value at Nabada.

The sign GIR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *gi-ir* for the sign GIR (l. 268).

199. BUR

During the Old Akkadian period, the syllabic value *bur* is attested for the sign BUR, as in the following word and proper nouns: *li-bur-ki^dEN.LIL₂* (proper noun, *libūr-kīenlil*, “may he appear/be firm like Enlil”, from the root *b-^r-r*, “to appear, be firm”, G-ste prec. 3 m. s. + conj. + DN; BIN 8, 203 o. 6); *li-bur* (*libūr*, “may it appear; be firm”, from the root *b-^r-r*, “to appear, be firm”, G-stsem prec. 3 m. s.; MCS 9, 257 r. 2); *bur-gul-lum^{ki}* (GN; AIHA 4, 28 r. 3).

⁸⁷See CAD, Volume 8, pp. 408-410.

⁸⁸See CAD, Volume 8, pp. 410-411.

During the Ur III period, the syllabic value *bur* is attested for the sign BUR, as in the following proper nouns: *li-bur-si₂-im-ti* (*libūr-simti/i*, “may the/my appropriate sign appear”, from the root *b-ṣ-r*, “to appear, be firm”, G-stem prec. 3 m. s. + acc. s noun (from *simtum*) + perhaps 1 c. s. poss. suffix (-*i*); AnOr 7, 52 o. 6); *li-bur-^dšul-gi* (*libūr-šulgi*, “may Šulgi appear; be firm”, from the root *b-ṣ-r*, “to appear, be firm”, G-stem prec. 3 m. s. + DN; AuOr 16, 208, 25 o. 4).

At Ebla, the syllabic value *bur* is attested for the sign BUR, as in the following proper nouns: *a-bur-^dli-im* (*abūr-līm*, perhaps “I appeared, O Līm”, from the root *b-ṣ-r*, “to appear, be firm”, G-stem pret. 1 c. s. + DN; *ARET* 7, 150 r. iii 5); *bur-ma-an^{ki}* (GN; passim); *ta₂-bur-^dda-mu* (*tabūr-damu*, “you appeared, O Damu”, from the root *b-ṣ-r*, “to appear, be firm”, G-stem pret. 2 m. s. + DN; *ARET* 15, 3 o. ii 2; *ARET* 12, 1409 r. iii’ 3’; *ARET* 15, 56 r. vi 10; *ARET* 3, 469 r. vii 1); *za-bur-rum₂^{ki}* (GN; passim).

The sign BUR is not attested with a syllabic value at Mari.

The sign BUR is not attested with a syllabic value at Nabada.

The sign BUR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *bu-ur* for the sign BUR (l. 215).

202. ŠA

During the Old Akkadian period, the syllabic value *ša* is attested for the syllabic value ŠA, as in the following words: *ša-at* (*šāt*, “who; whoever”, 3 f. s. ind. pronoun; HSS 10 1); *ma-ša-lum* (*mašālum*, “mirror”, nom. s. noun; OIP XIV 100, 103; ITT II/2 p. 2, 2839).

During the Ur III period, the syllabic value *ša* is attested for the sign ŠA, as in the following words: *ša* (*ša*, “of”, prep.; NATN 613); *i-ša-qa₂-al* (*išaqqa*l, “I will pay; weigh”, from the root *š-q-l*, “to pay, weigh”, G-stem dur. 3 m. s.; NATN 715 envelope o. 3’).

At Ebla, the syllabic value *ša* is attested for the sign ŠA, as in the following words: *ša-la-pu_x(BU)-um* (*šala(h)pu(yu)m*, “turtle”, nom. s. noun without mimation; *VE* 47); *i₃-ra-ša-tu₃* (*ṛšatu(m)*, “desire”, nom. s. noun without mimation; *VE* 577).

At Mari, the syllabic value *ša* is attested for the sign ŠA, as in the proper noun *ša-maš-i₃-li₂* (*šamaš-ilī*, “Šamaš is my god”, DN + acc. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*i*); ARM XIX 294).

At Nabada, the syllabic value *ša* is attested for the sign ŠA, as in the following proper nouns: *ib-ba-ru-ša-nu* (meaning uncertain, but perhaps from the root *ᵛ-b-r*, “to embrace”, + acc. s. noun (from *šanûm*); Subartu 2, 69 o. col. ii 7); *ᵛa₃-ša-lum* (meaning uncertain but perhaps a nom. s. noun; Subartu 2, 103 o. col. i 2).

At Tuttul, the syllabic value *ša* is attested for the sign ŠA, as in the following words and proper nouns: *ša* (*ša*, “of”, prep.; KTT 55a o. 4); *ša-la-ta-am* (*šallatam*, “booty; plunder”, nom. s. noun; KTT55a r. 10); *ta-ri-im-ša-ki-im* (meaning uncertain; KTT 16 r. 10; KTT 20 r. 17).

The sign ŠA does not appear in the extant portions of Proto-Ea.

203. ŠU

During the Old Akkadian period, the syllabic value *šu* is attested for the sign ŠU, as in the following words: *šu* (*šū*, “he”, 3 m. s. ind. pronoun; passim); *ma-ḥa-ar-šu-nu* (*maḥaršunu*, “before them”, prep. + 3 m. pl. acc. suffix (-*šunu*); FM 8:16; 12:16).

During the Ur III period, the syllabic value *šu* is attested for the sign ŠU, as in the following words: *šu* (*šū*, “he”, 3 m. s. ind. pronoun; passim); *ma-ša-lum* (*mašālum*, “to equal”, inf.; BIN VIII 145).

At Ebla, the syllabic value *šu* is attested for the sign ŠU, as in the following words: *qu₃-ri₂-šu* (*qurīšu(m)*, perhaps “smooth; spreadable”, verb. adj. without mimation; VE 241); *šu-tu-qu₃* (*šutuqu(m)*, perhaps a kind of cultic building⁸⁹, nom. s. noun without mimation; VE 323).

At Mari, the syllabic value *šu* is attested for the sign ŠU, as in the following words: *šu* (*šū*, “he”, 3 m. s. ind. pronoun; ARM XIX 79-85); *šu-gur-ri₂* (*šugurri*, “stamp; seal”, s. noun in const. st.; ARM XIX 334); .

⁸⁹A possible loanword from Sumerian, but appears to be used and interpreted as Semitic based on the case ending.

At Nabada, the syllabic value *šu* is attested for the sign ŠU, as in the following proper nouns: *šu-be-lim* (*šū-bēlim*, “he is (the one of) the lord”⁹⁰, 3 m. s. ind. pronoun + acc. s. noun in the form of a gen. s. noun; Subartu 2, 1 o. col. i 4); *šu-ḫa-li* (meaning uncertain, but likely contains the 3 m. s. ind. pronoun; Subartu 2, 5 r. col. i 11).

At Tuttul, the syllabic value *šu* is attested for the sign ŠU, as in the following proper nouns: *i₃-li₂-e-šu-uh* (meaning uncertain; KTT 7 r. 5; KTT 19 r. 23); *ma-ar-ḫa-šu-um* (*marḫašum*, “(the one) of Marḫaši”, nom. s. noun; KTT 54 o. 15); *šu-mu-na-ṽa₃-ri₂* (perhaps *šumu-na’āri*, “the name is roaring”, nom. s. noun without mimation (from *šumum*) + a form of the root *n-ṽ-r*, “to roar, snarl”; KTT 29 o. 5).

Proto-Ea lists the reading *šu-u₂* for the sign ŠU (l. 584).

207. LUL

During the Old Akkadian period, the syllabic value *lul* is attested for the sign LUL, as in the following proper nouns: *iš-lul-DINGIR* (*išlul-ilum*, “the god carried off”, from the root *š-l-l*, “to carry off, plunder”, G-stem pret. 3 m. s. + nom. s. noun; AIHA 4, 7 r. col. i 9); *iš-lul-^dEN.ZU* (*išlul-su^wen*, “Suen carried off”, from the root *š-l-l*, “to carry off, plunder”, G-stem pret. 3 m. s. + DN; ETB 2, 75 o. 4).

During the Ur III period, the syllabic value *lul* is attested for the sign LUL, as in the following proper nouns: *i-lul-DINGIR* (*īlul-ilum*, “the god rejoiced”, from the root *ṽ-l-l*, “to rejoice”, G-stem pret. 3 m. s. + nom. s. noun; BJRL 64, 114 78 r. 1).

At Ebla, the syllabic value *lul* is attested for the sign LUL, as in the following proper nouns: *ib-lul-il* (*iblul-il*, perhaps “the god mixed/brewed/had a share”, from the root *b-l-l*, “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs.; *ARET* 2, 4 o. vi 7; *ARET* 13, 4 r. vi 5); *ib-lul-ma-lik* (*iblul-malik*, perhaps “the king/the god Malik mixed/brewed/had a share”, from the root *b-l-l*, “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs./DN; *ARET* 12, 1307 r. ii’ 1’).

The sign LUL is not attested with a syllabic value at Mari.

⁹⁰This proper noun could also be interpreted as *ŠU-be-lim* (*qāt bēlim*, “the hand of the lord”).

At Nabada, the syllabic value *lul* is attested for the sign LUL, as in the following proper nouns: *ib-lul-il* (*iblul-il*, perhaps “the god mixed/brewed/had a share”, from the root *b-l-l*, “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs.; Subartu 2, 74 r. col. i 2); *ib-lul-DINGIR* (*iblul-ilum*, perhaps “the god mixed/brewed/had a share”, from the root *b-l-l*, “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun; Subartu 2, 109 r. col. ii 5); *lul-la-ša* (Subartu 2, 10 r. col. i 1).

The sign LUL is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *lu-ul* for the sign LUL (l. 578).

211. KUR

During the Old Akkadian period, the sign KUR is not attested with a syllabic value.

During the Ur III period, the syllabic value *kur* is possibly attested for the sign KUR, as in the following proper noun: *si₂-kur-i₃-li₂* (*sikkūr-ilī*, “(door) bolt of the gods” (?), nom. s. noun in const. st. (from *sikkurum*) + gen. pl. noun (from *ilum*); Hermitage 3, 189 o. 5).

At Ebla, the syllabic value *kur* and/or *qur₂* are possibly attested for the sign KUR, as in the following proper nouns: *be-su₃-kur^{ki}* (GN; *ARET* 15 7 r. iii 15); *ga-ra-kur-tum^{ki}* (GN; *ARET* 15 31 o. x 18); *kur-a-ad^{ki}* (GN; *ARET* 15 33 o. viii 15).

The sign KUR is not attested with a syllabic value at Mari.

The sign KUR is not attested with a syllabic value at Nabada.

The sign KUR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ku-ur* (vars. *kur*; *kur₂*) for the sign KUR (l. 82).

212. ŠE

During the Old Akkadian period, the syllabic value *še* is possibly attested for the sign ŠE, as in the following proper nouns: *u₃-a-še-er^d-da-ga-an* (*waššer-dagan*, “Dagan made right; directed”, from the root *ṣ-š-r*, “to make right, straight”, D-stem pret. 3 m. s. + DN; ITT V 6718); *še-il-wa-an^{ki}* (GN; MDP XIV p. 10 ii).

During the Ur III period, the syllabic value *še* is attested for the sign ŠE, as in the following words and proper nouns: *tam-še-lum* (*temšelum*, a type of plant, nom. s. noun; TCL V 5680 ii; 6037 iv; 6042 i, ii; Chiera, STA I ii; SO IX/1 p. 27); *še-er-ḫa-num₂* (meaning uncertain; UET III p. 28); *še-er-še-er-ru-um* (*šeršerrum*, “link (on a chain)”, nom. s. noun; AnOr VII 63:5).

At Ebla, the syllabic value *še* is attested for the sign ŠE, as in the following proper nouns: *i-še-dli-im* (*īše-līm*, perhaps “(the god) Lim confused”, from the root ʾ-š-, “to confuse”, G-stem pret. 3 m. s. + DN; *ARET* 15 2 r. vii 7); *še-ba-d^dda-mu* (perhaps “(the god) Damu is the elder” or “(the god) Damu is satisfied”; *ARET* 15 49 r. iv 8).

The sign ŠE is not attested with a syllabic value at Mari.

The sign ŠE is not attested with a syllabic value at Nabada.

The sign ŠE is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *še(-e)* for the sign ŠE (l. 627).

213. BU

During the Old Akkadian period, the syllabic values *bu* and *pu* are attested for the sign BU, as in the following words and proper nouns: *a-bu-a-bi* (proper noun, *abu-abī*, “the father is my father”, nom. s. noun without mimation (from *abum*) + nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-ī); ITT II/2 p. 21, 4366); *i-pu-uš* (*īpuš*, “he made, did”, from the root ʾ-p-š, “to make, do”, G-stem pret. 3 m. s.; MDP X pl. 3, 1-2; passim); *qi₃-pu-tum* (*qīpūtum*, proper noun from *q-ʾ-p*, “to trust”, nom. s. noun; RTC 127 r. vi).

During the Ur III period, the syllabic values *bu* and *pu* are attested for the sign BU, as in the following words and proper nouns: *a-bu-DU₁₀* (proper noun, *abu-tābum*, “the father is good”, nom. s. noun without mimation (from *abum*) + nom. s. verb. adj.; U 50); *la-qi₃-pu-um* (*lāqīpum*, “unbelievable”, neg. part. + verb. adj.; U 1892).

At Ebla, the syllabic value *bu* is attested for the sign BU, as in the word and proper nouns: *bu-rum₂* (*burum*, “pit from which water is drawn; well”, nom. s. noun; *VE* 520); *a-bu* (*abu*, “father”, nom. s. noun without mimation; *ARET* 7, 125 r. ii 2; passim); *a-bu-il* (proper noun, *abu-il*, “the father is the god / (the god)

Il”, nom. s. noun without mimation (from *abum*) + nom. s. noun in abs./DN; *ARET* 4, 11 r. xv 5; *ARET* 4, 11 o. viii 11); *en-bu^dil* (proper noun, *enbu-il*, “progeny of (the god) Il”, nom. s. noun in const. st. (from *enbum*) + DN; *ARET* 15, 9 r. xi 5; *ARET* 15, 36 o. vii 5).

At Mari, the syllabic value *bu* is attested for the sign BU, as in the following phrase: *iš ku-bu-li* (*iš kubbulī*, perhaps “for the lame”, prep. + gen. pl. noun; ARM XIX 110).

At Nabada, a syllabic value *b/pu* is possibly attested for the sign BU, as in the following words with uncertain meanings: *bu-ba-lum* (Subartu 2, 28 r. col. iv 4’); *a-bi-X-bu* (Subartu 2, 35 o. col. iv 4); *bu-[x]-tum* (Subartu 2, 43 r. col. i 4).

At Tuttul, the syllabic values *bu* and *pu* are attested for the sign BU, as in the following proper nouns: *a-bu-um-ḥa-lu-um* (*abum-ḥālum*, perhaps “the father is the uncle”, nom. s. noun + acc. s. noun in the form of a nom. s. noun; KTT 14 r. 8); *i-di-a-bu-um* (proper noun, *idī-abum*, “the father is my side”, nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-ī) + nom. s. noun; KTT 18 r. 47); *i-ṣi-na-bu-u* (*iṣi-nabû*, “(the god) Nabû set”, from the root *w-ṣ-ṣ*, “to go down, set; exit”, + DN; KTT 6 r. 7); *i₃-li₂-e-pu-uḥ* (perhaps *ilī-eppuḥ*, “my god became visible”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + the root *n-p-ḥ*, “to blow, hiss; to light a fire; to become visible, to rise, to glow”, G-stem pret. 3 m. s.; KTT 6 o. 4); *i-iš-pu-ḥi a-na* (personal name, meaning uncertain; KTT 8 o. 3); *ia-pu-ḥu-um* (personal name, meaning uncertain; KTT 18 r. 15); *pu-uḥ* PN (*pūḥ* PN, “exchange/substitute of PN”, nom. s. noun in const. st. (from *pūḥum*; KTT 20 o. 19, 24); *pu-ul-su₂-mi-il* (personal name, meaning uncertain apart from the word *il*, from *ilum*, “god”; KTT 49 o. 2).

Proto-Ea lists the reading *bu-u₂* for the sign BU (l. 473).

214. UZ

During the Old Akkadian period, the syllabic values *uz* and *us* are attested for the sign UZ, as in the following words: *i-ḥu-uz* (*īḥuz*, “he seized”, from the root

ʾ-h-z, “to seize”, G-stem pret. 3 m. s.; BIN VIII 146; passim); *ip-ru-us* (*iprus*, “he decided”, from the root *p-r-s*, “to decide”, G-stem pret. 3 m. s.; MDP IV Pl. 2 iv).

During the Ur III period, the syllabic values *uz* and *us* are attested for the sign UZ, as in the following words and proper nouns: *ši-pu-uz-ri* (*šī-puzrī*, “she is my protection”, 3 f. s. ind. pronoun + nom. s. noun (from *puzrum*) + 1 c. s. poss. suffix (-*ī*); Orient. XLVII 40:52); *nu-us-ḫu* (*nushu(m)*, a type of container, nom. s. noun without mimation; BE III 76).

At Ebla, the syllabic value *us* is possibly attested in the proper noun *en-bu₃-us^dli-im* (*enbūš(u)-līm*, “(of the god) Lim, (he) is his offspring”, nom. s. noun (from *enbum*) + 3 m. s. poss. suffix (-*šū*) + DN; *ARET* 15 52 o. 1 2).

At Mari, the syllabic value *uṣ* is attested for the sign UZ in the proper noun ^d*da-gan-nu-uṣ-ra* (*dagan-nuṣra*, “Dagan is the protection”, DN + a form of the root *n-ṣ-r*, “to guard, protect”; ARM XIX 341; 449).

At Nabada, the syllabic value *us/ṣ/z* is possibly attested for the sign UZ, as in the following proper nouns: *uZ-zu₂-lum* (proper noun, meaning uncertain; Subartu 12, 150 o. col. iii 7); ^{a₃}*uZ* (proper noun, meaning uncertain; Subartu 2, 5 o. col. iii 2).

The sign UZ is not attested with a syllabic value at Tuttul.

Proto-Ea does not list the sign UZ.

217. TIR

During the Old Akkadian period, the sign TIR is not attested with a syllabic value.

During the Ur III period, the sign TIR is not attested with a syllabic value.

The sign TIR is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *tir* is possibly attested for the sign TIR, as in the word *tir-ku* (nom. s. noun without mimation, likely from the root *t-r-k*, “to beat, thump; to be dark”; ARM XIX 280; 339).

The sign TIR is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ṭir₅* is attested for the sign TIR in the word *sa₂-ṭir₅* (*šaṭir*, “written”, verb. adj.; KTT 50 o. 16).

Proto-Ea lists the reading *te-er* for the sign TIR (l. 457).

218. TE

During the Old Akkadian period, the syllabic values *te* and *te₄* are attested for the sign TE, as in the following words and proper nouns: *ip-te-u₃* (*ipte^u*, “(when) it opened”, from the root *p-t-^u*, “to open”, G-stem pret. 3 m. s. + sub. marker; MDP IV Pl. 2 ii); ^d*be-la-at-te-er₃-ra-ba-an* (meaning uncertain apart from the element *bēlat*, “lady”; MDP XIV p. 20); *te₄-mi-tum* (*tēmītum*, “wise”, nom. s. verb. adj.; AIHA 4, 1 o. col. ii 12).

During the Ur III period, the syllabic value *te* is attested for the sign TE, as in the following proper nouns: *te-ze₂-in-^dma-ma* (*teze^uin-mama*, “you adorn, O Mama”, from the root *z-^u-n*, “to decorate, adorn”, G-stem dur. 2 m. s. + DN; TCS 170); *la-te-ni-iš* (proper noun, *lā-tēniš*, “you did not become weak”, neg. part. + the root *ṣ-n-š*, “to become weak”, G-stem pret. 2 m. s.; UET III 1215).

At Ebla, the syllabic value *te* (and possibly *te₄*) is attested for the sign TE, as in the following proper nouns: *ip-te-^dda-mu* (*ipte-damu*, “(the god) Damu opened”, from the root *p-t-^u*, “to open”, G-stem pret. 3 m. s. + DN; *ARET* 12, 148 r. ii 3; passim); *tiš₂-te-^dda-mu* (proper noun, meaning uncertain aside from DN; *ARET* 12, 1147 r. iii’ 6’; passim); *a-te/te₄-na-ad^{ki}* (GN; *ARET* 1, 14 o. iv 3; passim).

At Mari, the sign TE is attested with the syllabic value *te*, as in the word *te-er(-um)* (meaning uncertain, appears after the preposition *in*, “in”, after the word UDU, “sheep”, and after the word GURUŠ, “male, worker”; ARM XIX 34-7; 193; 194; 435).

The sign TE is not attested with a syllabic value at Nabada.

The sign TE is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *te-e* (vars. *ti-e*, *te!-e[n]*) for the sign TE (l. 387).

219. KAR

During the Old Akkadian period, the sign KAR is not attested with a syllabic value.

During the Ur III period, the sign KAR is not attested with a syllabic value.

At Ebla, the syllabic value *k/qar* is possibly attested in the following proper nouns: *a-q/kar* (proper noun, meaning uncertain; *ARET* 15 12 o. vii 5); *a-kar-na-ad^{ki}* (GN; MEE 12, 29 r. iv 4); *a-kar-na-at^{ki}* (GN; MEE 12, 29 r. v 4); *ib-k/qar^dda-mu* (proper noun, possibly *ibqar-damu* “Damu made a claim”, from the root *b-q-r*, “to make a claim”, G-stem pret. 3 m. s. + DN; *ARET* 9 37 o. i 4).

The sign KAR is not attested with a syllabic value at Mari.

The sign KAR is not attested with a syllabic value at Nabada.

The sign KAR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ka-ar* (var. *ga-ar*) for the sign KAR (l. 390).

221. UD

During the Old Akkadian period, the syllabic values *ud*, *ut*, *uṭ*, and *tam* are attested for the sign UD, as in the following words and proper nouns: *ḫu-bu-ut* (uncertain, but perhaps *ḫubbut*, “taken as plunder”, noun in const. st.; BIN VIII 141); *li-ib-lu-uṭ* (*liblut*, “may he live”, from the root *b-l-t*, “to live”, G-stem prec. 3 m. s.; passim); *šu-ut* (*šūt*, “they”, m. pl. ind. pronoun; passim); *tam-ḫi-e* (*tamḫiē*, “evenings”, gen. pl. noun (from *tamḫûm*); MDP IV Pl. 2 ii).

During the Ur III period, the syllabic values *ut*, *u₄*, and *tam* are attested for the sign UD, as in the following words and proper nouns: *ḫe₂-du-ut^dAMAR^dEN.ZU* (*ḫedût-amar-suen*, “the joy of Amar-Suen”, nom. s. noun (from *ḫedûtum*) + PN; RA VIII 192 no. 14); *šu-ut* (*šūt*, “they”, m. pl. ind. pronoun; passim); *u₄-tuḫ-ḫu-um* (*utuḫḫum*, a kind of bread, nom. s. noun; BIN V 327:1); *tam-li-šu-na¹* (*tamlīšunu*, “their filling”, s. noun (from *taml̄um*) + 3 m. pl. poss. suffix (-*šunu*); RA XIX 41 no. L rev.).

At Ebla, the syllabic values *u₄* and *ud/t/t̄* (with uncertain quality of final consonant) are attested for the sign UD, as in the following words: *tu₃-ša-ne-u₄* (*tušanniṽu(m)* or *tušanniu(m)*, “anger”, nom. s. noun without mimation; *VE* 574⁹¹); *ša-na-u₄* (*šanāṽu(m)* or *šanāyu(m)*, “to be angry”, inf. without mimation; *VE* 575); *iš₁₁-ru₁₂-uD* (proper noun, meaning uncertain; *ARET* 9, 66 o. v 13;

⁹¹See also Bonechi 2008, pp. 12-13.

ARET 9, 68 o. i 10; o. viii 3; *ARET* 9, 103 r. iii 6); *a-nu-uD^dda-mu* (proper noun; *ARET* 12, 090 o. ii' 7).

At Mari, the syllabic value *ut* is attested for the sign UD in the word *šū-ut* (*šūt*, “they”, 3 m. pl. ind. pronoun; ARM XIX 248).

At Nabada, a syllabic value may be attested for the sign UD in the proper noun *hu-UD-da* (meaning uncertain; Subartu 2, 104 o. col. v' 6').

At Tuttul, the syllabic value *ut* is attested for the sign UD, as in the following proper nouns: *mu-ut^dda-gan* (proper noun, *mūt-dagan*, “warrior (lit.: “husband”) of Dagan”, nom. s. noun in const. st. (from *mūtum*) + DN; KTT 23 o. 15); *mu-ut-ḥa-li* (*mūt-ḥāli*, “warrior (lit.: “husband”) of the uncle”, nom. s. noun (from *mūtum*) + gen. s. noun without mimation (from *ḥālum*); KTT 11 r. 4).

Proto-Ea lists the reading *u₃* (vars. *u₂*, *u₄*, *u*) for the sign UD (l. 151).

223. PI

During the Old Akkadian period, the syllabic values *wa*, *wi*, *wu*, *pi*, and possibly *bi₃* are attested for the sign PI, as in the following words and proper nouns: *wa-ar-ki-um* (*warki(y)um*, “later”, nom. s. noun; passim); *la-wi-ib-tum* (female proper noun, meaning uncertain but the reading *wi* is determined based on the initial vowel of the following sign; FM+); *wu-ṣu₂-iṣ* (*wuṣṣū²iṣ*, “for going out”, D-stem inf. from the root *w-ṣ²* + term.-adv. suffix; HSS 10 186:6); *wu-sum-tum* (*wussumtum*, “ornate”, PN in the form of a nom. s. noun; passim); *sa-aṭ-pi-DINGIR* (*ṣaṭpi-ilim*, “rescued by god”?, from the root *ṣ-ṭ-p*, “to rescue, save” + gen. s. noun (from *ilum*); RTC 78); *li-pi-it-i₃-li* (*lipit-ilī*, “the creation of my god”, nom. s. noun in const. st. (from *līptum*) + gen. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*); AIHA 4, 8 r. 14); *i-qa₂-bi₃-u* (*iqabbi²u*, “he shall speak”, from the root *q-b²*, “to say, speak”, G-stem dur. 3 m. s. + sub. marker).

During the Ur III period, the syllabic values *wa*, *wi*, and perhaps *wu* and *pi*, are attested for the sign PI, as in the following words and proper nouns: *na-wa-ar^{ki}* (GN; Trouville 83 o. 9); *a-ḥu-wa-qar* (*aḥu-waqar*, “the brother is dear”, nom. s. noun without mimation (from *aḥum*) + verb. adj. in abs.; Akkadica 114-115,

102 32 r. 1); *na-wi-ir-DINGIR* (*nawir-ilum*, “the god is shining”, G-stem stat. 3 m. s. + nom. s. noun; CUSAS 3, 1020 seal l. 3; CUSAS 3, 1046 seal l. 2; CUSAS 2, 1116 seal l. 1; CUSAS 3, 1206 seal l. 3; CUSAS 2, 1333 seal l. 1) *i-wu-ur-ši-na-at* (perhaps *iwūršīnāt*, “... them”, includes the 3 f. pl. dat./acc. suffix; SNAT 38 o. 6); *a-bi₂-a-PI-iḫ* (*abī-apīḫ*, “my father...”, nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-*i*) + uncertain element; BIN 5 31 r. 4); *p/wi-ir-ti-šu* (*pirtišu*, meaning uncertain; NATN 917 r. 1).

At Ebla, the syllabic value *wa*, *wi*, *we*, and *wu* are attested for the sign PI, as in the following words: *wa-ša-u₃* (*wašāu(m)*, “to go down; to set”, inf. without mimation; *VE* 129); *ra-wa-bu₃* (*rawābu(m)*, “to be numb; languid from satiety or sleep”, inf. without mimation; *VE* 135); *da-wi-du* (proper noun, *dāwidu*, “beloved”, nom. s. noun without mimation cf. Heb. *dwd*; *ARET* 15, 17 o. v 4); *il₂-wi-i^{ki}* (GN; *ARET* 12, 343 r. iii 12; *ARET* 12, 1364 r. ii’ 4’); *en-bu_{3/14}-we-rum* (*enbu-werum*, “fruit, progeny of (the god) Werum”, nom. s. noun in const. st. (from *enbum*) + DN; *ARET* 15 42 r. vii 5, 15); *i-ša-wu* (from the root *(y)išāwu(m)*, “to exist”; *VE* 624).

At Mari, the syllabic value *wa* is attested for the sign PI, as in the following word and proper noun: *sa₂-pu-wa-an* (*šapuwān*, meaning uncertain, possibly a du. noun; ARM XIX 295-7); *a-ḫu-wa-qar* (*aḫu-waqar*, “the brother is dear”, nom. s. noun without mimation + verb. adj. in abs.; ARM XIX 254; 327; 371; 376; 407).

At Nabada, a syllabic value *pi* and/or *wa/i/u* is possibly attested for the sign PI, as in the following proper nouns: *ma-PI^{ki}* (GN; Subartu 2, 6 o. col. ii 3); *PI-sa₂* (proper noun, meaning uncertain; Subartu 2, 111 r. col. i 2); *PI-NE-sum* (a designation of KUŠ, “leather”; Subartu 2, 4 r. col v 4).

At Tuttul, the syllabic values *wa*, *wi*, and *ia₈* are attested for the sign PI, as in the following proper nouns: *a-wi-lum* (*awīlum*, “man”, nom. s. noun; KTT 53 o. 8, 13); *wa-ar-ka-ta-am* (*warkatam*, “later”, acc. s. noun; KTT 55a r. 19); *ia₈-qi₂-ru-um* (personal name from the root *y-q-r* (Akkadian *w-q-r*), “to be precious, rare”, nom. s. noun; KTT 21 o. 1); *ia₈-din-il₃* (*yaddin-il*, “(the god) Il gave (a life, child)”, G-stem pret. 3 m. s. from the root *n-d-n*, “to give” + DN; KTT 21 o.

4); *a-ia₈-ṣu₂-um* (*ayyaṣum*, meaning uncertain; KTT 53 o. 8, 13); *ia-aḥ-du-li-im* (*yaḥdu-līm*, “... (the god) Lim”; KTT 55a o. 3, 15).

Proto-Ea lists the readings *wi-i*, *we-e*, *wa-a*, *ta-al*, and *giš-tu-nu* for the sign PI (l. 601-605).

229. HI

During the Old Akkadian period, the syllabic value *hi* is attested for the sign HI, as in the following proper nouns: *ma-num₂-a-ḥi* (*mannum-aḥī*, “who is my brother?”, interr. pronoun + acc. s. noun (from *aḥum*) + 1 c. s. poss. suffix (-*ī*); BIN VIII 151); ITI *ba-ḥi-ir* (*warḥi baḥīr*, MN; Adab 973 r. 4; CUSAS 19, 186 r. 2; CUSAS 19, 187 r. 3).

During the Ur III period, the syllabic value *hi* is attested for the sign HI, as in the following proper nouns: *a-ḥi-MI-lum* (*aḥī MI-lum*, “my brother is ...”, nom. s. noun (from *aḥum*) + 1 c. s. poss. suffix (-*ī*) + uncertain element; Pinches, AT 77); *nu-ḥi-lum* (*nūḥ-ilum*, “make restful! O god”, from the root *n-ḥ*, “to rest”, D-stem imp. 2 m. s. + nom. s. noun in voc.; U 2406; RTC 363).

At Ebla, the syllabic value *hi* is attested for the sign HI, as in the following words: *ma-ḥi-lum* (*māḥīrum*, “receiver”, nom. s. noun; VE 157); *ḥi-tum* (*ḥi(r)tum*⁹², “tip; point”, nom. s. noun, cf. Sem. **ḥ-r-t*, “to engrave”; VE 479).

At Mari, the syllabic value *hi* is attested for the sign HI, as in the following proper nouns: ITI *la₂-ḥi-im* (*warḥi laḥim*, MN; ARM XIX 301); *a-ḥi-me-ra-a* (meaning uncertain apart from the element *aḥī*, “my brother”, nom. s. noun (from *aḥum*) + 1 c. s. poss. suffix (-*ī*); ARM XIX 376).

At Nabada, the syllabic value *hi* is possibly attested for the sign HI in the proper nouns *ku-ḥi-ir* (proper noun, meaning unknown; Subartu 2, 30 r. col. i 2') and *la-ḥi-su* (proper noun, meaning uncertain; Subartu 2, 35 o. col. i 4).

At Tuttul, the syllabic value *hi* is possibly attested for the sign HI, as in the following proper nouns: *ia-ar-ḥi-el* (proper noun, meaning uncertain; KTT 5 o. 6); *ḥi-šū-tu* (*ḥišūtu*, meaning uncertain; KTT 7 o. 11); *a-ḥi-ma-ra-aṣ* (*aḥī-maraṣ*,

⁹²At Ebla, the consonant /r/ commonly drops at the end of a syllable. It is unclear whether this was solely a feature of the writing system or whether it reflects Eblaite phonology.

“my brother is sick”, nom. s. noun (from *aḫum*) + 1 c. s. poss. suffix (-ī) + verb. adj. in abs.; KTT 8 o. 2).

Proto-Ea lists the reading *hi-i* (var.: *he₂*) for the sign 𒄩 (l. 364).

234. AḪ

During the Old Akkadian period, the sign AḪ is attested with the syllabic values *aḫ*, *eḫ*, *iḫ*, and *uḫ*, as in the following words and proper nouns: *at-ta₂-na-aḫ* (*attan(n)aḫ*, “I grew/grow/have grown tired”, from the root 𒀭-*n-ḫ*, “to be(come) tired”, Gt-stem pret/dur. or G-stem perf.; OIP 104, 40 r. col. iv’ 6); *la-aḫ-ma-an* (proper noun from *laḫmum*, an ox-like animal⁹³, nom. s. noun; PBS 9 30); *me-eḫ-ṣum* (*meḫṣum* or *miḫṣum*, “blow, strike”, also a type of textile, nom. s. noun; HSS 10 156 o. col. iii’ 6); *na-si₂-iḫ* (*nāsīḫ*, “(the one who) tears out”, act. part. from the root *n-s-ḫ*, “to tear out”; BIN 8 141); *i₃-li₂-nu-uḫ-si* (*ilī-nuḫšī*, “my god is my prosperity”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + acc. s. noun (from *nuḫṣum*) + 1 c. s. poss. suffix (-ī); MAD 1, 163+165 r. col. ii 5); *su-tu-uḫ-ḫa-tim* (*šutuḫḫātīm*, meaning uncertain, f. pl. noun; OAIC 52 r. 1).

During the Ur III period, the syllabic values *aḫ*, *eḫ*, and *iḫ* are attested for the sign AḪ, as in the following words and proper nouns: *a-ta₂-na-aḫ* (*attan(n)aḫ*, “I grew/grow/have grown tired”, from the root 𒀭-*n-ḫ*, “to be(come) tired”, Gt-stem dur./pret. or G-stem perf.; AnOr 1, 1 o. 4); *na-aḫ-ba-tum* (*naḫbātum*, leather or reed carrying cases, nom. pl. noun; Berens 89 r. col. i 3); *a-bi-a-bi-iḫ* (*abī-abīḫ*, perhaps “my father is surrounding”, nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-ī) + G-stem stat. 3 m. s. from the root 𒀭-*b-ḫ*, “to surround, encircle”; BIN 5, 31 r. 4); *še-eḫ-ru-um* (*šeḫrum*, “small; young”, nom. s. verb. adj.; RA 8, 197 22 o. 1); *še-eḫ-la-am* (meaning uncertain, but the form appears to be an acc. s. Akkadian noun; CT XXXII 15 r. 5).

At Ebla, the syllabic values *aḫ* and *iḫ* are attested for the sign AḪ, as in the following words and proper nouns: *a-aḫ-du*^{ki} (GN; *ARET* 8, 541 r. iv 20; *ARET* 8, 542 o. ix 6’; *ARET* 12, 1320 r. ii’ 7’); *aḫ-ra-d^dma-lik* (meaning uncertain, first

⁹³See Gelb 1961, 161.

component perhaps related to the root h-r , “to be late; to come after”, + DN; *ARET* 12, 405 r. i’ 2’); *i-na-ah^dli-im* (*ināḫ-līm*, “(the god) Līm was at rest”, from the root $n\text{-h}$, “to rest”, G-stem pret. 3 m. s. + DN; *ARET* 12, 1289 r. i’ 2’); *iḫ-su-ub^dda-mu* (perhaps *iḫšub-damu*, “(the god) Damu reckoned”, from the root $h\text{-š-b}$, “to count, reckon”, G-stem pret. 3 m. s. + DN; passim).

At Mari, the syllabic value *ah* is attested for the sign Aḫ, as in the following proper noun and word: E₂ *ba-ah* (*bīt baḫ*, “the temple of Baḫ”, nom. s. noun in const. st. + DN; ARM XIX 193); *na-ah-lim* (*naḫlim*, “valley”, gen. s. noun; ARM XIX 442).

The sign Aḫ is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic values *ah*, *eh*, *iḫ*, and *uḫ* are possibly attested for the sign Aḫ, as in the following proper nouns: *ah-lu-la₂^dIŠKUR* (meaning uncertain; KTT 29 o. 6); *be-eh-lu-šum₂-li* (meaning uncertain; KTT 11 o. 10); *be-eh-li^dda-gan* (*beḫlī-dagan*, “my lord is Dagan”, nom. s. noun (from *beḫlum*) + 1 c. s. poss. suffix (-ī) + DN; KTT 15 o. 2); *be-eh-lu-um* (*beḫlum*, “lord”, nom. s. noun; KTT 16 o. 4); *ni-iḫ-ma-nu* (*nīḫ-mannu*, perhaps “who is at rest?”, a form of the root $n\text{-h}$, “to rest”, + interr. pronoun; KTT 9 o. 5); *i₃-li₂-e-šu-uḫ* (*ilī-ešūḫ*, “my god is...”, precise meaning uncertain; KTT 19 r. 2).

Proto-Ea lists the reading *ah* for the sign Aḫ (l. 373).

236. IM

During the Old Akkadian period, the syllabic value *im* is attested for the sign IM, as in the following words: *ar-ba-im* (*arbā'im*, “four”, gen. s. noun; Adab 889 col. ii 1); *im-ḫur* (*imḫur*, “he received”, from the root $m\text{-h-r}$, “to accept, receive”, G-stem pret. 3 m. s.; Adab 967 o. 3; passim); *in ka₃-ri-im* (*in kārim*, “in the quay, port”, prep. + gen. s. noun; BIN 8, 121 r. col. ii 4); *im-ḫa-ṣu₂* (*imḫaṣū*, “they struck, hit”, from the root $m\text{-h-ṣ}$, “to hit, strike”, G-stem pret. 3 m. pl.; BIN 8, 121 r. col. ii 5).

During the Ur III period, the syllabic value *im* is attested for the sign IM, as in the following proper nouns: *a-bi₂-si₂-im-ti* (*abī-simtī*, “my father is my ornament”, nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-ī) + acc. s. noun (from *simtum*) +

1 c. s. poss suffix (- \bar{i}); AAICAB 1/2, pl. 106, 1937-70 o. 5); ${}^d\check{s}ul-gi-si_2-im-tum$ ($\check{s}ulgi-simtum$, “the ornament is Šulgi”, DN + nom. s. noun; Aegyptus 29, 108 38 r. 1).

At Ebla, the syllabic value *im* is attested for the sign IM, as in the following word and proper nouns: $mi_3-si-im$ ($m\bar{i}\check{s}im$, “night”, gen. s. noun; VE 817); $a-hu-dna-im$ ($a\check{h}u(m)-na'im$, “the brother is Na'im”, nom. s. noun without mimation + DN; ARET 3, 460 r. ii 4; ARET 12, 715 r. iii' 2'); $a-mur-dli-im$ ($\bar{a}mur-l\bar{i}m$, “I saw Līm”, from the root $\text{>-}m-r$, “to see”, G-stem pret. 1 c. s. + DN; passim).

At Mari, the syllabic value *im* is attested for the sign IM, as in the following word and proper nouns: $im-hur$ ($im\check{h}ur$, “he received”, from the root $m-h-r$, “to accept, receive”, G-stem pret. 3 m. s.; ARM XIX 316-324); ITI $la_2-hi-im$ ($wara\check{h}lahim$, MN; ARM XIX 301); $ri_2-im-sa_2-i_3-li_2$ ($r\bar{i}m\check{s}a-il\bar{i}$, “her wild bull is my god”, nom. s. noun (from $r\bar{i}mum$) + 3 f. s. poss. suffix (- $\check{s}a$) + nom. s. noun (from $ilum$) + 1 c. s. poss. suffix (- \bar{i}); ARM XIX 18-20; 51; 55; 58; 98; 370; 396; 397).

At Nabada, the syllabic value *im* is attested for the sign IM, as in the following words and proper nouns: $li-im$ ($\bar{l}im$, “thousand”, noun in abs.; SUBartu 2, 35 r. col. ii 3'); $su-li-im$ (proper noun, meaning uncertain; Subartu 2, 57 r. col. i 3); $ma-ma-im$ (proper noun, meaning uncertain; Subartu 12, 163 o. col. i 2).

At Tuttul, the syllabic values *im* and *em* are attested for the sign IM, as in the following proper nouns: $i-di_x(TAR)-im-li-im$ (meaning uncertain, but perhaps $\bar{i}dim-l\bar{i}m$, “(the god) Līm was engaged”, from the root $\text{>-}d-m$, “to be engaged (in)”, G-stem pret. 3 m. s. + DN; KTT 10 o. 8); $i-im-ši_2-u_2-um$ (meaning uncertain; KTT 11 o. 2); $i-ta-ar-li-im$ (perhaps $it\hat{a}r-l\bar{i}m$, “(the god) Līm returns”, from the root $t-\text{>-}r$, “to return”, G-stem dur. 3 m. s. + DN; KT 19 o. 18); $e-em-ši_2-u_2-um$ (personal name, syllabic value *em* is determined based on the previous sign; KTT 11 o. 5); $mu-tu-ra-me-em$ (personal name, syllabic value *em* is determined based on the previous sign; KTT 14 o. 7).

Proto-Ea lists the reading [*i*]m for the sign IM (l. 660).

238. HAR

During the Old Akkadian period, the sign HAR is attested with the syllabic values *har*, *hur*, and *mur*, as in the following words and proper nouns: *har-ra-num₂* (*harrānum*, “road; journey”, nom. s. noun; BIN 8 317; BIN 8 295; BRM 3 103); *ma-har-su* (*maḥaršū*, “before him”, prep. + 3 m. s. acc. suffix (-šū); RIME 2.1.1.11 o. 43); *im-hur* (*imḥur*, “he received”, from the root *m-h-r*, “to accept, receive”, G-stem pret. 3 m. s.; Adab 967 o. 3; passim); *ip-hur* (proper noun, *iphur*, “he/it came together”, from the root *p-h-r*, “to gather, come together”, G-stem pret. 3 m. s.; MDP 28, 526 o. 4); *a-mur-DINGIR* (proper noun, *āmur-ilum*, “I saw (you), O god”, from the root *ṣ-m-r*, “to see”, G-stem pret. 3 m. s. + nom. s. noun in voc.; ETB 2, 75 o. 1); *a-mur-um* (proper noun from the work *amurru*, “Amorite”, nom. s. noun; MAD 5, 103 o. 2).

During the Ur III period, the syllabic values *har*, *hur*, and *mur* are attested for the sign HAR, as in the following proper nouns: *NIN-har-ra-ni* (*aḫāt-harrāni/ī*, perhaps “sister of the road(s)”, nom. s. noun in const. st. + gen. s./pl. noun (from *harrānum*); Jacobsen, CTC 54 o. 4); *mi-it-har-iš* (*mithariš*, “correspondingly”, adv.; TCS 326); *ip-hur* (*iphur*, “he/it came together”, from the root *p-h-r*, “to gather, come together”, G-stem pret. 3 m. s.; AUCT 1, 297 r. 3); *a-mur-DINGIR* (proper noun, *āmur-ilum*, “I saw (you), O god”, from the root *ṣ-m-r*, “to see”, G-stem pret. 3 m. s. + nom. s. noun in voc.; SAT 2, 806 o. 2).

At Ebla, the syllabic values *hur* and possibly *har* are attested for the sign HAR, as in the following words: *hur-rum₂* (*hurru*, “hole”, nom. s. noun; VE 839); *har/hur-tum* (*ha/wrtum*, meaning uncertain, nom. s. noun; *ARET* 5, 7 o. ii 4); *ip-hur-il* (*iphar-il*, “the god gathered”, from the root *p-h-r*, “to gather, come together”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from *ilum*); *ARET* 15, 2 o. ix 9; *ARET* 15, 57 o. vi 2).

At Mari, the syllabic values *har* and *hur* are attested for the sign HAR, as in the following words: *im-hur* (*imḥur*, “he received”, from the root *m-h-r*, “to accept, receive”, G-stem pret. 3 m. s.; ARM XIX 316-324); *har-ṣa₃-an* (*ḥarân*, a type of vase or vessel, s. noun in const. st.; ARM XIX 301).

The sign 𒄩AR is not attested with a syllabic value at Nabada.

The sign 𒄩AR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *ha-ar* for the sign 𒄩AR (l. 381).

242. U

During the Old Akkadian period, the syllabic value *u* is attested for the sign U, as in the following words and proper nouns: *u-ba-al* (*ubâl*, “he will carry, bring”, from the root *w-b-l*, “to bring, carry”, G-stem dur. 3 m. s.; HSS 10, 71 o. 5); *u-bar-tum* (*ubartum*, “friend”, nom. s. f. noun; MAD 1, 163+165 o. col. ii 20); *ip-te-u-um* (proper noun from the root *p-t-ʔ*, “to open”; OAIC 15 r. 2).

During the Ur III period, the syllabic value *u* is attested for the sign U, as in the following proper nouns: *u-bar-tum* (proper noun, *ubartum*, “friend”, nom. s. f. noun; Nisaba 11, 18 o. col. i 18); ^dEN.ZU-*u-si₂-li* (proper noun, *su^wen-usilli*, “I/he prayed to Su^wen”, DN + the root *s-l-ʔ*, D-stem pret. 3 m. s. / 1 c. s.; Boson, TCS 371).

At Ebla, the syllabic value *u* may be attested for the sign U, as in the following proper nouns: *u-da-il* (*ūda-il*, “he knows the god” or “the god knows”, from the root *w-d-ʔ*, “to know”, G-stem dur. 3 m. s. + nom./acc. s. noun in abs. (from *ilum*); *ARET* 15, 42 le 12); *u-da-a-ḥa* (*uda-aḥa*, “he knows the brother” from the root *w-d-ʔ*, G-stem dur. 3 m. s. + acc. s. noun in abs. (from *aḥum*); *ARET* 12, 1057 r. ii’ 4’).

At Mari, the syllabic value *u* is attested for the sign U, as in the word *tim-za-u* (verb, possibly from the root *m-z-ʔ*, “to press, squeeze”, or the root *m-ṣ-ʔ*, “to correspond, comply with”; ARM XIX 38-45).

The sign U is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *u* is attested for the sign U, as in the following words and proper nouns: *u-ub-ʔ₃-ar* (*ubbar*, possibly from the root *ʔ-b-r*, “to embrace, bind”, D-stem dur. 3 m. s.; KTT 29 o. 6); *ra-pi₂-qa-u* (proper noun, meaning uncertain; KTT 29 o. 3); *ra-bi-u-um* (*rabi^wum*, “great”, verb. adj.; KTT 39 o. 3).

Proto-Ea lists the reading *u₄* (var.: *u₂*) for the sign U (l. 112).

248. MI

During the Old Akkadian period, the syllabic value *mi* is attested for the sign MI, as in the following word and proper noun: *um-mi-DU*₁₀ (proper noun, *ummī-tābat*, “my mother is sweet”, nom. s. noun (from *ummum*) + 1 c. s. poss. suffix (-ī) + f. s. verb. adj. in abs.; MAD 1, 336 r. 11); *a-na mi-nim* (*ana mīnim*, “to who(ever)”, prep. + ind. pronoun; JEOL 24, p. 105 o. 5).

During the Ur III period, the syllabic value *mi* is attested for the sign MI, as in the following proper nouns: *um-mi-nu-nu* (*ummī-nunu*, “my mother is Nunu”, nom. s. noun (from *ummum*) + 1 c. s. poss. suffix (-ī) + DN; UET III 1357); ^dš^u^dEN.ZU-*mi-gir-eš*₁₈-*dar* (*š^u-su^{en}-migir-ešdar*, “Šu-Su^{en} is the favorite of Ištar”, PN + nom. s. noun in const. st. (from *migrum*) + DN; BIN 5, 29 r. 1).

At Ebla, the syllabic value *mi* is attested for the sign MI, as in the following words: *ta₂-ta₂-mi-su* (*tattam(m)išu(m)*, from the root *n-m-š*, “to move”, nom. s. noun without mimation; VE 126⁹⁴); *ša-mi-nu* (*šarminu(m)*, “cypress”, nom. s. noun without mimation; VE 379); *mi* (*mī*, perhaps “water”, perhaps gen. pl. noun; VE 616).

At Mari, the syllabic value *šil₂* is attested for the sign MI, as in the following proper noun: *šil₂-la₂-^dnu-nu* (*šilla-nunu*, perhaps “Nunu is the shade”, acc. s. noun without mimation (from *šillum*) + DN; passim in ARM XIX).

At Nabada, the syllabic value *mi* is attested for the sign MI, as in the following word: *mi-at* (*mī^{at}*, “hundred”, s. noun in abs.; Subartu 2, 4 r. col. iv 3, 9; passim).

At Tuttul, the syllabic values *mi* and *šil₂* are attested for the sign MI, as in the following proper nouns: *i-di-ka-mi-iš* (*idī-kamīš*, “my arm is bound”, nom. s. noun (from *idum*) + 1 c. s. poss. suffix (-ī) + verb. adj. + term.-adv. ending; KTT 7 o. 7); *a-ab-du-e-mi* (meaning uncertain; KTT 8 o. 9); *ha-mi-du-um* (*hāmīdum*, perhaps act. part. from the root *h-m-d*, “to hide away, hoard”; KTT 12 o. 10); *šil₂-li₂-hu-um* (*šilli-hum*, “the protection of *hum*”; KTT 7 o. 10); *šil₂-li₂-pi₂-el* (*šilli-pî-el*, “the protection of the word of god” (lit.: “the protection of the mouth of god”), nom. s. noun in const. st. (from *šillum*) + gen. s. noun in const. st.

⁹⁴See also Bonechi 2008, pp. 12-13.

(from *pûm*) + gen. n. in abs. (from *ilum*) or DN (El); KTT 8 o. 4); *šil₂-la a-na* (*šilla*, “protection”, acc. s. noun; KTT 14 o. 5).

Proto-Ea lists the reading *me-e* for the sign MI (l. 670a).

249. GUL

During the Old Akkadian period, the syllabic values *kul₂* and possibly *gul* are attested for the sign GUL, as in the following proper nouns: *be-li₂-tu₃-kul₂-ti* (proper noun, *bēlī-tukultī*, “my lord is my trust”, nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*) + nom. s. noun (from *tukultum*) + 1 c. s. poss. suffix (-*ī*); CT 44, 48 o. 19).

During the Ur III period, the syllabic values *gul* and *kul₂* are attested for the sign GUL, as in the following proper nouns: *eš₁₈-dar-du₂-gul* (proper noun, *eštar-dugul*, “look, O Ištar!”, DN + the root *d-g-l*, “to look, gaze at”, G-stem imp.; UET 3, 919); *i₃-li₂-tu-kul₂-ti* (proper noun, *ilī-tukultī*, “my god is my trust”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + acc. s. noun (from *tukultum*) + 1 c. s. poss. suffix (-*ī*); CST 263 o. col. iii 19).

The sign GUL is not attested with clear syllabic readings at Ebla.

At Mari, the syllabic value *kul₂* is attested for the sign GUL, as in the following proper noun: DINGIR-*tu-kul₂-ti* (*ilum-tukultī*, “the god is my protection”, nom. s. noun + acc. s. noun (from *tukultum*) + 1 c. s. poss. suffix (-*ī*); ARM XIX 296).

The sign GUL is not attested with a syllabic value at Nabada.

The sign GUL is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *gu-ul* for the sign GUL (l. 586).

251. NIM

During the Old Akkadian period, the syllabic values *nim* and *num* are attested for the sign NIM, as in the following words and proper nouns: *da-nim* (*dannim*, “strong”, gen. s. verb. adj.; PBS 5, 36); *li-ru-u₂-nim* (*līrūnim*, “may he lead there”, from the root *w-r-ṣ*, “to lead, conduct; fetch, bring”, G-stem prec. 3 m. s.; ITT I, 1057); *bu₃-ši-num* (*bušinnum*, “wick”, nom. s. noun; OAIC 41 o. 6).

During the Ur III period, the syllabic values *nim* and possibly *num* are attested for the sign NIM, as in the following word and proper noun: *na-da-nim* (*nadānim*, “to give”, gen. inf.; NATN 539 o. 7); *a-na-na-num/nim* (proper noun, meaning uncertain; Barton, HLC II 88 iv).

The sign NIM is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *num/nim* is possibly attested for the sign NIM, as in the proper noun *zi-za-num/nim* (perhaps related to *zizānum*, “cricket”, nom./gen. s. noun; ARM XIX 177; 178; 187; 192; 198; 199).

The sign NIM is not attested with a syllabic value at Nabada.

At Tuttul, a syllabic value, likely *num/nim*, is possibly attested for the sign NIM in the proper noun *ma-ga-la₂-num/nim* (proper noun, meaning uncertain; KTT 54 o. 4).

Proto-Ea lists the reading *ni-im* for the sign NIM (l. 705).

254. LAM

During the Old Akkadian period, the syllabic value *lam* is attested for the sign LAM, as in the following words and proper nouns: *lam-nam* (*lamnam*, “bad”, acc. s. verb. adj.; MDP 14, 90); *u-bi₂-lam* (*ubilam*, “he carried here”, from the root *w-b-l*, “to carry”, G-stem pret. 3 m. s. + vent.; OAIC 33 r. col. i 15); *be-lam* (*bēlam*, “lord”, acc. s. noun; Adab 708 r. 12).

During the Ur III period, the syllabic value *lam* is attested for the sign LAM, as in the following words: *ṣa-lam* (*ṣalam*, “effigy, image; black, dark”, nom. s. noun in const. st.; MSP 4, 161).

At Ebla, the syllabic value *lam* is attested for the sign LAM, as in the following proper nouns: *i-ti/di₃-^di₃-lam* (perhaps *itti-ilam*, “with (the god) Ilam”, prep. + DN, or *iddi-ilam*, “(the god) Ilam threw down”, from the root *n-d-*, “to throw down, lay down”, G-stem pret. 3 m. s. + DN; passim); ^d*i₃-lam* (DN; passim).

The sign LAM is not attested with a syllabic value at Mari⁹⁵.

The sign LAM is not attested with a syllabic value at Nabada.

⁹⁵Although see Limet’s (1976, 157) reference to the word *lam-ki* (meaning uncertain).

The sign LAM is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *la-am* for the sign LAM (l. 914).

254a. LAMxKUR

The sign LAMxKUR is not attested with a syllabic value during the Old Akkadian period.

The sign LAMxKUR is not attested with a syllabic value during the Ur III period.

At Ebla, the syllabic value *iš₁₁* is possibly attested for the sign LAMxKUR, as in the following proper nouns: *iš₁₁-a-il* (perhaps *īša-il*, from the root ʾ-š-ʾ, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; passim); *iš₁₁-a^dda-mu* (perhaps *īša-damu*, from the root ʾ-š-ʾ, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; *ARET* 4, 3 r. viii 21); *iš₁₁-a^dma-lik* (perhaps *īša-malik*, from the root ʾ-š-ʾ, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; passim).

The sign LAMxKUR is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *eš₃/iš₁₁* may be attested in the following proper nouns: *eš₃/iš₁₁-gar₃^{ki}* (GN; Subartu 2, 2 o. col. iii 3); *eš₃/iš₁₁-gi* (proper noun, meaning uncertain; Subartu 2, 2 o. col. iii 4).

The sign LAMxKUR is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *eš₃* (var.: *e-eš₂*) for the sign LAMxKUR (l. 915).

258. UL

During the Old Akkadian period, the syllabic value *ul* is attested for the sign UL, as in the following words: *sa-pu₃-ul-ti* (*šapulti*, meaning uncertain, likely from the root š-p-l, “to be low”; MAD 1, 292 r. 3); *iš-lu-ul* (*išlul*, “he carried away”, from the root š-l-l, “to carry away”, G-stem pret. 3 m. s.; BIN 8, 144 2, 3).

During the Ur III period, the syllabic value *ul* is attested for the sign UL, as in the following proper nouns: *šu-pu-ul-tum* (perhaps from the root š-p-l, “to be low”; CUSAS 3, 1201 r. 2); ^d*šul-gi-ši-lu-ul* (*šulgi-šillūl*, “Šulgi is the protection”, DN + nom. s. noun in abs. (from *šillūlum*; PDT 1, 68 o. 7).

At Ebla, the syllabic value *ul* is possibly attested for the sign UL, as in the following proper nouns: *ib/p-su-ul^dda-mu* (meaning uncertain, appears to be a G-stem pret. 3 m. s. verbal form + DN; *ARET* 15, 36 o. iii 14); *ik-bu₃-ul^dma-lik* (meaning uncertain, appears to be a G-stem pret. 3 m. s. verbal form + DN; passim); *kab-lu-ul^{ki}* (GN; passim).

The sign UL is not attested with a syllabic value at Mari.

The sign UL is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ul* is possibly attested for the sign UL in the proper noun *pu-ul-su₂-mi-il* (meaning uncertain; KTT 49 o. 2).

Proto-Ea lists the reading (*u₂*-)*ul* for the sign UL (l. 282).

261. IGI

During the Old Akkadian period, the syllabic values *ši* and *lim* are attested for the sign IGI, such as in the following words and proper nouns: *ši* (*šī*, “she”, 3 f. s. ind. pronoun; AIHA 4, 22 o. 4); *ar-ši-a-ḥa* (*arši-aḥa*, “I got a brother”, from the root *r-š-*, “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun without mimation (from *aḥum*); HSS 10, 151 o. col. ii 4); *ša-lim-tum* (*šalimtum*, “black”, f. s. verb. adj.; MAD 1, 163+165 o. col. iv 7); *sa₂-lim* (*šalim*, “he is whole, well”, stat. from the root *š-l-m*, “to be whole, well”; CT 50, 188 r. col. i 1).

During the Ur III period, the syllabic values *ši*, *lim*, and *bat₅* are attested for the sign IGI, as in the following proper nouns: *ar-ši-aḥ* (*arši-aḥ*, “I got a brother”, from the root *r-š-*, “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun in abs. (from *aḥum*); AAS 30 o. 6); *ša-lim-tum* (“black”, f. s. verb. adj.; CT 32, pl. 34-35 o. col. ii 8); *ša-lim-be-li₂* (*šalim-bēlī*, “my lord is well”, G-stem stat. 3 m. s. from the root *š-l-m*, “to be whole, well”, + nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*); Amorites 22, pl. 11 r. col. i 20); *um-mi-ṭa-bat₅* (*ummī-ṭābat*, “my mother is sweet”, nom. s. noun (from *ummum*) + 1 c. s. poss. suffix (-*ī*) + G-stem stat. 3 m. s. from the root *ṭ-b*, “to be good, sweet”; MVN 2, 120 o. 4).

At Ebla, the syllabic values *ši* and *lim* are possibly attested for the sign IGI, as in the following proper nouns: *a-bur-da-ši-in* (meaning uncertain; *ARET* 12,

298 r. iv 2; *ARET* 12, 465 r. ii' 3'); *ši-sal*^{ki} (GN; passim); *dur-lim* (meaning uncertain, perhaps *dūr-līm*, “the fortification of (the god) Līm”, nom. s. noun in const. st. (from *dūrum*) + DN; *ARET* 3, 214 o. ii 6).

At Mari, the syllabic values *lim* and *ši* are attested for the sign IGI, as in the following words and proper nouns: *sa₂-lim-be-li₂* (*šalim-bēlī*, “my lord is well”, G-stem stat. 3 m. s. from the root *š-l-m*, “to be whole, well”, + nom. s. noun (from *bēlum*) + 1 c. s. poss. suffix (-*ī*); ARM XIX 111; 116-172; 180; 183; 184; 190; 191; 196; 203-205; 207; 209; 210); *a-za-mi₃-lim* (perhaps *azamillim*, a type of bag, gen. s. noun; ARM XIX 96); *re-ši* (*rēši*, “head”, nom. s. noun in const. st. (from *rēšum*); ARM XIX 87-91).

At Nabada, the syllabic values *ši* and *lim* are attested for the sign IGI, as in the following proper nouns: *ar-ši-a-ḥu* (*arši-aḥu*, “I got a brother”, from the root *r-š-*, “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun without mimation (from *aḥum*); Subartu 2, 3 o. col. iii 6); *šu-be-lim* (*šū-bēlim*, “he is the one of the lord”, or perhaps *qāt-bēlim*, “the hand of the lord”, 3 m. s. ind. pronoun (-*šū*) or nom. s. noun in const. st. + gen. s. noun (from *bēlum*); Subartu 2, 1 o. col. i 4); *ir₃-ib₂-sa₂-lim* (*īrib-šalim*, “he arrived well”, G-stem pret. 3 m. s. from the root *ṛ-r-b*, “to enter”, + G-stem stat. 3 m. s. from the root *š-l-m*, “to be whole, well”; Subartu 2, 1 o. col. iii 2).

The sign IGI is not attested with a syllabic value at Tuttul.

Proto-Ea lists the readings *ši*, *li-im*, *pa-ad*, *i-gi₄* for the sign IGI (l. 399-402).

263. AR

During the Old Akkadian period, the syllabic value *ar* is attested for the sign AR, as in the following words and proper nouns: *ar-ba-im* (*arba'im*, “four”, gen. s. noun; Adab 889 o. col. ii 1); *ar-kum* (*arkum*, “long”, nom. s. verb. adj.; Tutub 17 o. 7); *wa-ar-ki-um* (*warki'um*, “later”, adv.; HSS 10, 69 o. 5).

During the Ur III period, the syllabic value *ar* is attested for the sign AR, as in the following words and proper nouns: *ar-ba-im* (*arba'im*, “four”, gen. s. noun; ZA 95, 166 o. 6); *ar-ka₃-num₂* (meaning uncertain, likely from the root

ᵛ-*r-k*, “to be long” or *w-r-k*, “to be late, delayed; to come after”; BIN 5, 292 o. 9); *u₂-ša-ar-ba-ba-ti^{ki}* (*ušār-babāti^{ki}*, GN; TCL 5, 6041 o. 2).

At Ebla, the syllabic value *ar* is attested for the sign AR, as in the following words: *ar-ša-lu* (ᵛ*aršālu(m)*, “a humble man”, nom. s. noun without mimation, cf. Ar. *r-d-l*, “to be humble”; VE 133); *ar-za-tum* (ᵛ*arzatum*, “conifer”, nom. s. noun, cf. Ug. ᵛ-*r-z*; VE 471); *ar-ra-bu₃* (ᵛ*arrabu(m)*, “dormouse”, nom. s. noun without mimation; VE 873).

The sign AR is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *ar* is attested for the sign AR, as in the following proper nouns: *ar-rum₂* (meaning uncertain, likely nom. s. noun; Subartu 2, 3 o. col. ii 2); *ar-ši-a-ḫu* (*arši-aḫu*, “I got a brother”, from the root *r-š-ᵛ*, “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun without mimation (from *aḫum*); Subartu 2, 3 o. col. iii 6).

At Tuttul, the syllabic value *ar* is likely attested for the sign AR, as in the following proper nouns: *ia-ar-ḫi-el* (meaning uncertain; KTT 5 o. 6); *i-ši₂-qa-ta-ar* (perhaps from the roots *w-ṣ-ᵛ*, “to go out”, and *q-t-r*, “(to) smoke”; KTT 10 o. 4); *qa-ar-nu-um* (*qarnum*, “horn”, nom. s. noun; KTT 54 o. 3).

The sign AR is not listed in the extant portions of Proto-Ea.

264. U₃

During the Old Akkadian period, the syllabic value *u₃* is attested for the sign U₃, as in the following words: *la u₃-wa-e-ru-uš* (*lā uwa^{>>}erūš*, “they have not sent him”, neg. part. + the root *w-ᵛ-r*, “to send”, D-stem pret. 3 m. s. + 3 m. s. acc. suffix (-*šu*); HSS 10, 12 o. 11); *i-ba-še₃-u₃* (*ibašše[>]u*, “... which exists”, from the root *b-š-ᵛ*, “to exist”, G-stem dur. 3 m. s. + sub. marker; HSS 10, 109 o. 23); *it-ru-u₃* (*itrû*, “they lead away”, from the root *t-r-ᵛ*, “to lead away”, G-stem pret 3. m. pl; FAOS 19, p. 89ff, Gir 19 r. 2).

During the Ur III period, the syllabic value *u₃* is attested for the sign U₃, as in the following words and proper noun: *u₃-šu-ri₂-id* (*ušūrid*, “he caused to be brought down”, from the root *w-r-d*, “to go down”, Š-stem pret. 3 m. s.; RIME 2/3.4.3.1,

ex. 1 o. 4); u_3 - ta_2 - mi - $\check{s}a$ - ra - am (*utammi-šarram*, “he bound the king (by oath)”, from the root t - m - \check{s} , “to swear, bind by oath”, D-stem pret. 3 m. s. + acc. s. noun (from *šarrum*); UDT 44 o. 3); it - ma - u_3 (*itma \check{u}* , “they swore”, from the root t - m - \check{s} , “to swear, bind by oath”, G-stem pret. 3 m. pl.; JCS 38, 36 10 r. 2).

At Ebla, the syllabic value u_3 is attested for the sign U_3 , as in the following words: u_3 - ba - su - um (*ubāšum*, meaning uncertain, nom. s. noun; VE 149); wa - ba - u_3 - um (*wabā \check{u} um*, “to lie flat”, inf.; VE 310); wa - $\check{s}a$ - u_3 (*wašā \check{u} (m)*, “to stretch”, inf. without mimation; VE 129).

The sign U_3 is not attested with a syllabic value at Mari.

At Nabada, the syllabic value u_3 is attested for the sign U_3 , as in the word u_3 (*u*, “and”, conj.; passim).

The sign U_3 is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading u_4 for the sign U_3 (l. 408).

266. DI

During the Old Akkadian period, the syllabic value sa_2 is attested for the sign DI, as in the following words: sa_2 - lim - ta_2 (*šalimtā*, “they are well”, 3 f. pl. stat.; MAD 1, 185 r. 3); u - sa_2 - ri_2 - ib (*ušārib*, “he caused to enter”, from the root \check{s} - r - b , “to enter”, Š-stem pret. 3 m. s.; CT 32 pl. 5).

During the Ur III period, the syllabic values sa_2 and perhaps di are attested for the sign DI, as in the following words and proper nouns: na - di - EN . ZU (*nādi-su \check{e} en*, “Suen threw”, act. part. from the root n - d - \check{s} , “to throw (down)”, + DN; TCS 371, 4); a - ba - da - di (*aba-dādī*, “my beloved is the father”, acc. s. noun without mimation (from *abum*) + nom. s. noun (from *dādum*) + 1 c. s. poss. suffix ($-ī$); MVN 22, 18 o. col. i 10’); $gi\check{s}$ - ma - sa_2 - tum (*maššadum*, a type of weapon, nom. s. noun; UET 3, 811); sa_2 - bi_2 - tum (*šabītum*, a type of musical instrument, nom. s. noun; UET 3, 827); li - sa_2 - num (*lišānum*, “tongue”, nom. s. noun; RA 19, 35).

At Ebla, the syllabic value di is attested for the sign DI, as in the following proper noun: i - di - $a\check{s}_2$ - dar (*idi-ašdar*, “the arm of Ašdar”, nom. s. noun in const. st. (from *idum*) + DN; MEE 12, 26 r. viii 30).

At Mari, the syllabic value sa_2 is attested for the sign DI, as in the proper noun $ri_2-im-sa_2-i_3-li_2$ (perhaps $r\bar{i}m-ša-il\bar{i}$, “wild bull of the gods/my god”, nom. s. noun in abs. (from $r\bar{i}mum$) + conj. + gen. pl. noun or gen. s. noun + 1 c. s. poss. suffix ($-i$); ARM XIX 18-20; 51; 55; 58).

At Nabada, the sign DI is attested with the syllabic value sa_2 , such as in the following proper nouns: $ir_3-ib_2-sa_2-lim$ ($\bar{i}rib-šalim$, “he entered well”, from the root r-b , “to enter”, G-stem pret. 3 m. s. + G-stem stat. 3 m. s. from the root $\check{s}-l-m$, “to be whole, well”; Subartu 2, 1 o. col. iii 2; Subartu 2, 4 o. col. iv 1; Subartu 2, 5 r. col. v 12; Subartu 2, 21 o. col. ii 2; Subartu 2, 61 o. col. i 2); $lu-sa_2-lim$ ($\bar{l}u-šalim$, “may he be well”, pos. inj. part. + G-stem stat. 3 m. s. from the root $\check{s}-l-m$, “to be whole, well”; Subartu 2, 4 r. col. i 6; Subartu 2, 5 r. col. iii 4; col. iv 7; Subartu 2, 28 o. col. ii 3; Subartu 2, 36 o. col. i 5).

At Tuttul, the syllabic values di , ti_4 , sa_2 , and $\check{s}a_{18}$ are attested for the sign DI, as in the following proper nouns: $i-di^d da-gan$ ($idi-dagan$, “the arm of Dagan”, nom. s. noun in const. st. (from $idum$) + DN; KTT 7, o. 3); $i-di-ka-mi-iš$ ($id\bar{i}-kam\hat{i}š$, “my arm is bound”, nom. s. noun (from $idum$) + 1 c. s. poss. suffix ($-i$) + verb. adj. + term.-adv. suffix; KTT 7, o. 7); $ma-na-bal-ti_4-il$ ($manna-b\bar{a}lti-il$, perhaps “who is the thorn of god?”, interr. pronoun + acc. s. noun in const. st. (from $baltum$) + gen. s. noun (from $ilum$) + 1 c. s. poss. suffix ($-i$); KTT 10, o. 9); $sa_2-li-ma-an$ (perhaps from the root $\check{s}-l-m$, “to be well; whole”; KTT 42 r. 1; 2); $sa_2-na-an$ (perhaps $san\bar{a}n$ or $\check{s}an\bar{a}n$, “to be equal; rival”, inf. in const. st.; KTT 53 r. 3); $\check{s}a_{18}$ ($\check{s}a$, “of”, conj.; KTT 28 o. 3; r. 1; KTT 47 o. 3; KTT 50 r. 3; KTT 52 o. 4; 9).

Proto-Ea lists the readings sa_2-a , $di-i$ (var.: $di-e$), and $si-li-im$ for the sign DI (l. 260-262).

269. KI

During the Old Akkadian period, the syllabic values ki and qi_2 are attested for the sign KI, as in the following words: $wa-ar-ki-um$ ($wark\bar{i}um$, “later”, adv.; HSS 10, 68 r. 1’); qi_2-bi_2 ($qibi$, “say!”, from the root $q-b-\text{r}$, “to say, speak”, G-stem imper.

2 m. s.; passim in letters); *i-qi₂-iš* (*iqiš*, “he presented; gifted”, G-stem pret. 3 m. s. from the root *q-š*, “to present, gift”; MDP 14 44; 78).

During the Ur III period, the syllabic values *ki* and *qi₂* are attested for the sign KI, as in the following words and proper nouns: *ki-ib-ra-tim* (*kibrātīm*, “(world’s) quarters”, gen. pl. noun; MDP 10 Pl. 3); *i₃-li₂-ma-al-ki* (*ilī-malkī*, “my god is my king”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-*ī*) + acc. s. noun (from *mālikum*) + 1 c. s. poss. suffix (-*ī*); Fish, CST p. 12); *e₂-a-dum-qi₂* (*ea-dumqī*, “Ea is my goodness”, DN + nom. s. noun (from *dumqum*) + 1 c. s. poss. suffix (-*ī*); Fish, CST p. 160 viii).

At Ebla, the syllabic value *ki* is attested for the sign KI, as in the following proper nouns: *ib-ki-da-mu* (*ibki-damu*, “Damu wept”, from the root *b-k-š*, “to weep”, G-stem pret. 3 m. s. + DN; *ARET* 4, 17 o. xi 12; r. xiii 15; *ARET* 15, 28 r. ix 14).

At Mari, the syllabic value *ki* is attested for the sign KI, as in the following words: *ki-ru* (*kirru(m)*, perhaps a kind of vessel⁹⁶ or a kind of sheep⁹⁷, nom. s. noun; ARM XIX 182); *si-ki* (*sikki*, “messenger”, s. noun in const. st.; ARM XIX 288).

The sign KI is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic values *ki* and *qi₂* are attested for the sign KI, as in the following words and proper nouns: *i-š₂-ki-in^d-da-gan* (*iši-kīn-dagan*, “the righteous/loyal/true (one) of Dagan came out”, from the root *w-š-š*, “to exit, go out”, G-stem pret. 3 m. s. + nom. s. noun in const. st. (from the verb. adj. *kīnum*) + DN; KTT 6 o. 5); *in ki-ri₂-im* (*in kirîm*, “in/for the orchard”, prep. + gen. s. noun (from *kirûm*); KTT 25 o. 3); *ia₈-qi₂-ru-um* (*yāqirum*, from root *w-q-r*, “to be rare, precious”, nom. s. noun; KTT 21 o. 1).

Proto-Ea lists the readings *ha-ab-ru-ud-da* and [*ki*]-*i* for the sign KI (l. 263a-b).

270. DIN

During the Old Akkadian period, the syllabic value *din* is attested for the sign DIN, as in the proper noun *i-din-DINGIR* (*iddin-ilum*, “god gave (a life/child/name)”,

⁹⁶See CAD, Volume 8, pp. 408-410.

⁹⁷See CAD, Volume 8, pp. 410-411.

from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + nom. s. noun; MAD 1, 53 r. col. i 5’).

During the Ur III period, the syllabic value *din* is attested for the sign DIN, as in the proper nouns *i-din-er₃-ra* (*iddin-erra*, “Erra gave (a life/child/name)”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + DN; AUCT 1, 287 o. 4) and *i-din-DINGIR* (*iddin-ilum*, “god gave (a life/child/name)”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + nom. s. noun; AUCT 1, 287 r. 1).

At Ebla, the syllabic values *d/tin* and *tim_x* are likely attested for the sign DIN, as in the following proper nouns: *bu₃-ur-d/tin^{ki}* (GN; *ARET* 15, 8 r. ix 14; *ARET* 14, 59 r. vii 12); *d/tin-sum^{ki}* (GN; *ARET* 2, 29 o. iv 15); *si-ba-tim_x* (*Sibātim* gen. pl. noun; *ARET* 5 8 r. ii 2).

At Mari, the syllabic values *din*, *di₂*, and *tim_x* are attested for the sign DIN, as in the following words and proper nouns: *i-din-ad-mu* (*iddin-admu*, “Admu gave”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + DN/PN; ARM XIX 204; 324; 340l 367); *ni-di₂* (*nidi*, “deposit!”, G-stem imper. 2 m. s. from the root *n-d-³*, “to throw (down); deposit”, G-stem imper.; ARM XIX 165; 308); ITI *e-bir₅-tim_x*(DIN) (*waraḥ ebirtim*, “the month of *ebirtim*”, MN; passim); ITI *li-li-a-tim_x*(DIN) (*waraḥ liliātim*, “the month of *liliatim*”, MN; ARM XIX 280).

The sign DIN is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic values *din* and *tim_x* are attested for the sign DIN, as in the following proper nouns: *i-din-il₃* (*iddin-il*, “god gave”, from the root *n-d-n*, “to give”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from *ilum*); KTT 25 r. 5); *ab-du-be-la₂-tim_x*(DIN) (*abdu-bēlatim*, “servant of the lady”, nom. s. noun without mimation (from *abdum*) + gen. s. noun (from *bēlatim*); KTT 25 r. 6).

Proto-Ea lists the reading *di-in* (var.: *i-di-in*) for the sign DIN (l. 199).

277. LAL

During the Old Akkadian period, the syllabic value *lal/la₂* is possibly attested for the sign LAL, as in the following words and proper nouns: *la₂-wi-ib/p-tum* (proper

noun, meaning uncertain; OAIC 50 o. 6); *ma-ad-la₂-um* (proper noun, meaning uncertain; OAIC 37 o. 8); *lu-la₂-lum* (proper noun, meaning uncertain; PBS 9, 106).

During the Ur III period, the syllabic value *la₂* is attested for the sign LAL, as in the following proper nouns: *a-hu-la₂-pi₂* (proper noun, *aḫulapī*, perhaps “woe is me!” or “I am enough”; ITT 4 7099); ur-^d*gu₂-la₂* (proper noun, DN; ArOr 7, 8 3 o. 4).

The sign LAL is not attested with a syllabic value at Ebla.

The sign LAL is not attested with a syllabic value at Mari.

The sign LAL is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *la₂* is attested for the sign LAL, as in the following proper nouns: *ni-iš-la₂-u-um* (*nīš-laʾûm*, perhaps either “lifting/raising of the small child” or “life of the small child”, inf. in const. st. or nom. s. noun in const. st. + gen. s. noun⁹⁸ (from *laʾûm*); KTT 53 o. 7); *pa₂-la₂-š_u-um* (*palāšum*, “to pierce; perforate” inf.; KTT 53 o. 14); *ab-du-be-la₂-tim_x*(DIN) (*abdu-bēlatim*, “servant of the lady”, nom. s. noun in const. st. (from *abdum*) + gen. s. noun (from *bēlatum*); KTT 25 r. 6).

Proto-Ea lists the readings *la-al* and *su₂-ru* for the sign LAL (l. 74-75).

283. TUL₂

The sign TUL₂ is not attested with a syllabic value during the Old Akkadian period.

During the Ur III period, the syllabic value *tul₂* is attested for the sign TUL₂, as in the following proper noun: *u₂-tul₂-ma-ma* (*utul-mama*, “Mama’s bosom”; BIN 3, 513 o. 1).

At Ebla, the syllabic value *hap₂* is attested for the sign TUL₂, as in the following word: *hap₂-pu₃* (*happu(m)*, a type of weapon, nom. s. noun; VE 458).

The sign TUL₂ is not attested with a syllabic value at Mari.

The sign TUL₂ is not attested with a syllabic value at Nabada.

The sign TUL₂ is not attested with a syllabic value at Tuttul.

Proto-Ea lists the readings *ha-ab*, *ub*, *pu-u₂*, *du-ul* for the sign TUL₂ (l. 34-37).

⁹⁸Although the form appears to be a nom. s. noun.

287. ME

During the Old Akkadian period, the syllabic values *me* and *mi₃* are attested for the sign ME, as in the following words and proper nouns: *iš-me-dⁿnin*-[...] (*išme*..., "... heard", from the root *š-m-ṣ*, "to hear", G-stem pret. 3 m. s. + DN; PBS 9, 29+34 r. 4; 7; 10); *li-sa-mi₃-id* (*lišāmīd*, "may he cause to take refuge", from the root *ṣ-m-d*, "to lean on, impose" Š-stem prec. 3 m. s.; HSS 10, 5 o. 7); *da-mi₃-iq-ta* (*damiqtā*, "you are beautiful (ones)", 3 f. pl. stat. from the root *d-m-q*, "to be beautiful"; MAD 5, 8 o. 7).

During the Ur III period, the syllabic value *me* is attested for the sign ME, as in the following proper noun: *iš-me-DINGIR* (*išme-ilum*, "the god heard", from the root *š-m-ṣ*, "to hear", G-stem pret. 3 m. s. + nom. s. noun; AUCT 2, 314 r. 4).

At Ebla, the syllabic value *me* and *mi₃* is attested for the sign ME, as in the following words: *mi₃-na-ma-ma*⁹⁹ (*minamma*, "who(ever)", ind. pronoun; VE 84); *i-mi₃-tum* (*(y)imittum*, "right", nom. s. noun; VE 534); *a-mi₃-lum* (*āmīrum*, "looker; inspector", act. part. from the root *ṣ-m-r*, "to see, look at; inspect, examine"; VE 720); *mi₃-su* (*mīšum*), "night", nom. s. noun without mimation; VE 816); *a-me-da-ad* (*ameddad*, "I will measure", from the root *m-d-d*, "to measure (out), pay", G-stem dur. 1 c. s.; ARET 5, 6 o. viii 3).

At Mari, the syllabic values *mi₃* and possibly *me* are attested for the sign ME, as in the following words and proper nouns: *me-na-na-ak* (meaning uncertain; ARM XIX 27; 34; 64; 67; 68; 93; 318; 403); *kar₃-ka-me-si-u-um* (proper noun, meaning uncertain; ARM XIX 299); *a-za-mi₃-lim* (*azamīllum*, "bag", nom. s. noun; ARM XIX 96); *si₂-mi₃-da-tim_x* (*sīmidātum*, a type of flour, nom. pl. noun; ARM XIX 248).

At Nabada, the syllabic value *me* is possibly attested for the sign ME in the proper nouns *me-um* (meaning uncertain, but perhaps related to *mû/mā^uum*, "water"; Subartu 2, 7 r. col. ii 8); *a-ḥu-me-am* (*aḥu-me^uam*, perhaps "the brother is water", nom. s. noun without mimation + acc. s. noun (perhaps related to *mû/mā^uum*, "water"); Subartu 2, 5 r. col. i 10).

⁹⁹The reduplication of the sign *ma* indicates perhaps gemmination of the phoneme /m/.

At Tuttul, the syllabic values *me* and *mi₃* are possibly attested for the sign ME, as in the following proper nouns: *me-ri₂-me-il* (proper noun, meaning uncertain apart from the theophoric element *il*, “god”, at the end of the name; KTT 4, 0. 4); *mu-tu-ra-me-em* (proper noun, meaning uncertain although perhaps containing the elements *mutu(m)*, “man, warrior, husband”, and *râm(um)*, “beloved”; KTT 14 o. 7); *mi₃-il₃-ki-li-il₃* (perhaps *milki-lîl*, “counsel/advice of the night”, doubtful, nom. s. noun in const. st. (from *milkum*) + gen. s. noun in abs.; KTT 36 o. 2; KTT 46 r. 5).

Proto-Ea lists the reading *me-e* (var.: *me*) for the sign ME (l. 71).

289. IB

During the Old Akkadian period, the syllabic value *ib* is attested for the sign IB, as in the following word and proper nouns: *u-sa₂-ri₂-ib* (*ušārib*, “he caused to enter”, from the root *ᵛ-r-b*, “to enter”, Š-stem pret. 3 m. s.; CT 32 pl. 5); *ib-ni-DINGIR* (*ibni-ilum*, “god created”, from the root *b-n-ᵛ*, “to build, create”, G-stem pret. 3 m. s. + nom. s. noun; AIHA 4, 42 r. 5).

During the Ur III period, the syllabic values *ib* and *ip* are attested for the sign IB, as in the following proper nouns: *ib-ni^dEN.ZU* (*ibni-su^ven*, “Su^ven created”, from the root *b-n-ᵛ*, “to build, create”, G-stem pret. 3 m. s. + DN; AUCT 1, 32 r. 2); *la-qi₃-ip* (*lā-qīp*, “untrustworthy”, neg. part. + verb. adj. in abs.; Nisaba 27, 19 o. 7).

At Ebla, the syllabic values *ib* and *ip* are attested for the sign IB, as in the following words: *ib-su₁₁* (*(h)ibšū(m)*, perhaps related to Sem. **h-b-š*, “to tie; bind”; VE 525); *ip-dum* (*ipdum*, a type of garment, nom. s. noun, cf. Ug. *ᵛipd*; VE 513).

The sign IB is not attested with a syllabic value at Mari.

At Nabada, the syllabic values *ip* and possibly *ib* are attested for the sign IB, as in the following proper nouns: *ip-ṭur_x(KU)-il* (*ipṭur-il*, “the god dispelled (evil)”, from the root *p-ṭ-r*, “to loosen, release; expel, dispel”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from *ilum*); Subartu 2, 5 o. col. iii 9); *ib-lu₅-DINGIR*, *ib-lu₅-il* (meaning uncertain apart from the theophoric element DINGIR/*il*, “god”; Subartu 2, 109 r. col. ii 5; Subartu 2, 74 r. col. i 2); *ib-ba-ru-ša-nu* (perhaps *ibbarū-šanû*,

“they embrace twice/another”, from the root ḫ-b-r , “to embrace”, G-stem pret. 3 m. pl. + the root š-n-ḫ , “to do twice, again”; Subartu 2, 69 o. col. ii 7).

At Tuttul, the syllabic value *ip* is attested for the sign IB, as in the proper noun *ip-qu₂-il₃* (*ipqu-il*, “embrace/protection of the god”, nom. s. noun in unusual form of the const. st. (from *ipqum*) + gen. s. noun in abs. (from *ilum*); KTT 23 r. 1).

Proto-Ea lists the reading [*i*]b₂ for the sign IB (l. 592).

290. KU

During the Old Akkadian period, the syllabic values *ku*, *gu₅*, and *qu₂* are attested for the sign KU, as in the following words and proper nouns: *i-li-ku* (*illikū*, “they went”, from the root ḫ-l-k , “to go”, G-stem pret. 3 m. pl.; BIN 8, 129); *ku-ru-ub-DINGIR.DINGIR* (*kurrub-ilī*, “prayer of the gods”, nom. s. noun in const. st. (from the root k-r-b , “to pray”) + gen. pl. noun (from *ilum*); MAD 1, 1 o. 4); *ru-gu₅-ma-um* (*rugummā-um*, “claim”, nom. s. noun; OAIC 49); *i₃-lu-dam-qu₂* (*ilu-damqu*, “the beautiful god”, nom. s. noun + nom. s. verb. adj. without mimation; MAD 1, 183 o. 5); *qu₂-ra-dum* (*qurradum*, “hero”, nom. s. noun; JCS 10, 26, 2 o. col. i 7; col. iii 4).

During the Ur III period, the syllabic values *ku* and *qu₂* are attested for the sign KU, as in the following proper nouns: *iš-ku-un-e₂-a* (*iškun-ea*, “Ea placed”, from the root š-k-n , “to place”, G-stem pret. 3 m. s. + DN; ITT 3, 5255 o. 6); *ku-ru-ub-er₃-ra* (*kurrub-erra*, “prayer of Erra”, nom. s. noun in const. st. (from the root k-r-b , “to pray”) + DN; Aegyptus 29, 108, 37); *dam-qu₂-um* (*damqum*, “beautiful”, nom. s. noun; PDT 1, 252 seal 1); *qu₂-ra-ad-i₃-li₂* (*qurād-ilī*, “hero of my god/the gods”, nom. s. noun in const. st. (from *qurādum*) + gen. s. noun + 1 c. s. poss. suffix (-*ī*) or gen. pl. noun (from *ilum*); AnOr 7, 295 o. 5’).

At Ebla, the syllabic value *ku* is possibly attested for the sign KU, as in the following proper nouns: *a-ku-d*EN.KI (meaning uncertain apart from the DN; *ARET* 4, 5 r. iii 15; *ARET* 12, 879 o. ii’ 2; *ARET* 15, 10 o. v 3; passim); *za-ku-tu* (*zakūtu*, from the root z-k-ḫ , “to be(come) clear, pure”; *ARET* 4, 12 r. iv 14).

At Mari, the syllabic values *ku* and *qu₂* are attested for the sign KU, as in the following words: *iš ku-bu-li* (*iš kubbulī*, perhaps “for the crippled”, prep. + gen. pl. noun (from *kubbulum*); ARM XIX 106); *mu-qu₂-tum* (*muquttûm*, “claim falling due”, nom. s. noun; ARM XIX 326; 327; 329-339); *qu₂-pa₂-e-en* (*qupa'ēn*, “two baskets”, du. noun; ARM XIX 103).

At Nabada, the syllabic value *ku* is possibly attested for the sign KU in the following proper nouns: *i-ku-a-ḥa* (proper noun, meaning uncertain apart from the element *aḥa*, “brother”, acc. s. noun without mimation; Subartu 2, 5 o. col. iii 3); *a-ku-i₃-li₂* (proper noun, meaning uncertain apart from the element *ili*, “of the god” or *ilī*, “my god”; Subartu 2, 23 o. col. iii 5).

At Tuttul, the syllabic values *ku* and *qu₂* are attested for the sign KU, as in the following proper nouns: *ma-li-ku-um* (*mālikum*, “king, ruler; advisor”; KTT 9 o. 4); *ip-qu₂-il₃* (*ipqu-il*, “embrace/protection of the god”, nom. s. noun in unusual form of the const. st. (from *ipqum*) + nom. s. noun in abs. (from *ilum*); KTT 23 r. 1); *qu₂-ra-da-an* (proper noun related to *qurādum*, “hero”, perhaps *qurādān*, “the two heroes”, du. noun; KTT 35 r. 5); *ku-nu-ku-um* (*kunukkum*, “seal”, nom. s. noun; KTT 54 o. 5).

Proto-Ea lists the readings *ku-u₃*, *ku-u₂* (vars.: *ku-u₃*, *ku₃-u₂*, ZU-u, ZU-u₂), *šu-uš*, and *tu-uš* for the sign KU (l. 10-13).

291. ŠE₃

During the Old Akkadian period, the syllabic value *še₃* is attested for the sign ŠE₃, as in the following words: *i-ba-še₃* (*ibašše*, “it will exist”, from the root *b-š-*, “to exist”, G-stem dur. 3 m. s.; JCS 1, 248, 12 r. 4; passim); *ki-še₃-er-tim* (*kišertim*, “bondage, captivity”, gen. s. noun; HSS 10, 10 r. 1).

The sign ŠE₃ is not attested with a syllabic value during the Ur III period.

At Ebla, the sign ŠE₃ is attested with the syllabic values *še₃* and *ši₄*, as in the following words: *ka₃-ši₄-pu₃-um* (*kāšīpum*, “magician”, act. part., cf. Akk. *kašāpum*, “to cast a spell; to say an incantation”; VE 226); *pi₅-še₃-tu₃* (*pišertu(m)*, “exorcism, dispelling (of evils)”, nom. s. noun without mimation; VE 653).

The sign ŠE₃ is not attested with a syllabic value at Mari.

The sign ŠE₃ is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value še₃ is attested for the sign ŠE₃, as in the following proper nouns: *ma-še₃-ha* (proper noun from the root *m-š-h*, “to measure; count”; KTT 12 o. 1).

Proto-Ea lists the readings *e-gi* (var.: *e-gu*), *e-še₃* (vars.: *e-še*, *e-si*), *hu-un*, and *zi-i* (vars.: *zi*, *ze₂-i*) for the sign ŠE₃ (l. 58-61).

292. LU

During the Old Akkadian period, the syllabic value *lu* is attested for the sign LU, as in the following proper nouns: *be-lu-GU₂* (*bēlu-emūqu*, “the lord is strength”, nom. s. noun without mimation (from *bēlum*) + nom. s. noun; ITT 1, 1472 r. col. i 4); *lu-sa₂-lim* (*lū-šalim*, “may he be well”, pos. inj. part. + G-stem stat. 3 m. s. from the root *š-l-m*, “to be whole, well”; MDP 14, 74 r. 5); *li-ib-lu-uṭ* (*liblut*, “may he live”, from the root *b-l-ṭ*, “to live”, G-stem prec. 3 m. s.; Tutub 11 o. col. i 4).

During the Ur III period, the syllabic value *lu* is attested for the sign LU, as in the following proper nouns: *še-lu-uš^d-da-gan* (*šēlūš(u)-dagan*, “his side is Dagan”, nom. s. noun (from *šēlum*) + 3 m. s. poss. suffix (-*šu*) + DN; AAICAB 1/2, pl. 95, 1935-5551 o. 4); *lu-ba-li₂-iṭ^d-UTU^{si}* (*luballit-šamši*, “may the sun (i.e. Šamaš) revive”, from the root *b-l-ṭ*, “to live”, D-stem prec. 3 m. s. + DN; Nisaba 15, 930 o. 15).

At Ebla, the syllabic values *lu* and *ru_x* are attested for the sign LU, as in the following words: *ar-ša-lu* (*aršalu(m)*, “a humble man”, nom. s. noun without mimation, cf. Ar. *r-d-l*, “to be humble”; VE 133); *ta₂-ta₂-pi₅-lu* (*taṭappilu(m)*, “interpreter”, nom. s. noun without mimation; VE 179); *ga-ma-lu-um* (*gamālum*, “to be friendly”, inf.; MEE 236); *iš-bi₃-ru_x* (*išbīru(m)*, “finely ground”, nom. s. noun without mimation, cf. Akk. *šebērum*, “to break”; VE 77).

At Mari, the syllabic value *lu* is attested for the sign LU, as in the following word: *a-lu-zi-nu* (*aluzinnu(m)*, “jester”, nom. s. noun without mimation; ARM XIX 364).

At Nabada, the syllabic value *lu* is possibly attested for the sign LU, as in the following proper nouns: *lu-ri₂-um^{ki}* (GN; Subartu 2, 23 r. col. ii 6); *lu-sa₂-lim*

(*lū-šalim*, “may he be well”, pos. inj. part. + G-stem stat. 3 m. s. from the root *š-l-m*, “to be whole, well”; Subartu 2, 4 r. col. i 6; Subartu 2, 5 r. col. iii 4; col. iv 7; Subartu 2, 28 o. col. ii 3; Subartu 2, 36 o. col. i 5).

At Tuttul, the syllabic value *lu* is attested for the sign LU, as in the following proper nouns: *e-lu^dda-gan* (*ellu-dagan*, “the pure (one) of Dagan”, nom. s. noun without mimation (from *ellum*) + DN; KTT 6 o. 1); *ši₂-lu^dda-gan* (*šillu-dagan*, “the shade of Dagan”, nom. s. noun in unusual form of the const. st. (from *šillum*) + DN; KTT 6 o. 2); *be-eḫ-lu-um* (*beḫlum*, “lord”, nom. s. noun; KTT 16 o. 4).

Proto-Ea lists the reading *lu-u₂* (vars.: KU-*u₂*, *lu*) for the sign LU (l. 62).

296. ŠU₂

The sign ŠU₂ is not attested with a syllabic value during the Old Akkadian period.

During the Ur III period, the syllabic value *šu₂* is attested for the sign ŠU₂ only in the proper noun *ša-aš-šu₂-ru-um^{ki}* (GN; passim).

The sign ŠU₂ is not attested with a syllabic value at Ebla.

The sign ŠU₂ is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *šu₂* is attested for the sign ŠU₂, as in the following proper noun: *i-šu₂-DINGIR* (*išū-ilam*, “he has a god”, or *iššū-ilum*, “the god exists”, from the root *ṣ-š-ṣ*, “to have; to exist”, G-stem dur. 3 m. s. + nom./acc. s. noun; Subartu 2, 29 o. col. iv 6).

The sign ŠU₂ is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *šu-u₂* (vars.: *šu-u₄*, *šu*, TU-*u*) for the sign ŠU₂ (l. 121).

299. ZUM

The sign ZUM is not attested with a clear syllabic usage during the Old Akkadian period.

The sign ZUM is not attested with a clear syllabic usage during the Ur III period.

The sign ZUM is not attested with a syllabic value at Ebla.

At Mari, the syllabic value *šum* is attested for the sign ZUM, as in the following words: *mar-šum* (*maršum*, “sick”, verb. adj.; ARM XIX 18; 51-54; 56; 58; 60);

u₂-ra-ṣum (*urāṣum*, “kid”, nom. s. noun; ARM XIX 114; 117; 119; 135; 137; 139; 145; 146; 152; 160).

The sign ZUM is not attested with a syllabic value at Nabada.

The sign ZUM is not attested with a syllabic value at Tuttul.

Proto-Ea lists the readings *ri-ig*, *ha-aš*, and *zu-um* for the sign ZUM (l. 444-446).

301. DAM

During the Old Akkadian period, the syllabic values *dam* and *tam₂* are attested for the sign DAM, as in the following words: *ᵛa₃-dam-mu-um* (*ᵛadammum*, a type of garment, nom. s. noun; HSS 10, 217); *i₃-lu-dam-qu₂* (*ilu-damqu*, “the beautiful god”, nom. s. noun without mimation + nom. m. adj. without mimation; MAD 1, 183 o. 5); *tam₂-hur* (*tamhur*, “you received”, from the root *m-h-r*, “to accept, receive”, G-stem pret. 2 m. s.; MAD 1, 187 o. col. ii 6).

During the Ur III period, the syllabic values *dam* and *tam₂* are attested for the sign DAM, as in the following proper nouns: *dam-qum* (*damqum*, “beautiful”, nom. s. verb. adj.; CT 32, pl. 19-22 o. col. i 18); *le-mu-tam₂* (*lemuttam*, “evil; bad”, acc. s. verb. adj.; Morgan, MSP 4, 161).

At Ebla, the syllabic values *dam* and perhaps *tam₂* are attested for the sign DAM, as in the following words and proper nouns: *a-dam-ma-lik* (*adam-malik*, perhaps “the man of (the god) Malik”, nom. s. noun (from the W. Sem. root **-d-m*) in const. st. + DN; *ARET* 1, 5 o. vi 20; *passim*); *tam₂-ša-lu* (*tamšalu(m)*, meaning uncertain, likely from the root *m-š-l*, “to be(come) equal”; *ARET* 4, 1 r. vii 10; *ARET* 7, 24 r. iii 3; *ARET* 7, 125 r. i 1).

At Mari, the syllabic values *dam* and *tam₂* are attested for the sign DAM, as in the following word and proper noun: *eš₄-tar₂-dam-qa₂* (*eštar-damqa*, “Ištar is beautiful”, DN + perhaps acc. s. verb. adj. without final *-t*; ARM XIX 303; 324; 325; 340; 384); *tam₂-hur* (*tamhur*, “you received”, from the root *m-h-r*, “to accept, receive”, G-stem pret. 2 m. s.; ARM XIX 324; 325; 340).

The sign DAM is not attested with a syllabic value at Nabada.

The sign DAM is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *da-am* for the sign DAM (l. 443).

302. GU

During the Old Akkadian period, the syllabic values *ku₈* and *qu₃* are attested for the sign GU, as in the following words and proper nouns: *a-na-ku₈* (*anāku*, “I”, ind. pronoun; HSS 10, 5 r. 4); *i-la-ku₈* (*illakū*, “they are going”, from the root *ṣ-l-k*, “to go”, G-stem dur. 3 m. pl.; HSS 10, 200 r. 2); *ku₈-ta₂-num₂* (*kutānum*, a type of garment, nom. s. noun; HSS 10, 217); *qu₃-du-si-iš* (*quddušiš*, “in order to purify”, D-stem inf. + term.-adv. ending; OAIC 47 r. 5); *li-il-qu₃-ta₂* (*lilqutā*, “may they tear out”, from the root *l-q-t*, “to tear out”, G-stem prec. 3 f. pl.; MDP 2, p 66 o. 12).

The sign GU is not attested with a clear syllabic usage during the Ur III period.

At Ebla, the syllabic value *qu₃* is attested for the sign GU, as in the following words: *ra-qu₃* (*raqqu(m)*, “fine; thin”, nom. s. verb. adj. without mimation; *VE* 76); *in-qu₃* (*inqu(m)*, “ring”, nom. s. noun without mimation; *VE* 498).

The sign GU is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *gu/ku₈* is possibly attested for the sign GU, as in the noun *gu/ku₈-li-sum* (meaning uncertain; Subartu 2, 74 o. col. i 2; Subartu 2, 77 o. col. i 3; Subartu 2, 87 o. col. i 2; Subartu 2, 100 o. col. i 2).

The sign GU is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *gu-(u₂)* for the sign GU (l. 434).

306. EL

During the Old Akkadian period, the syllabic value *el* is possibly attested for the sign EL, as in the following proper nouns: *el-šum^{ki}* (GN; AOAT 3, 68 o. 3); *el-lum* (*ellum*, “pure”, verb. adj.; MAD 1, 303); *be-el-i* (perhaps related to *bēlum*, “lord”, PN; MDP 28, 443 o. 5).

During the Ur III period, the syllabic value *el* is possibly attested for the sign EL, as in the following proper nouns: ^dš^du-^dsuen-e-te-el-pi₄-^den-lil₂ (*š^du-suen-etel-pī-enlil*, “Šu-Suen (made) lordly the speech (lit.: ‘mouth’) of Enlil”, PN + acc. s. noun in const. st. + acc. s. noun in const. st. + DN; CUSAS 3, 507 o. 6); ^dmu-tab-el (DN;

OrAnt 26, 319 2 o. 1); *e-te-el-pu₃^{1-d}šul-gi* (*etel-pû-šulgi*, “lordly is the speech of Šulgi”, nom. s. noun in abs.. + acc. s. noun in const. st. + DN; Syracuse 352 o. 7).

The sign EL is not attested with a syllabic value at Ebla.

The sign El is not attested with a syllabic value at Mari.

The sign EL is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *el* is attested for the sign EL¹⁰⁰, as in the following words and proper nouns: *ia-ar-ḫi-el* (meaning uncertain, possibly from the root *ḫ-r-ḫ*, “to be quick; to hasten”; KTT 005); *ba-du-di_x(TAR)-el* (meaning uncertain; KTT 005); *ša-tu₂-pi₂-el* (*šaṭup-el*, “god is living, rescued”, stative from the root *š-t-p*, “to preserve life; rescue”, + nom. s. noun in abs. (from *ilum*) or DN (El); KTT 016); *šil₂-li₂-pi₂-el* (*šilli-pî-el*, “the protection of the word of god” (lit.: “the protection of the mouth of god”), nom. s. noun in const. st. (from *šillum*) + gen. s. noun in const. st. (from *pûm*) + gen. n. in abs. (from *ilum*) or DN (El); KTT 008).

The sign EL is not attested in the extant portions of Proto-Ea.

307. LUM

During the Old Akkadian period, the syllabic value *lum* is attested for the sign LUM, as in the following proper noun and word: *i₃-lum-ra-bi* (*ilum-rabi*, “the god is great”, nom. s. noun + G-stem stat. 3 m. s.; CUSAS 11, 180 o. col. ii 1); *el-lum* (*ellum*, “pure”, verb. adj.; MAD 1, 303 o. 1).

During the Ur III period, the syllabic value *lum* is attested for the sign LUM, as in the following word: *i₃-lum-a-bi* (*ilum-abî*, “the god is my father”, nom. s. noun + nom. s. noun (from *abum*) + 1 c. s. poss. suffix (-î); CST 107 o. 5).

At Ebla, the syllabic values *lum* and *rum_x* are attested for the sign LUM, as in the following words: *na-ma-lum* (*namālum*, inf., cf. Ar. *namala*, *namila* “to speak evil”; VE 231); *ša-qi₃-lum* (*šāqilum*, act. part. from the root *š-q-l*, “to weigh (out), pay”; VE 409); *ku_x(TIK)-ši-lum* (*kušilum*, “pestle”, nom. s. noun; VE

¹⁰⁰The interpretation of this sign as EL has been corrected by Durand and Marti (2004, p. 124). The original text publication (Krebernik 2001) misinterprets the sign EL for RU, and gives it the reading *el_x*.

461); *ha-ma-rum_x*(LUM) (*hamārum*, “to hide”, inf.; VE 118); *ma-ḥi-rum_x*(LUM) (*māḥirum*, “receiver”, act. part. from the root *m-ḥ-r*, “to receive”; VE 157).

At Mari, the syllabic values *lum* and *num₂* are attested for the sign LUM, as in the following words: *li-lum* (*lillum*, “soft”, verb. adj.; ARM XIX 260-265); *ki-num₂* (*kīnum*, “true; firm”, verb. adj.; ARM XIX 400).

At Nabada, the syllabic value *lum* is attested for the sign LUM, as in the following proper nouns: *i₃-lum-GAR₃* (*ilum-qardam*, “the god is heroic”, nom. s. noun + acc. s. noun; Subartu 2, 5 o. col. i 4; Subartu 2, 23 r. col. iii 1); *su-lum^{ki}* (GN; Subartu 2, 57 r. col. iv 4).

The sign LUM is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *lu-um* for the sign LUM (l. 347).

310. UR

During the Old Akkadian period, the syllabic values *ur*, *lik*, and *liq* are attested for the sign UR, as in the following words and proper nouns: *ta₂-mu-ur* (*tāmur*, “you saw”, from the root *ṣ-m-r*, “to see”, G-stem pret. 2 m. s.; HSS 10, 8); *a-na ur-ki-īm* (*ana urkim*, “at/toward the back”, prep. + gen. s. noun; OAIC 11 r. 3); *li-ṣu-ur* (*lišsur*, “may he guard”, from the root *n-ṣ-r*, “to guard”, G-stem prec. 3 m. s.; HSS 10, 5; 6); PU₃.ŠA-*ma-lik* (*puzur-malik*, “the shelter of (the god) Malik”, nom. s. noun in const. st. (from *puzrum*) + DN; CUSAS 13, 30 r. 6’); *i₃-li₂-sa-liq* (*ilī-šāliq*, “my god cuts open”, nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī) + act. part. from the root *š-l-q*. “to cut open”; CUSAS 26, 5 r. 3).

During the Ur III period, the syllabic values *ur* and *lik* are attested for the sign UR, as in the following proper nouns: *ur-šū^{ki}* (GN; Gelb, AJSL LV 84); *i-ṣu-ur-i₃-li₂* (*išsur-ilī*, “my god guarded”, from the root *n-ṣ-r*, “to guard”, G-stem pret. 3 m. s. + nom. s. noun (from *ilum*) + 1 c. s. poss. suffix (-ī); NATN 445 r. 6); *im-lik-e₂-a* (*imlik-ea*, “Ea ruled”, from the root *m-l-k*, “to rule; advise”, G-stem pret. 3 m. s. + DN; JCS 14, 110 13 o. 4).

At Ebla, the syllabic values *ur* and *lik* are attested for the sign UR, as in the following proper nouns: *a-šū-ur-ma-lik* (*aššur-malik*, “Aššur is the king”, DN +

acc. s. noun in abs. (from *malkum*); passim); *du-ur-il* (*dūr-il*, “fortification of the god”, nom. s. noun in const. st. (from *dūrum*) + gen. s. noun in abs. (from *ilum*); *ARET* 12, 1330 r. i’ 1; *MEE* 12, 19 o. vi 12); *a-bu₃-ma-lik* (*abu-mālik*, “the father is the king/ruler/adviser”, nom. s. noun without mimation (from *abum*) + acc. s. noun in abs. (from *mālikum*); passim).

At Mari, the syllabic values *lik* and *taš* are attested for the sign UR, as in the following proper nouns: *DINGIR-ma-lik* (*ilum-mālik*, “the god is the ruler”, nom. s. noun (from *ilum*) + acc. s. noun in abs. (from *mālikum*); *ARM XIX*); *ITI taš-ni-tim_x* (MN; passim).

The sign UR is not attested with a syllabic value at Nabada.

At Tuttul, the syllabic value *ur* is possibly attested for the sign UR, as in the following words and proper nouns: *ša-ru-ur* (meaning uncertain¹⁰¹; *KTT* 34 o. 1).

Proto-Ea lists the reading *ur₂* for the sign UR (l. 645).

311. A

During the Old Akkadian period, the syllabic value *a* is attested for the sign A, as in the following words: ^dUTU-*a-bi₂* (*šamaš-abī*, “Šamaš is my father”, DN + nom. s. noun (from *abum*) + 1 c. s. poss. suffix (*-ī*); *AIHA* 4, 1 o. col. ii 7); *a-na* (*ana*, “to”, prep.; *Adab* 708 o. 3; passim).

During the Ur III period, the syllabic value *a* is attested for the sign A, as in the following words: *a-bi₂-si₂-im-ti* (*abī-simtī*, “my father is my ornament”, nom. s. noun (from *abum*) + 1 c. s. poss. suffix (*-ī*) + nom. s. noun (from *simtum*) + 1 c. s. poss. suffix (*-ī*); *ASJ* 3, 92 3 o. 5); *a-na* (*ana*, “to”, prep.; *ASJ* 12, 54 o. 1; 4).

At Ebla, the syllabic value *a* is attested for the sign A, as in the following words: *a-pu₃* (*ṣappu(m)*, “nose”, nom. s. noun without mimation; *VE* 212); *ra-a-mu-um* (*raāmum*, “to love”, inf., cf. Akk. *rāmum*; *VE* 237); *pi₅-a-tum* (*piatum*, “temple”, nom. s. noun; *VE* 251).

¹⁰¹This appears in the line: 2 UDU *in ša-ru-ur in u₂-ri₂-im*, “two sheep in/for *ša-ru-ur*, in/for *u₂-ri₂-im*”. The rest of the text consists of four more lines on the obverse, each with a number of sheep followed by a proper noun. It is therefore unclear if “*in ša-ru-ur in u₂-ri₂-im*” should be interpreted as a proper noun or as a description of those two particular sheep; this therefore makes it difficult to identify the meanings of the words *ša-ru-ur* and *u₂-ri₂-im*.

At Mari, the syllabic value *a* is attested for the sign A, as in the following words: *maš-a-ni* (*mašāni*, “sandal, shoe”, gen. s. noun without mimation; ARM XIX 291); *iš-ma-a-bi* (*išma-abī*, “my father heard”, from the root *š-m-ʔ*, “to hear, listen”, G-stem pret. 3 m. s. + nom. s. noun (from *abum*) + 1 c. s. poss. suffix (*-ī*); ARM XIX 22-23).

At Nabada, the syllabic value *a* is attested for the sign A, as in the following proper nouns: *ar-šī-a-ḫu* (*arši-aḫu*, “I got a brother”, from the root *r-š-ʔ*, “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun in the form of a nom. s. noun without mimation; Subartu 2, 125 r. col. i 2); *ir₃-ib₂-a-ḫu* (*īrib-aḫu*, “a brother entered”, from the root *ʔ-r-b*, “to enter”, G-stem pret. 3 m. s. + nom. s. noun without mimation; Subartu 2, 5 o. col. iii 7).

At Tuttul, the syllabic value *a* is attested for the sign A, as in the following proper nouns: *i-di-a-bu-um* (*idi-abum*, “the arm of the father”, nom. s. noun in const. st. (from *idum*) + gen. s. noun in the form of a nom. s. noun, or *iddi-abum*, “the father threw/laid down”, G-stem pret. 3 m. s. + nom. s. noun; KTT 18 r. 19); *a-ab-du-a-na-ta* (*abdu-anata*, “servant of Anata”, nom. s. noun in unusual form of the const. st. (from *abdum*) + DN/PN; KTT 10 o. 10).

Proto-Ea lists the readings *a₂* (var.: *a₂-a*), *ia* (var.: *i*), *du-ru*, *e*, and *a* for the sign A (l. 1-5).

316. ZA

During the Old Akkadian period, the syllabic values *za*, *sa₃*, and *ša* are attested for the sign ZA, as in the following words and proper nouns: *i-za-mar* (*izammar*, “he sings”, from the root *z-m-r*, “to sing”, G-stem dur. 3 m. s.; AIHA 4, 3 o. col. i 10; MAD 1, 42 o. col. i 4’; MAD 1, 88 o. 1’; MAD 1, 183 o. 1; MAD 1, 307 o. 7; MAD 1, 320 o. 10; MVN 3, 65 o. col. i 5; MVN 3, 111 r. col. i 7’;); *sa₃-ar-ru-tim* (*šarrūtīm*, “kingship”, gen. s. noun; RIME 2.1.1.12 o. 7); *i-na-ša-ar* (*inaššar*, “he will guard”, from the root *n-š-r*, “to guard”, G-stem dur. 3 m. s.; MDP 14, 90 r. 4).

During the Ur III period, the syllabic values *za*, *sa₃*, and *ša* are attested for the sign ZA, as in the following words and proper nouns: *ḫa-za-num₂* (*ḫazānum*,

a title, nom. s. noun; AnOr 12, 101 1 r. 7; passim); *i-za-az* (*izzaz*, “he stood”, from the root ʾ-z-z, “to stand”, G-stem dur. 3 m. s.; MDP 14, 44 o. 6); *sa₃-bi₂-tum* (*sābītum*, “female brewer”, nom. s. noun; BPOA 6, 694 o. 4); *ša-lim-tum* (*šalimtum*, “black”, nom. s. noun; CT 32, 34).

At Ebla, the syllabic values *za*, *sa₃*, and *ša*, are attested for the sign ZA, as in the following words: ʾ*a₃-za-zu* ((*h*)*azzāzu(m)*, “seer”, nom. s. noun without mimation, cf. Sem. **h-z-y*, “to see”; *VE* 216); *za-bi₂-lu-um* (*zābilum*, “porter”, nom. s. noun, cf. *zabālum*, “to bring”, inf.; *VE* 254); *sa₃-ki₂-ra-tum* (*sakīratum*, “barrier”, nom. s. noun; *VE* 38); *ka₃-sa₃-pu₃* (*kasāpu(m)*, nom. s. noun without mimation, cf. Akk. *kasāpum*, “to tear to pieces”; *VE* 104); *wa-ša-u₃* (*wašāʾum*, “to stretch; lay out”, inf. without mimation; *VE* 129); *ša-ni-um* (*šanīʾum*, “strong”, nom. s. noun, cf. Sem. **š-n-ʾ*, “to be strong”; *VE* 511).

At Mari, the syllabic values *za*, *sa₃*, and *ša* are attested for the sign ZA, as in the following words: *tim-za-u* (*tīmzaʾū*, uncertain if from root *m-z-ʾ*, “to press, squeeze”, or *m-š-ʾ*, “to correspond, comply with; be sufficient”; ARM XIX 38-45); *mar-ša-at* (*maršat*, “sick”, G-stem stat. 3 f. s.; ARM XIX 14; 16; 17; 23); *ka₃-ša-re₂-en* (*kaššarēn*, “two drivers”, du. noun; ARM XIX 248); *sa₃-hīr-tum* (*saḫīrtum*, “foodstuff”, nom. s. noun; ARM XIX 212; 213; 215; 216; 220; 221).

At Nabada, a syllabic value or values *za/sa₃/ša* are possibly attested for the sign ZA, as in the following words and proper nouns with uncertain meanings: *za-ra* (likely related to *z-r-ʾ*, “to scatter, winow, seed”; Subartu 2, 83 o. col. i 7); *za-ru* (likely related to *z-r-ʾ*, “to scatter, winow, seed”; Subartu 2, 92 r. col. ii 2); *ša-la-tum* (perhaps related to *šāltum*, “combat, strife”; Subartu 2, 38 o. col. iii 3; 5); *a-za-zu₂* (perhaps related to the root ʾ-z-z, “to be(come) angry”, “to stand”; Subartu 2, 83 o. col. ii 3; Subartu 2, 87 o. col. iii 2; Subartu 2, 92 r. col. i 3).

At Tuttul, the syllabic values *za*, *sa₃*, and *ša* are likely attested for the sign ZA, as in the following proper nouns: *za-am-ru-um* (a proper noun or designation of sheep, or perhaps *zam(i)rum*, “singer”; KTT 28 o. 6); *ša-ru-ur* (meaning uncertain; KTT 34 o. 1); *hu-ra-ša-an* (proper noun from *hurāšum*, “gold”, possibly a du. noun; KTT 37 o. 2); *a-sa₃-dan* (perhaps *asa-dan*, perhaps “strong bear”, very

uncertain; KTT 36 o. 1); *sa₃-mu-ITI* (perhaps *šamû(m)-warḫum*, “the sky/heaven is the moon”, nom. s. noun + nom. s. noun, very uncertain; KTT 21 o. 5).

Proto-Ea lists the reading *za-a* (vars.: *a-za*, GAR) for the sign ZA (l. 167).

317. 𒄩A

During the Old Akkadian period, the syllabic value *ha* is attested for the sign 𒄩A, as in the following proper nouns: *a-ha-tum* (*aḫatum*, “sister”, nom. s. noun; AIHA 4, 1 r. col. i 11); *ha-ab-tu* (*habtu*, “fugitive (slave)”, nom. s. noun without mimation; HSS 10, 201 r. 4).

During the Ur III period, the syllabic value *ha* is attested for the sign 𒄩A, as in the following word and proper noun: *ha-za-num₂* (*hazānum*, a title, nom. s. noun; AnOr 12, 101 1 r. 7; passim); *a-ha-am-wa-qar* (*aḫam-waqar*, “the dear one is the brother”, acc. s. noun (from *aḫum*) + nom. s. noun in abs. (from *waqrum*); AUCT 3, 306 seal col. ii 1).

At Ebla, the syllabic value *ha* is attested for the sign 𒄩A, as in the following words: *ha-ma-rum_x*(LUM) (*hamārum*, “to hide”, inf., cf. Ar. *ḥamara*; VE 118); *ha-si₂-su₁₁* (*ḥasīsu(m)*, “wise”, nom. s. noun without mimation; VE 389); *sa-ha-tum* (*šaḫātum*, “side; flank”, nom. s. noun; VE 569).

At Mari, the syllabic value *ha* is attested for the sign 𒄩A, as in the following words: *ha-u* (*ḥa^uum* or *ḥawum*, meaning uncertain, nom. s. noun; ARM XIX 313); *tap-ha-ru-um* (*tapharum*, “group”, nom. s. noun; ARM XIX 252).

At Nabada, the syllabic value *ha* is attested for the sign 𒄩A, as in the following proper nouns: *šu-ha-li* (*šū-ḥāli*, “he is the one of the paternal uncle”¹⁰², 3 m. s. ind. pronoun + gen. s. noun without mimation (from *ḥālum*); Subartu 2, 5 r. col. i 11); *a-ha-tum* (*aḫātum*, “sister”, nom. s. noun; Subartu 2, 15 r. col. i 2; passim); *ha-la-bi-um^{ki}* (“Aleppo”, GN; Subartu 2, 25 o. col. i 3; col. ii 5).

At Tuttul, the syllabic value *ha* is attested for the sign 𒄩A, as in the following proper nouns: *ma-ar-ha-šu-um* (*marḥašum*, “of Marḥaši”, nom. s. noun; KTT 54 r. 6); *ha-mi-du-um* (*ḥāmidum*, “hoarder”, act. part., or *ḥam(i)dum*, “hidden away”,

¹⁰²A reference to a protective deity (CAD p. 103)

verb. adj.; KTT 12 o. 10); *a-ḫu-a-ḫa-ad/t!* (*aḫu-aḫad*, “only/single brother”, or *aḫu-aḫāt*, “brother (of a) sister”; KTT 16 o. 5).

Proto-Ea lists the reading *ḫa-a* for the sign 𒄩A (l. 265).

320. SIG

During the Old Akkadian period, the syllabic value *se₁₁* is attested for the sign SIG, as in the following words: *ni-se₁₁* (*nišē*, “people”, acc./gen. pl. noun; RIME 2.1.4.26 o. 4); *i-ba-se₁₁* (*ibašše*, “he will exist”, from the root *b-š-*, “to exist”, G-stem dur. 3 m. s.; OAIC 9 r. 14); *li-se₁₁-bi-lam* (*lišēbilam*, “may he send here”, from the root *w-b-l*, “to carry, bring”, Š-stem prec. 3 m. s. + vent.; CT 50, 69 r. 3).

During the Ur III period, the syllabic value *se₁₁* is possibly attested for the sign SIG, as in the following words: *ni-se₁₁* (*nišē*, “people”, acc./gen. s. noun;); *se₁₁-se₁₁-ḫu-um* (*šēšēḫum*, a type of garment, nom. s. noun; UET 3, 1702 o. 1).

At Ebla, the syllabic value *se₁₁* may be attested for the sign SIG, as in the word *ni-se₁₁* (*nišē*, “people”, acc./gen. s. noun; passim).

The sign SIG is not attested with a syllabic value at Mari.

At Nabada, the syllabic value *se₁₁* is possibly attested for the sign SIG, as in the following word: ITI SAR *ma-se₁₁-tim* (meaning uncertain; Subartu 2, 9 o. 2).

The sign SIG is not attested with a syllabic value at Tuttul.

Proto-Ea lists the reading *si-ig*, *se-e*, and *e-pi-ig* for the sign SIG (l. 723-725).

3

Phylogenetic and Computational Models for Visualising the Data

3.1 Introduction

The reconstructed syllabaries of the ten sites examined in this thesis, as exemplified by the “sign studies” presented in Chapter 2, represent an in-depth view of the investigation into the spread and use of syllabic values in the cuneiform writing system in the late third millennium (see Appendix A for the complete reconstructed syllabaries). The results of these sign studies – in other words, the reconstructed syllabaries and the establishment of Semitic lexemes and proper nouns within each corpus – compose a thorough dataset that represents the reality of the syllabaries of these sites during the roughly 600-year period being examined. Because of the wealth of data these syllabaries create, it is not practical for any large-scale analysis of these syllabaries to be conducted without the aid of computational methods. Employing phylogenetic systematics and other computational methods will help visualise and characterise the data in different ways, leading to more informed and varied analysis. This initial analysis will aid in establishing which features, or combinations of specific syllabic values, within these syllabaries are most influential in determining the patterns of clusterings observed; these features can then be examined further in order to answer the research questions outlined in the introduction of this thesis.

3.1.1 Computational methods of analysis: a three-step approach

Three different methods of analysis were used to visualise this dataset. These three methods are phylogenetic systematics, hierarchical clustering, and principal component analysis. I chose to include phylogenetic systematics because it is a common method used in the study of language and manuscript evolution (Platnick and Cameron 1977; Atkinson and Gray 2005). However, because of the novelty of using phylogenetic systematics to understand writing system evolution, and because of the relative inflexibility of phylogenetic programs to filter out relevant data from noise, the results of the phylogenetic model were tested by applying two other computational methods to the data using the program RStudio: hierarchical clustering and principal component analysis. These second two techniques help manipulate, filter, and visualise the data in different ways; they organise the data according to similarities and differences, and can isolate key data points that influence the results. These three methods will be discussed further below.

3.1.2 Unfiltered and filtered datasets

An initial examination of the dataset reveals that there are two particular aspects of the data that are driving the initial results: the lack of sufficient data from Assur, and the presence of a large number of signs that only occur once at Ebla.

Table 3.1 below shows the number of syllabic values at each site that occur at at least two sites; Assur is a clear outlier with only 6 of these signs attested. Because there is not enough data for Assur to be informative, this site will be removed from further analysis.

Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
128	100	70	105	78	60	105	108	6	90

Table 3.1: The number of syllabic values at each site that occur at at least one other site.

Table 3.2 shows the number of *hapax* syllabic values, or syllabic values at each site that are attested at only that site. The number of *hapax* syllabic values at Ebla is much higher than at the other sites examined, and were subsequently filtered out of the dataset for the secondary analysis.

Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
34	10	4	11	9	1	6	5	0	5

Table 3.2: The number of *hapax* syllabic values, or syllabic values that occur at only one site, attested at each site.

The three methods of analysis described below were applied to both the initial unfiltered dataset – which includes *hapax* syllabic values (or signs that occur at only one site), ubiquitous syllabic values (or syllabic values that occur at all sites), and the syllabic values from Assur – as well as the filtered dataset which excludes the previous three features of the data. The results of both the unfiltered and filtered datasets will be presented for each method below.

3.2 Phylogenetic Systematics

An analysis based on phylogenetic systematics¹ can scientifically test our hypotheses about the nature of the adaptation of cuneiform to write Semitic language(s) across Mesopotamia and Syria. The primary strength of phylogenetic analysis is its ability to reconstruct tree- or network-like relationships across time; because the spread and adaptation of cuneiform must have necessarily occurred over a period of time – even a relatively short one – these methods can provide interesting insights into the nature of the script’s spread and help us determine which sites cluster or diverge. Phylogenetic methods are advantageous because the data input and methods used are always transparent, and therefore the results should be repeatable.²

¹For an introduction to phylogenetic techniques, see Nichols and Warnow 2008.

²See Appendix C for the settings used for the phylogenetic analysis, the code used in RStudio for the hierarchical clustering and principal component analysis and Appendix A for the full dataset.

Phylogenetic methods have been used with success in the reconstruction of language and dialect relationships (Nakhleh, Ringe, and Warnow 2005) and manuscript evolution (Barbrook et al. 1998), but only once in an attempt to reconstruct writing system evolution (Skelton 2008). The application of phylogenetic methods to this type of data is therefore unique, and the optimal search criteria and program settings have not yet been established. In this thesis I use an optimisation criterion called maximum parsimony (described further below).

3.2.1 Experimental Method

Phylogenetic analyses can employ a number of different methods of searching for and evaluating phylogenetic trees (Swofford et al. 1996, pp. 478-93). These methods tend to be either algorithm-based or optimality-criterion-based. Algorithm-based methods rely on algorithms to search for trees and to determine which tree is the correct one, and have the advantage of short computation time. Optimality-criterion-based methods, on the other hand, use different criteria for determining which tree is the best – called the optimality criterion – to find the tree in the first place – or the search strategy. This method is advantageous because the use of two different criteria for searching for the trees and for determining which one is best makes it easier to determine the likelihood that the tree produced is the correct tree (Swofford et al. 1996, pp. 408-9). I have used optimality-criterion-based methods for my analysis because the relatively small dataset (compared to datasets of millions of data points in genomic studies) does not make computation time a concern.

Based on her work on Linear B, Skelton (2008, p. 170) determined that the most appropriate optimality criterion for a phylogenetic analysis of a writing system is maximum parsimony, and I therefore consider it here as well. Maximum parsimony has been used to analyse a number of language families, including the Bantu language family on a variety of datasets, with Bastin (1983), Holden (2002), Holden, Meade, and Pagel (2005) using only lexical data, and Rexová, Bastin, and Frynta (2006) using grammatical data. Others have used lexical data (Nakhleh, Ringe, and Warnow 2005; Rexová, Frynta, and Zrzavý 2003) and a combination of types of data

(Nakhleh et al. 2005) to study Indo-European languages. Maximum parsimony has also been used by Cysouw, Wichmann, and Kamholz (2006) to study Mixe-Zoquean.

Maximum parsimony is an optimisation problem that aims to produce a tree in which the minimum number of character state changes occurs; using this optimisation problem follows the assumption that the path of least resistance would be not to adapt or create new syllabic values. It uses a simple model of character state change, which assumes that each change is equally likely to occur as any other change. While this assumption may not be correct for any given dataset, it is usually not possible to estimate actual probabilities of character change, and so an assumption of equal probabilities is necessary and appropriate; other optimality criteria, such as maximum likelihood, require explicit models of evolutionary change, which is not possible in this case.

Maximum parsimony analyses can allow characters with missing entries; for example, maximum parsimony encounters no problem when a language under study has no word for a given semantic slot. Since my data contains characters that are not always present in each taxon, this feature of maximum parsimony is necessary.

With maximum parsimony, the phylogenetic estimation program creates a series of possible trees and then assigns each one a ‘tree length’, which is the sum of the weights of the character state changes that occurred on all branches of the tree. Maximum parsimony considers the tree with the shortest tree length – or fewest character state changes – to be the best solution (Skelton 2008, p. 171).³

It is not uncommon for a maximum parsimony method to produce a number of trees with the same tree length. In this situation, it is possible to run an algorithm that produces a consensus tree. The algorithm examines the trees of equal tree length in order to determine which feature(s) the trees all share, or which a majority of the trees share. The usual features that are relevant in this determination are the splits, or bipartitions, on the leaf set induced by the edges of each tree; in other words, a consensus tree can be a tree that has exactly all the splits that each of the input trees

³See Swofford et al. (1996, pp. 415-24) for a full discussion of different parsimony methods.

have (Nichols and Warnow 2008, pp. 770-3).⁴ Since the phylogenetic estimation method produced only one tree in this case, this consensus method was not needed.

Another technique for estimating the support values (or the likelihood values) for a single tree, or for the branches of a given tree, is a statistical re-sampling technique called bootstrapping. Bootstrapping creates new, random datasets using characters from the original data matrix and runs them through the same set of parameters. This technique can be used simply to estimate support values for the edges of a tree, where the support values are the fraction of times that that particular bipartition appears in the random bootstrap trees; it can also be used as input data in a consensus method, like those described above, which would then be annotated with the support value estimates (Nichols and Warnow 2008, p. 773). This technique dictates that a high support value for a particular bipartition increases the likelihood that that bipartition is accurate. This technique will be applied to the data for both the phylogenetic analysis and the hierarchical clustering.

3.2.2 Taxa

Taxa are the independent variables, or more basic entities being studied. In biology, species or gene sequences are often used as taxa; this study uses sites⁵ as taxa. Using individual tablets as taxa is not an option because there is not enough data on most tablets for this to be viable. Using scribal hands as taxa (as were used in Skelton 2008) is also not an option since hands have so far not been established, or even suggested, for these corpora (Biggs 1973, p. 39).

⁴Other types of consensus trees are majority consensus and greedy consensus. According to Nichols and Warnow (2008, p. 773), “the majority consensus tree contains those edges whose corresponding bipartitions appear in strictly more than half of the input trees, and the greedy consensus tree is formed by computing the majority consensus and then refining the tree by adding bipartitions from the input trees. By construction, the strict consensus tree is the least resolved, the greedy consensus tree is the most resolved, and the majority consensus is in between these two trees with respect to resolution. Also, however, the greedy consensus tree refines the majority consensus tree, and the majority consensus tree refines the strict consensus.”

⁵Ebla, Mari, Nabada, Tuttul, Adab, Eshnunna, Kish, Tutub, Assur, and Gasur.

3.2.3 Characters

Characters are the dependent variables of a study. In biology, molecular or phenotype data are often used as characters; this study uses syllabic values of signs used in Semitic words and proper nouns as characters. The character states are either 1 or 0, indicating presence or absence (respectively) of that particular character in a taxon.

Using syllabic values as the characters in this study is not without its problems. While in most words or personal names it is clear what the syllabic value is meant to be, there are some cases where it is unclear. There is also the issue of human error, either in my own transliterations or on the transliterations and sign lists compiled by other scholars that have been relied upon.

3.2.4 Program and Settings

There are a number of programs available that perform phylogenetic analyses, each of which specialises in specific methods for estimating phylogenies. The program PAUP*, version 4.0a146 for Macintosh (Swofford 2001), specialises in parsimony methods, and so was used to analyse this dataset. Other programs such as TNT (Goloboff, Farris, and Nixon 2003), Mesquite (Maddison and Maddison 2001), or PHYLIP (Felsenstein 2005) could also have been used to estimate the phylogeny of the data through maximum parsimony.

The data matrix that was imported into PAUP* consists of 326 total characters (or sign values); 116 of these are determined to be parsimony-uninformative, and 200 are parsimony-informative. Because of the relatively small data-set, an exhaustive search was used to generate the optimal tree (see Figure 1). A bootstrapping resampling method was then run using a full heuristic search strategy; the resulting consensus tree retained groups with a frequency of greater than 50 percent (see Figure 2). For both trees, no outgroup was defined so the trees are arbitrarily rooted at the first taxon (Ebla).⁶

⁶While identifying an outgroup is desirable, it is not necessary. For more about outgroups and ingroups, see Swofford et al. (1996).

3.2.5 Results

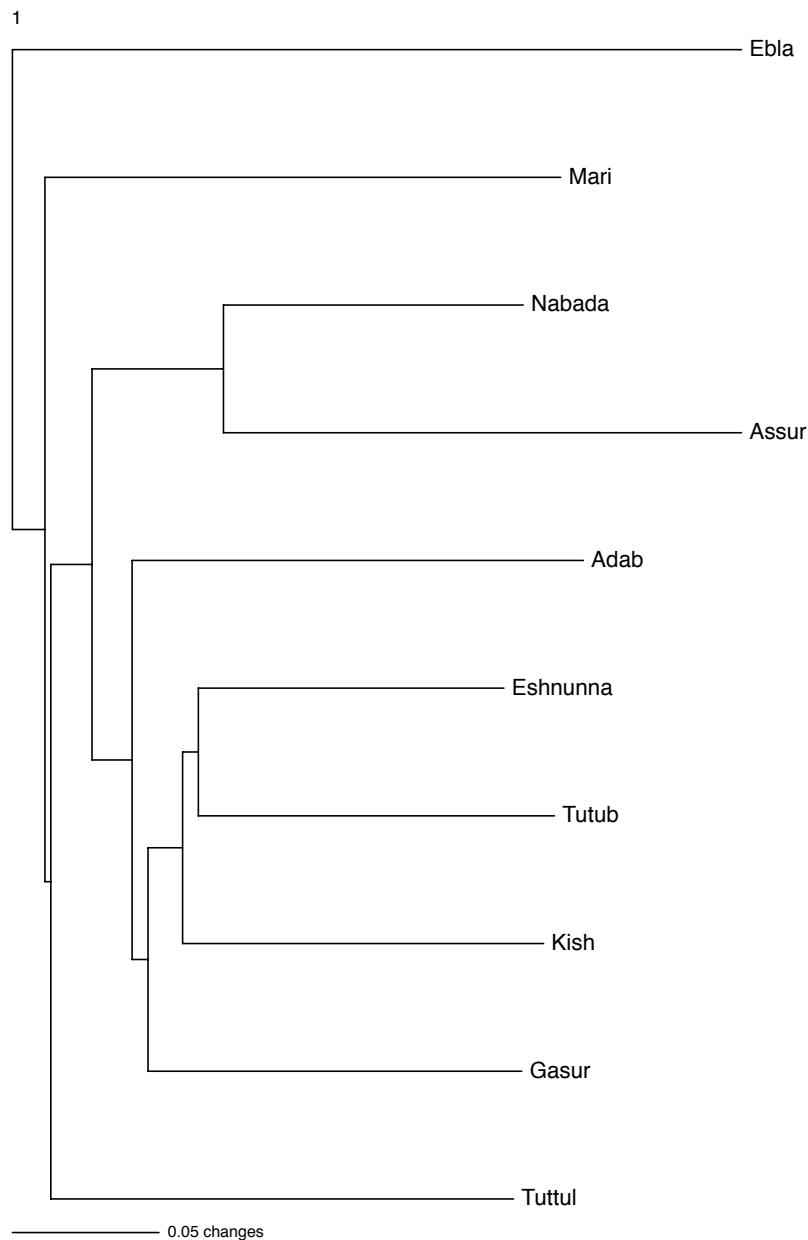


Figure 3.1: The first tree resulting from the phylogenetic estimation of the unfiltered dataset using maximum parsimony in the program PAUP*.

The trees resulting from this analysis will represent similarities and differences – not the interdependence or genealogy – in the data, and could reflect three different

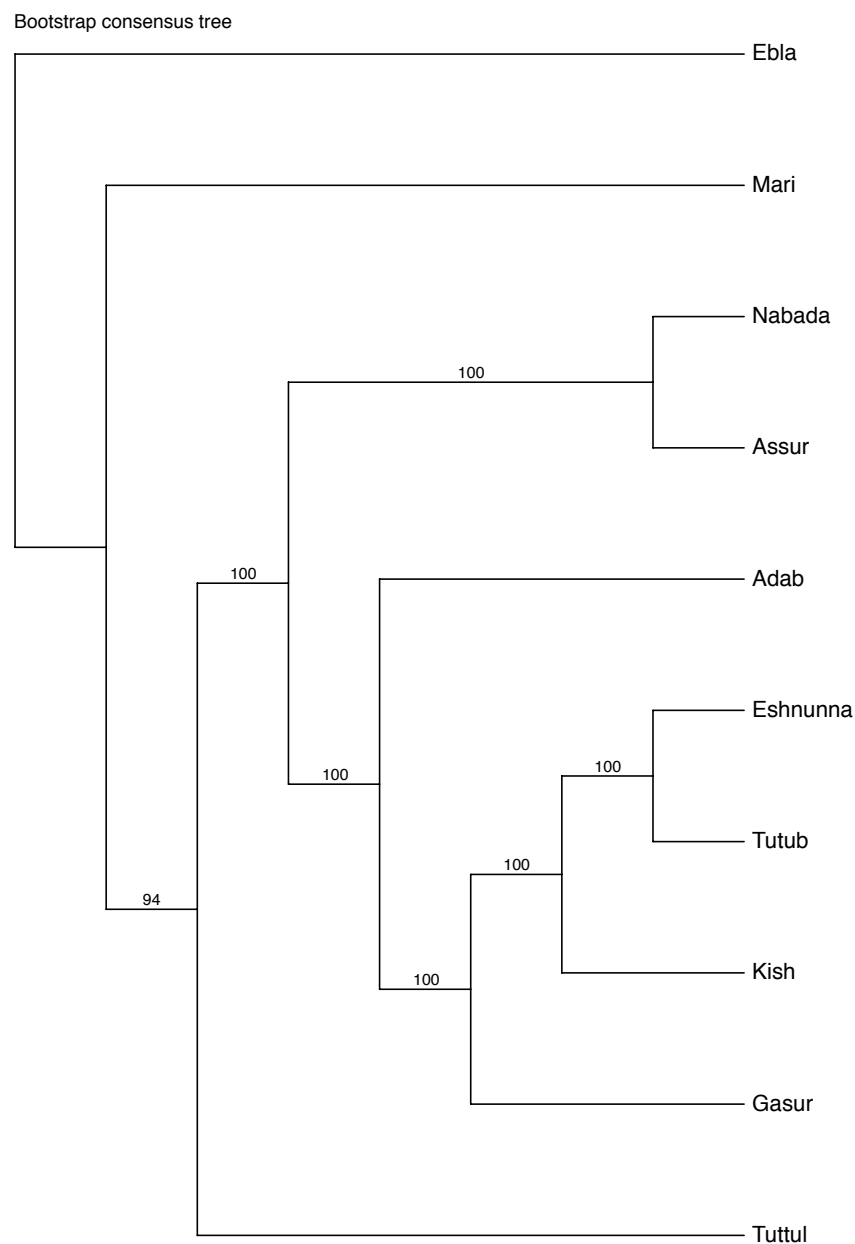


Figure 3.2: The consensus tree with p-values generated from a bootstrap resampling method on the unfiltered dataset.

realities and therefore support three different conclusions about the syllabaries. The possible results could be:

- (1) that the syllabaries exactly mirror the geography of the sites. This would indicate a relationship between the syllabaries that was based purely on

geographic proximity of the sites. In other words, this tree would support the conclusion that there was an organic spread of the development and use of syllabic values from site to site.

- (2) that the trees mirror the geography of the sites to a certain extent. This would indicate that geography was perhaps one factor in how similar the syllabaries examined are. In other words, this tree would suggest that sites nearer to each other were more influenced by each other's syllabaries and sites further away from each other developed "genetic mutations" or independent changes in their syllabaries, but that this was not the sole influencing factor.
- (3) that the trees reflect geography in no way. This would indicate that the differences observed in the syllabaries must be attributed to another cause or causes.

The trees in Figure 3.1 shows the tree resulting from the phylogenetic analysis on the unfiltered dataset. The tree in Figure 3.2 shows the consensus tree with p-values created using a bootstrapping re-sampling technique, also on the unfiltered dataset.

The implications of these results would suggest either that these adaptations occurred either gradually across the region as the technological innovation spread from site to site, or that there are other contributing factors, such as local scribal innovation (perhaps based on dialect differences between the sites).

A few preliminary observations can be made based on these results. First, it is notable that Ebla is an outlier among the taxa. The Mari and Tuttul syllabaries seem to be more similar to the rest of the cohort; Nabada and Assur are clustered together. Finally, the phylogenetic estimation groups together the syllabaries of Eshnunna, Kish, Tutub, and Gasur.

Figures 3.3 and 3.4 show the results of the phylogenetic analysis and the bootstrapping re-sampling technique on the filtered dataset. Most interesting is that filtering *hapax* syllabic values and ubiquitous syllabic values did not affect the results. The bootstrap consensus tree of the filtered dataset reveals that Ebla and Nabada are most distant from the other sites, and closely similar to each other, and

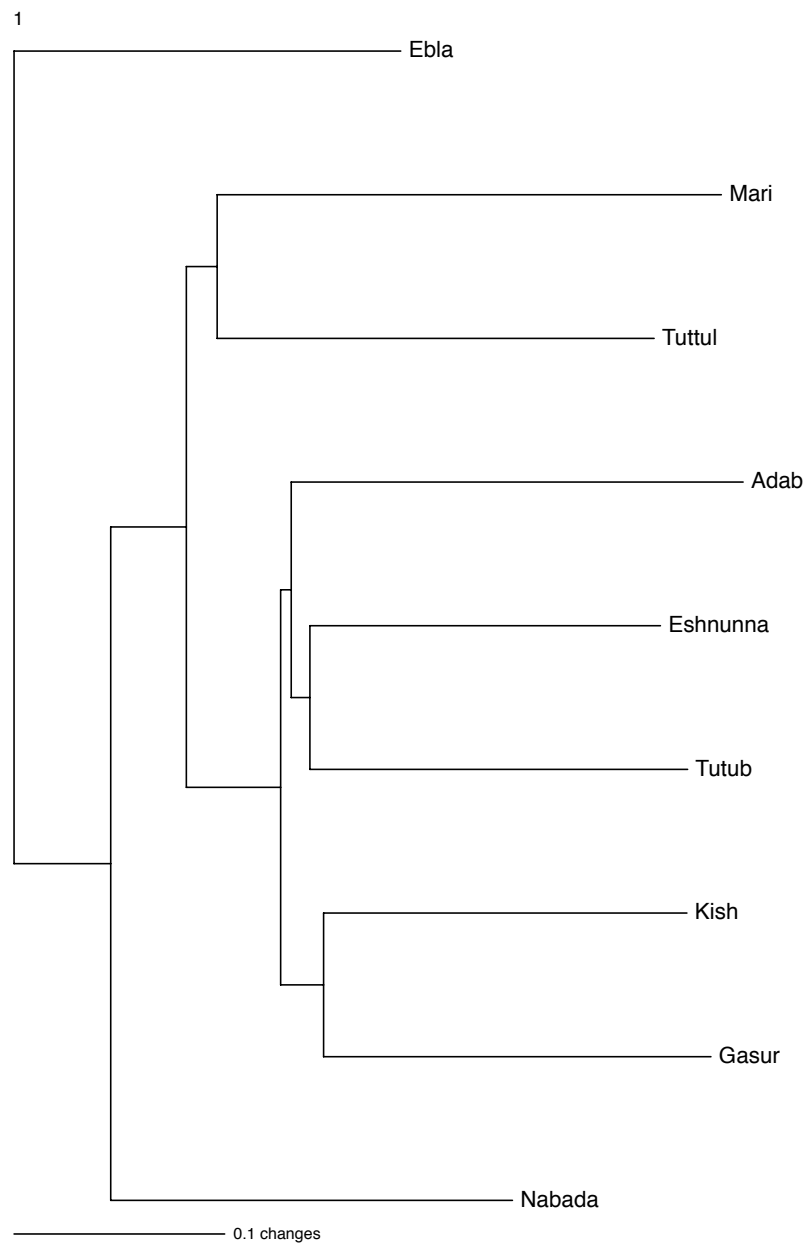


Figure 3.3: The tree resulting from the phylogenetic estimation of the filtered dataset using maximum parsimony in the program PAUP*.

that Mari and Tuttul are similar with a p-value of 50%. According to this model, there are no strong associations between the Mesopotamian sites except for Kish and Gasur, whose sub-cluster has a p-value of 52% (see the section on hierarchical clustering below for an explanation of the relevance of p-values)

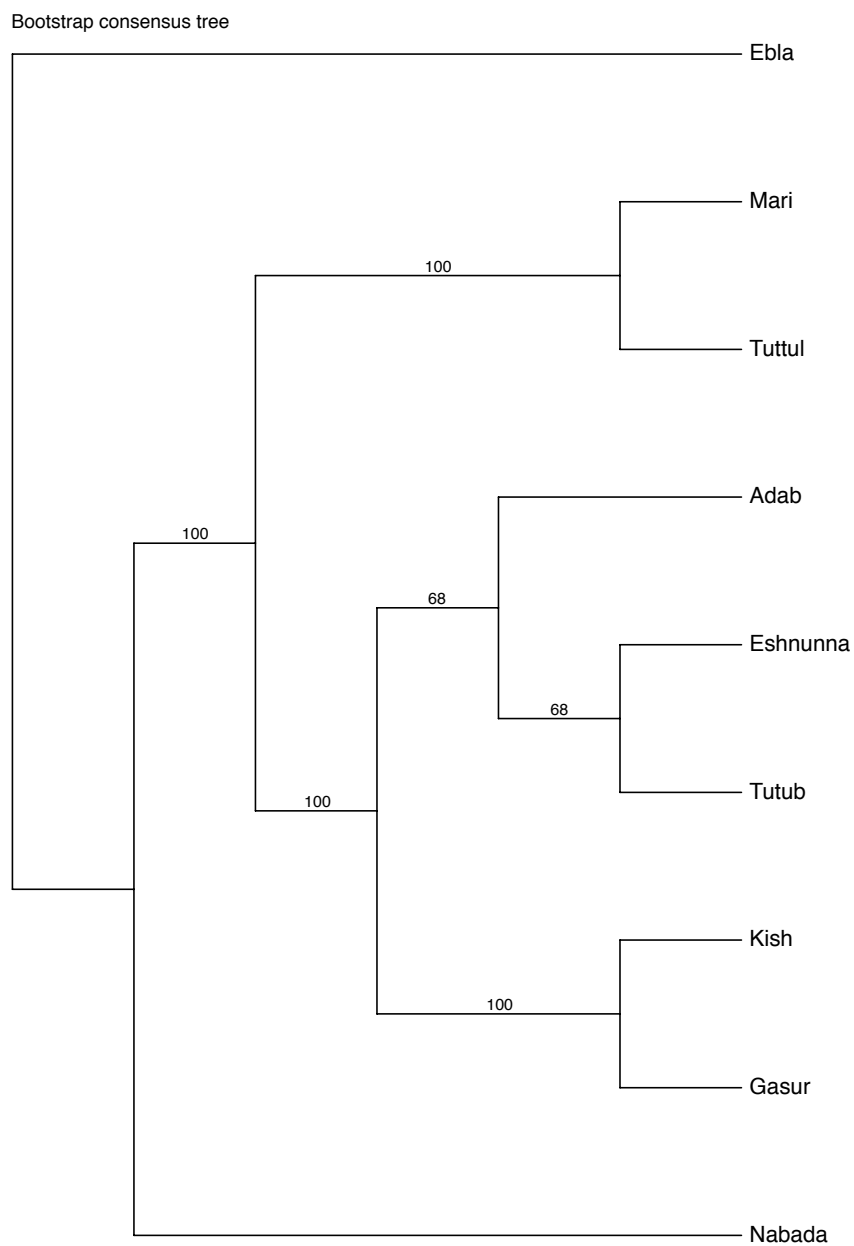


Figure 3.4: The consensus tree resulting from the bootstrapping resampling method on the filtered dataset.

Based on this initial examination, it appears that the geography of the sites themselves is mirrored to a certain extent in the phylogenetic analysis. Hierarchical clustering and principal component analysis are now used to verify this result.

3.3 Hierarchical Clustering

Clustering techniques such as phylogenetic analysis are useful for determining general tendencies within a dataset by finding the natural clusterings of that given dataset. However, since most clustering algorithms create clusters regardless of any inherent cluster structure in the dataset, other methods are required to externally validate the results. It is for this reason that I rely here on three different techniques to understand the data: phylogenetic estimation, hierarchical clustering, and principal component analysis.

Hierarchical clustering⁷ is a visual clustering technique that organises data into dendrograms; in this case, the technique was used to organise sites and syllabic values according to similarities and differences. Because the data collected and used in this study is straightforward, binary data, using different clustering algorithms does not produce different results. This method is in many ways similar to phylogenetic analysis, but uses different algorithms and relies on different underlying assumptions about the dataset. If these two techniques produce the same results, that is a good sign that the branchings and clusterings observed are present in the dataset and not a coincidence of the particular algorithm used.

Figures 3.5a and 3.5b show the results of the hierarchical clustering (using a Manhattan distance function and a Ward clustering metric) on the filtered and unfiltered datasets. The dark grey indicates absence of a syllabic value at a site; dark grey indicates presence. The trees along the upper x-axes of the graphs shows how the sites cluster or diverge; the trees along the left-hand y-axes of the graphs shows the resulting clusterings of the syllabic values. It is the clusterings of the syllabic values that determine how the sites will cluster; because of the focus on how the syllabaries of these sites compare and relate to one another, the focus in this chapter is on the trees and clusterings of the sites themselves.

Compared to the results of the analysis on the unfiltered data, the results of the filtered data (to exclude Assur, any values that occur at only one site, or *hapax* syllabic values, and syllabic values that occur at all sites, or ubiquitous syllabic

⁷For more about clustering techniques, see L. Kaufman and P. J. Rousseeuw 2009.

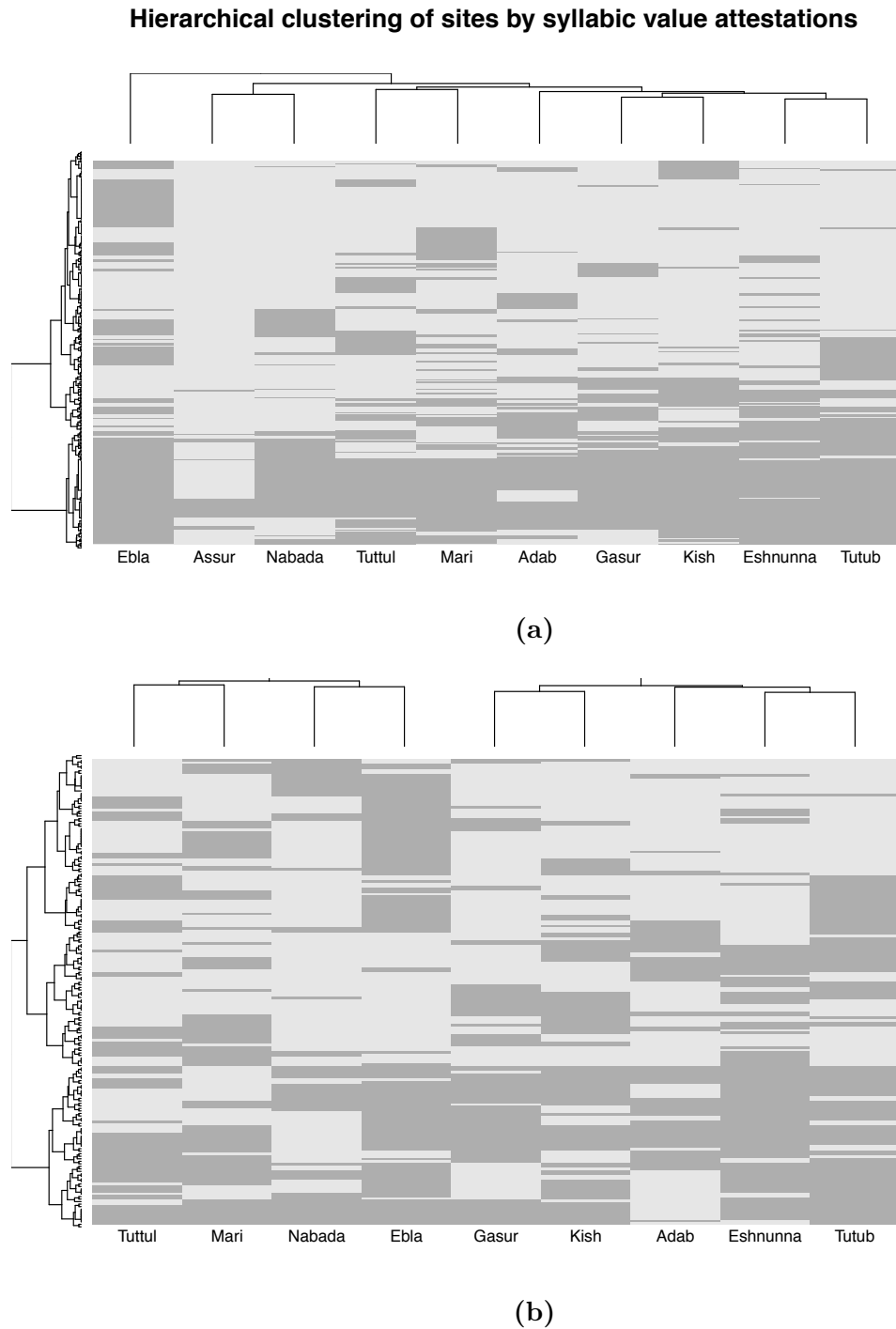


Figure 3.5: The hierarchical clustering on the unfiltered (a) and filtered (b) datasets show different results. The hierarchical clustering of the filtered dataset indicates a stronger connection between syllabary and geography than the hierarchical clustering of the unfiltered dataset.

values) appear different. The results of this analysis indicate that Eshnunna, Adab, Gasur, Tutub and Kish are distinct from Nabada, Ebla, Mari, and Tuttul, the four sites in Syria. This suggests that there is a stronger geographically-driven pattern in the data than the phylogenetic estimation originally seemed to indicate.

A bootstrap resampling technique was run on the results of the hierarchical clustering on the filtered dataset (Figure 3.6) using the package *pvc* with a Manhattan distance method and a Ward D2 cluster method (the same methods used in the hierarchical clustering). This package provides two types of p-values: AU (Approximately Unbiased) p-value and BP (Bootstrap Probability) value. AU p-value, which is computed by multiscale bootstrap resampling, is a better approximation to unbiased p-value than BP value computed by normal bootstrap resampling (Suzuki and Shimodaira 2014, p. 4). The clusters in the tree that group the Syrian syllabaries and the Mesopotamian syllabaries together are strongly supported by the data, having AU p-values of 93% and 94%, respectively⁸. The partitions grouping Mari and Tuttul together and Ebla and Nabada are supported by the data, though less strongly, with AU p-values of 83% and 86% respectively. The groupings of the Mesopotamian syllabaries is less strongly supported by the data (the Kish and Gasur cluster has an AU p-value of 69%; the Adab, Eshnunna, and Tutub cluster has an AU p-value of 71%; and the Eshnunna and Tutub cluster has an AU p-value of 73%). Overall, these support values suggest that the results of this analysis are supported by the data, and suggest very close affinities between the Syrian syllabaries of Ebla, Nabada, Mari, and Tuttul. The data also strongly support a grouping of the Mesopotamian syllabaries.

Principal component analysis can be used to visualise these patterns of clustering and to determine which syllabic values are driving these results.

⁸Clusters with a p-value of 95% or higher are considered to be very strong, while p-values higher than 90 are considered strong (Suzuki and Shimodaira 2014, p. 6).

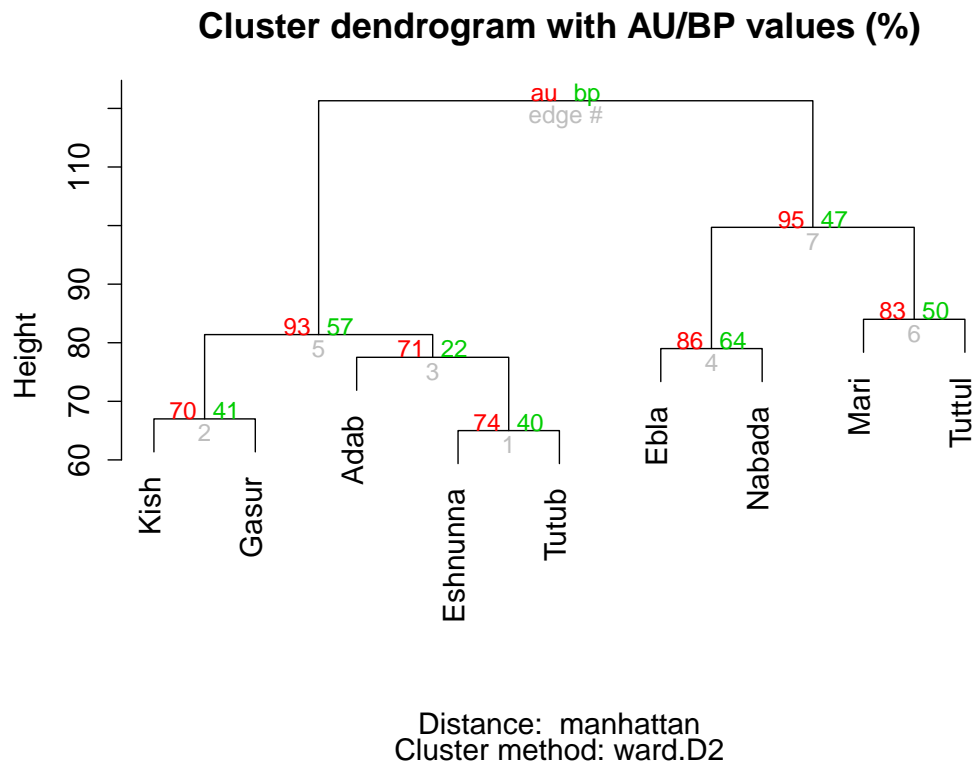


Figure 3.6: The AU and BP p -values support the results of the hierarchical clustering on the filtered dataset.

3.4 Principal Component Analysis

Principal component analysis (PCA)⁹ is a powerful yet simple tool for analysing multivariate data (Wold, Esbensen, and Geladi 1987, p. 37). It uses linear algebra to take a very high-dimensional space (in this case, a 326-dimensional space because of the 326 data points, or syllabic values) and projects it into a two-dimensional space. An analysis using PCA always begins with a data table whose rows are termed “objects” and whose columns are termed “variables.” By analysing the data points within this data table, one can accomplish one or several common goals: data reduction or simplification; data modelling; outlier detection; variable selection; classification; prediction; or unmixing (Wold, Esbensen, and Geladi 1987, p. 38).

⁹For more about principal component analysis, see Jolliffe (2002) and Wold, Esbensen, and Geladi (1987).

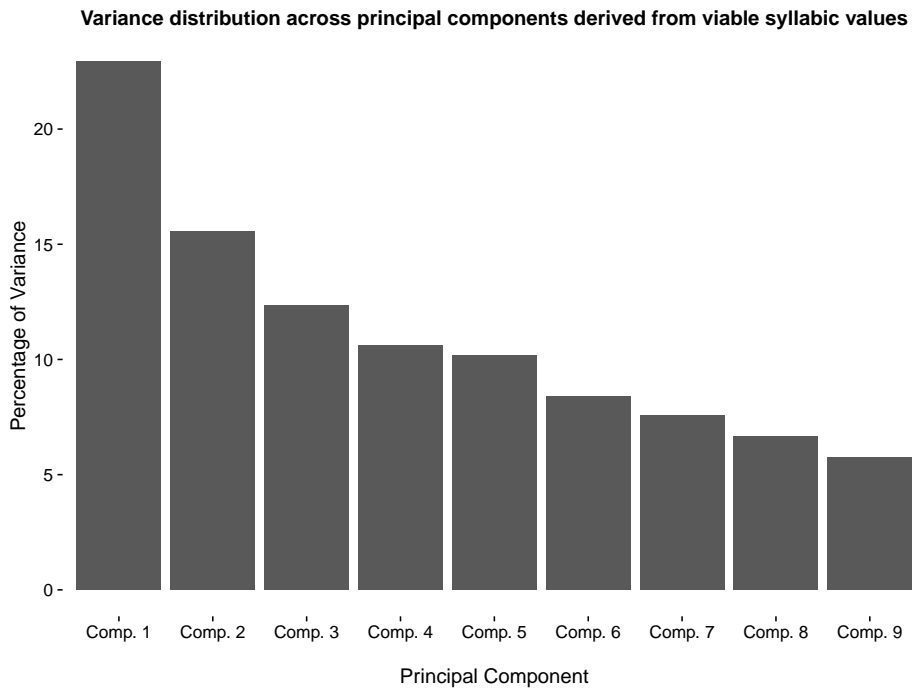
The primary goals of using PCA against the dataset in this study are to determine outliers and select variables. To address these goals, PCA rotates the axes of the data table in order to find the two axes that represent the most variation, or principal components, within the data. In other words, PCA finds the set of variables that explain the most variance found in the dataset. These variables, or syllabic values in this case, can then be further examined using complementary techniques if desired.

3.4.1 PCA on the unfiltered dataset: the number of syllabic values attested at each site is driving the observed variation

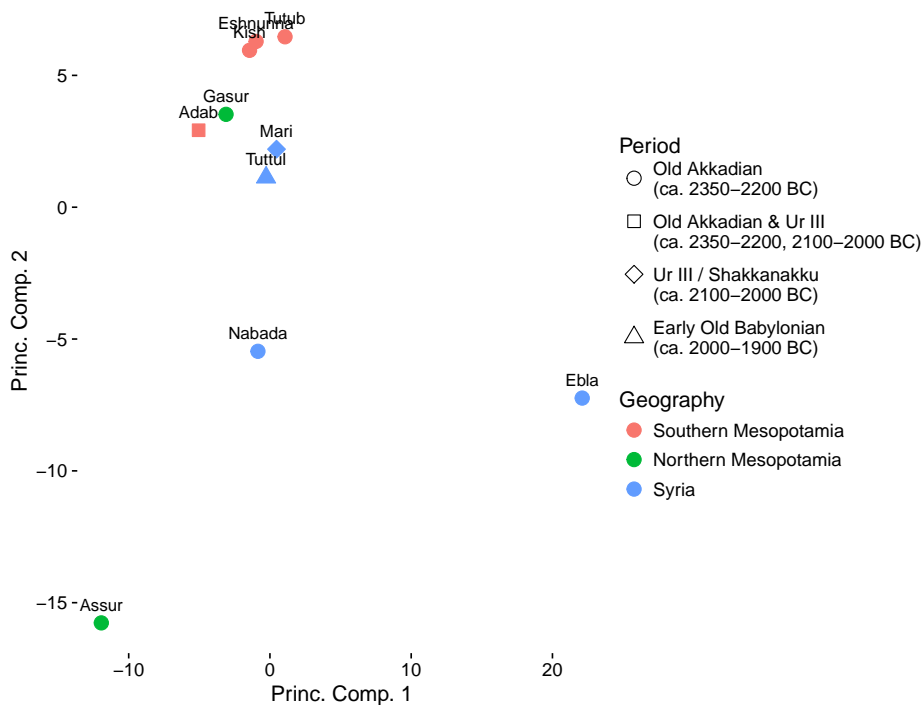
The principal component analysis on the unfiltered dataset (Figure 3.7a) shows that approximately 25% of the variation in this dataset can be attributed to the first principal component; this component accounts for significantly more variation than the subsequent principal components, which account for between 15% and 5% of variation in the dataset. By plotting the first principal component against the second principal component (Figure 3.7b), it becomes clear that the first principal component can be characterised by Ebla and Assur being outliers on either end of the spectrum. This suggests that the primary factor driving the results of the principal component analysis on the unfiltered dataset is the number of syllabic values attested at each site within the dataset; further, the large number of *hapax* syllabic values attested at Ebla and the lack of sufficient data at Assur are the significant factors influencing the first principal component.

3.4.2 PCA on the filtered dataset: geographic, temporal, and random variation are driving the observed variation

The graph in Figure 3.8 shows what percentage of the total amount of variation can be attributed to each main component, or sets of variables, of the filtered dataset (the nature of the first three principal components will be described further below). The results of the principal component analysis on the filtered dataset reveal that the first three components account for nearly half of the total observed



(a) The variance distribution across principal components derived from the unfiltered dataset shows that 25% of the total variation can be attributed to the first principal component.



(b) The first principal component, which can be attributed to the number of syllabic values attested at each site, is driving the observed variation: the large number of *hapax* syllabic values attested at Ebla (the first principal component) and the lack of sufficient data at Assur (the second principal component) are driving the observed variation.

Figure 3.7: PCA on the unfiltered dataset.

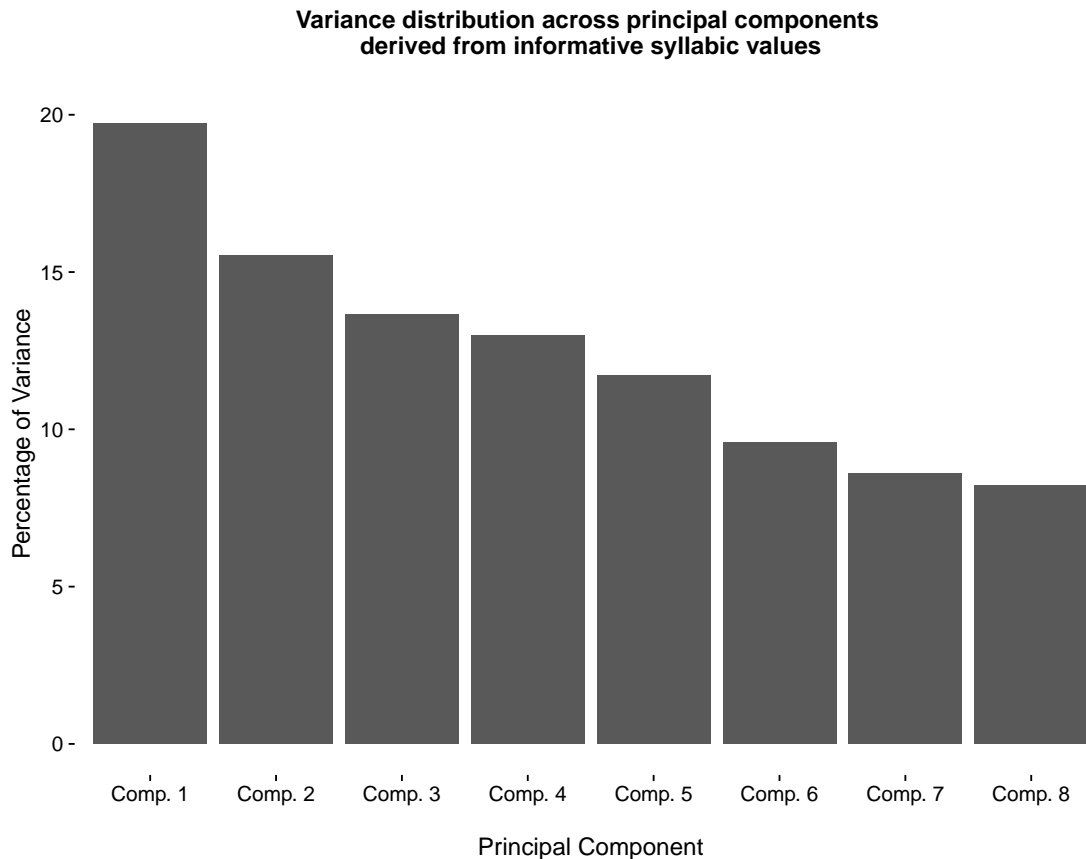


Figure 3.8: The variance distribution across principal components derived from the filtered dataset shows that when excluding *hapax* syllabic values, ubiquitous syllabic values, and the data from Assur the data is more complex.

variance; only those three principal components will be examined further. Plotting these principal component can provide a clearer picture of the patterns: the first two principal components can be attributed to geographic and temporal variation between the datasets.

The results of the principal component analysis on the filtered dataset reveal that geographic variation is the most significant factor contributing to the observed variation. This can be clearly observed in the plot graph in Figure 4.1: the first principal component is plotted along the x-axis of the graph, and shows that Adab, Gasur, Eshnunna, Kish, and Tutub (the sites in Mesopotamia, plotted in red for southern sites and green for the northern site) cluster together on the left-hand side, while Mari, Tuttul, Nabada, and Ebla (the sites in Syria, plotted in blue) cluster together on the right-hand side. These results mirror the trend observed

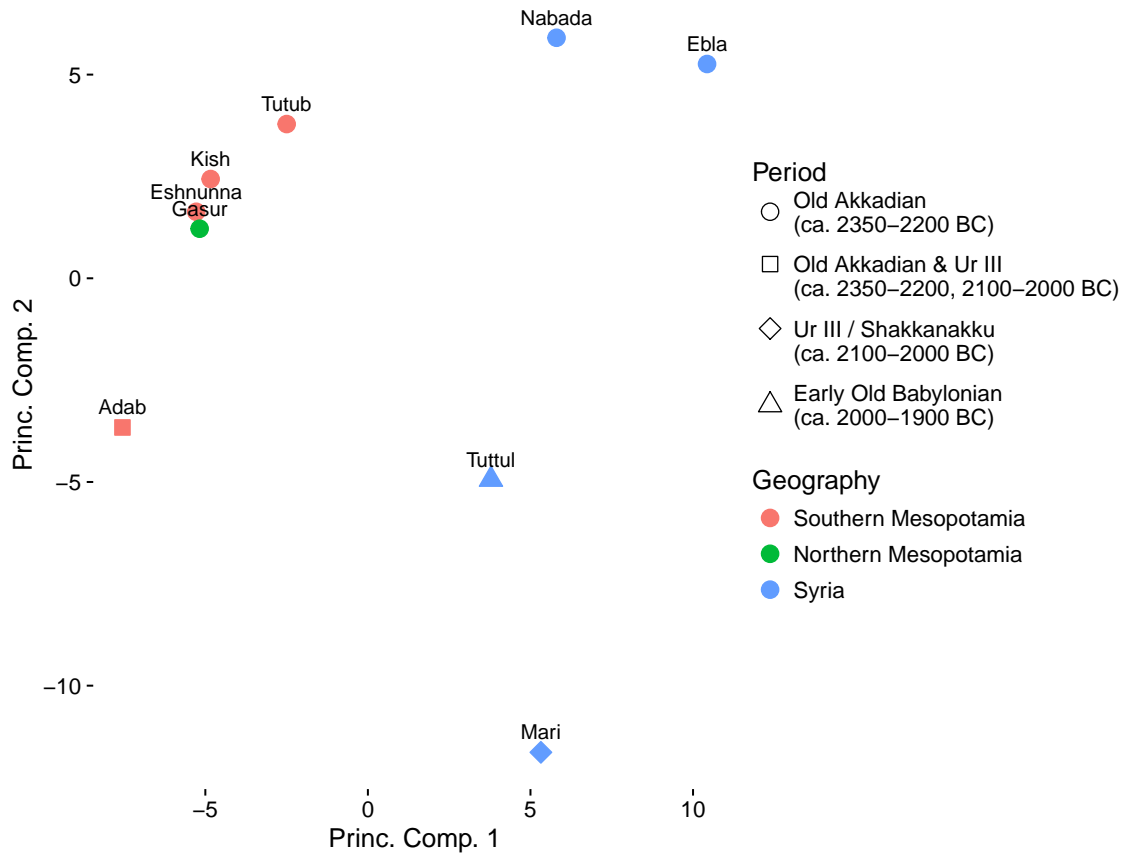


Figure 3.9: The plot graph comparing the first and second principal components of the filtered dataset shows that the first principal component can be attributed to geographic variation in the sites examined.

in the heatmap in Figure 3.5b and seem to indicate that geography can explain the first principal component, which accounts for almost 20% of the variation observed in the filtered dataset.

The second principal component (Figure 4.4, plotted along the x-axis), which accounts for 15% of the variation observed in the filtered dataset, shows that Mari and Tuttul, and to a lesser extent Adab, are outliers, while showing the other sites cluster together. This pattern can be attributed to the temporal variation in the corpora examined: the syllabaries of most of the sites examined (Ebla, Nabada, Kish, Eshnunna, Tutub, Assur, and Gasur) are derived from texts dating from the Old Akkadian period (ca. 2350-2200 BC), designated with a circular plot. The texts from Adab included in this study date from both the Old Akkadian period and from the Ur III period (ca. 2100-2000 BC), designated with a square plot;

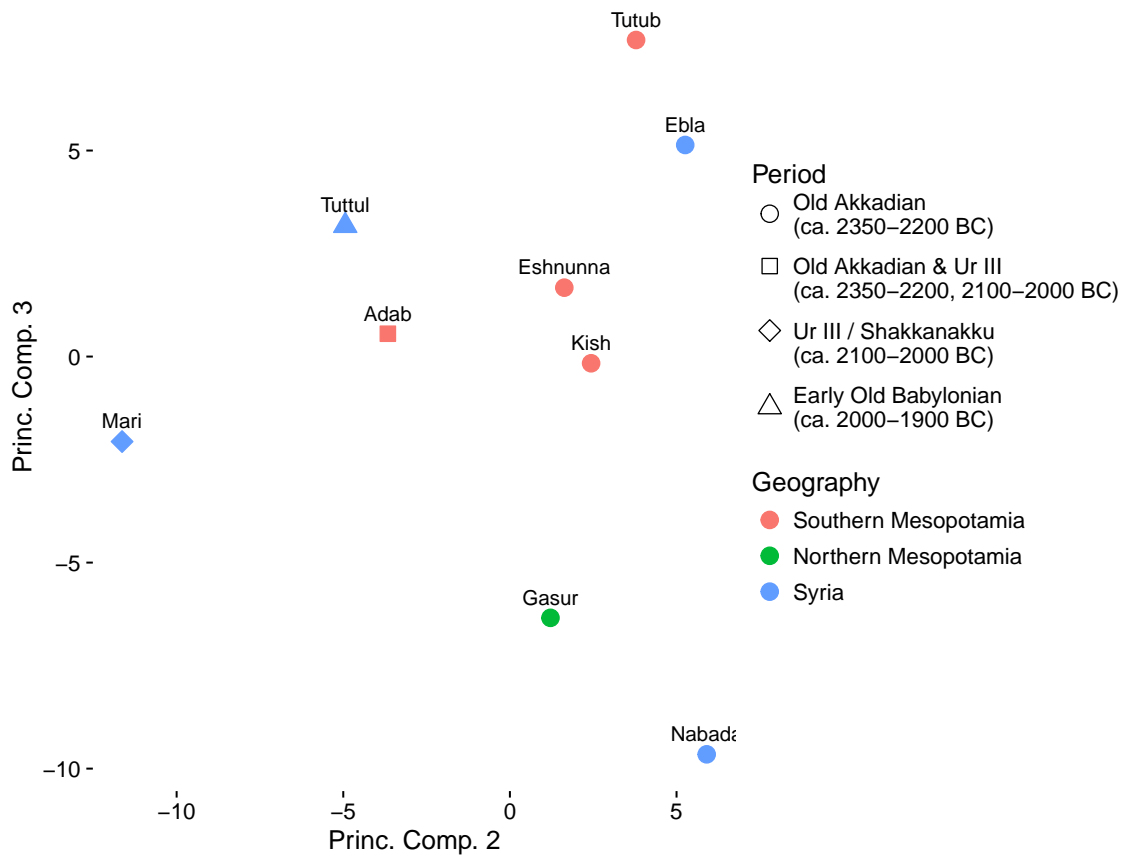


Figure 3.10: The plot graph comparing the second and third principal components of the filtered dataset shows that the second principal component can be attributed to temporal variation in the corpora of the sites examined.

from Mari, they date to the Ur III (or Šakkanakku) period, designated with a diamond-shaped plot; and from Tuttul, they date from the Early Old Babylonian period (ca. 2000-1900 BC), designated with a triangular plot.

The third principal component (Figure 4.4, plotted along the y-axis) displays no apparent pattern. Nabada and Gasur lie in opposition to Tutub, while the other sites are distributed evenly between them. This principal component is included as a point of comparison, and demonstrates that random similarity in the data can contribute to the results of this type of analysis; it is only with further inspection that the significance of the results of PCA can be verified and qualified.

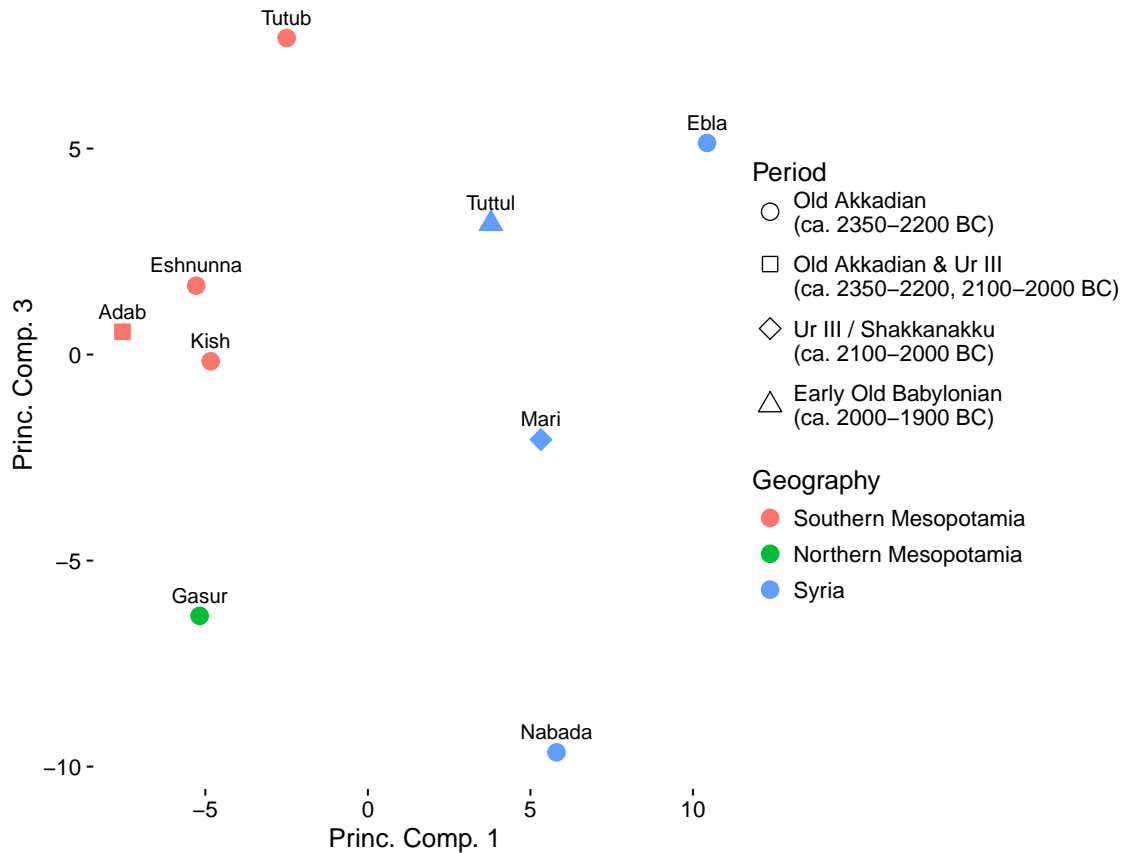


Figure 3.11: The plot graph comparing the first and third principal components of the filtered dataset shows that there is no apparent pattern to the clustering observed in the third principal component.

3.5 Summary

These three analytical tools help us visualise the data in different ways. They organise the data according to similarities and differences, and can isolate key data points that influence the results. These techniques can prompt us to think about our data in new ways, and helps us interpret the results based on our knowledge of the historical and linguistic realities of the period.

The results of the analyses on the unfiltered, or original, dataset suggest that the driving factor behind the variation in the unfiltered dataset is the number of syllabic values attested at each site. The principal component analysis on this dataset reveals that Ebla and Assur are outliers on either end of the spectrum within the first principal component: the large number of *hapax* syllabic values

attested at Ebla and the lack of sufficient data at Assur are the significant factors influencing the first principal component. A closer examination of the *hapax* syllabic values reveals that these variables may be indicators of dialectical variation; this will be explored further in Chapter 4.

The results of these analyses on the filtered dataset suggest that geographic, temporal, and random variation are driving the observed variation within the filtered dataset. The relevant syllabic values from the Syrian corpora identified through the principal component analysis will be examined further in Chapter 4. Specifically, the lexical items that were collected in the sign studies of the Syrian corpora are used to further interpret the results of the computational analyses using traditional linguistic and text-analysis techniques.

The application of statistical and computational models to this dataset has demonstrated that a close examination of syllabaries can reveal new insights and confirm previous assumptions about the nature of the relationships between sites that use this syllabic writing system. While similarities between syllabaries during particular periods or within particular regions may have been assumed to exist, this methodology proves that these trends are both clearly present and strongly supported by the data. This methodology has applications for a range of problems in Assyriology, which are outlined in Chapter 5.

4

Interpretation: geographic, temporal, and dialectical variation

This chapter aims to interpret the results of the analyses presented in Chapter 3 by examining the linguistic environments of the syllabic values singled out from the principal component analysis. Because the focus of this thesis is primarily on Syria, the linguistic description and interpretation will focus on the Syrian syllabaries.¹

This chapter also includes discussions of other unique linguistic phenomena observable in the Syrian text corpora that are not identifiable through a close examination of the syllabaries themselves, but may be indicative of other features, such as differences in dialect, that may be impacting the development of the syllabaries; such features include unique lexical items, verbal forms, and morphology. This discussion is primarily descriptive: the dialectical features of the language attested in the texts from Ebla, Mari, Nabada, and Tuttul have been described in detail in previous works, so the sections below highlight the particular aspects of these unique dialects that are supported by this study of their syllabaries.

The material used to substantiate these discussions is drawn primarily from the “sign studies” in Chapter 2, and includes uncertain readings of particular syllabic values in order to provide more points of comparison. To reiterate

¹A future direction of this research would be to expand the interpretation to include all sites examined. See Chapter 5 for more about future applications of this research.

section 1.4 in Chapter 1 and section 2.2.1 in Chapter 2, issues of phonology and transcription inevitably emerge when discussing third millennium Semitic. Some uncertainty remains about the nature, and therefore preferred transliteration, of certain phonemes during this period (particularly involving sibilants, gutturals, and vowel length).² Since the purpose of this study is to examine the syllabic use of particular signs – and not the precise internal phonology of third millennium Akkadian dialects – transliterations of these phonemes concord with later Akkadian convention unless there is strong evidence otherwise; for example, the proper noun *su₄-be-lum* (ASJ 4, 50 o. col. ii 7) is transliterated as *šū-bēlum*, “he is the lord”. Since phonology is not the primary focus of this study, no attempt to reconstruct internal phonology of the dialects attested was made (see Hasselbach 2005, pp. 99-146, Faber 1981; Faber 1985; Kogan 2001). An attempt to identify the precise phonological qualities of these particular phonological classes would be speculative and would undoubtedly introduce unnecessary errors into the data, and therefore weaken the dataset. However, any variant transcription of certain phonetic classes that impacted the data in a significant way would be detected through the principal component analysis, and, as is shown in Chapter 3, phonetic class is not, in fact, a principal component behind the variation in the data set. This neutralises the concern about precise phonology and transliteration in this study. Even if the precise syllabic reading of the sign is uncertain³, it is relevant that the sign is being used syllabically.⁴

The contents of this chapter can be outlined as follows:

1. Interpretation of the results of the computational analysis
 - (a) Geographic variation: the primary explanation of variation in the dataset
 - (b) Temporal variation: the secondary explanation of variation in the dataset
 - (c) Random variation: the third explanation of variation in the dataset

²See Section 2.2.1 for more on this issue.

³This is particularly relevant in the case of the phonetic series /s/-/š/-/ṣ/-/z/. Syllables that contain these consonants are often written with the same set of signs.

⁴As opposed to only logographically.

(d) Syllabic values filtered out of the original dataset:

- *hapax* syllabic values⁵
- ubiquitous syllabic values⁶

2. Unique features of the Syrian syllabaries

- (a) Ebla
- (b) Mari
- (c) Nabada
- (d) Tuttul

3. Summary

4.1 Interpretation of the results of the computational analysis

The results of the computational models on the unfiltered dataset indicate that the primary and secondary driving factors (the first and second principal components) can be attributed to geography and time. The interpretation of the third principal component is less clear, but is presented here as a point of comparison with the first two principal components. The syllabic values that most significantly influence the variation in the data, as identified through the first three principal components, will be presented and discussed here.

Table 4.1 outlines the most influential syllabic values of the top three principal components and provides their respective loadings, or weights. In multivariate space – or within datasets that have multiple variables – the correlation between the principal components and the original variables is called the component loadings. The component loadings are indicative of how much of the total variation can be attributed to a given variable; in other words, the higher the component loading is, the more important that variable is for that component. For this reason, only

⁵Syllabic values that are attested at only one site.

⁶Syllabic values that are attested at every site.

syllabic values with loadings greater than a particular threshold are considered further. The threshold varies for each principal component, and is determined visually based on the graphs in Figures 4.2, 4.5, and 4.8 (for the first, second, and third principal components, respectively).

Principal Component 1		Principal Component 2		Principal Component 3	
Syl. Value	Loading	Syl. Value	Loading	Syl. Value	Loading
kam	1.983368897	su	2.722681481	gan ₂	2.65175942
ħir	1.962428466	lul	2.722681481	kum	2.65175942
ba ₄	1.962428466	ib	2.722681481	gu	2.408786917
qi ₂	1.962428466	bi ₂	2.348397624	su ₂	2.222928872
kun	1.692715905	şil ₂	2.348397624	ri	2.222928872
ag	1.612331814	u ₃	2.348397624	wi	2.222928872
tim _x (DIN)	1.612331814	mi	2.025140491	lik	2.104672973
tur ₂	1.545653809	ar	2.025140491	iħ	2.062260202
tu ₃	1.545653809	sa	2.000191641	iq	1.986903485
il	1.529594896	dar	2.000191641	ul	1.986903485
ku ₈	1.529594896	pum	1.895816769	ad	1.948006674
dab ₆	1.431202981	pu	1.80880675	ap	1.922014923
tap _x	1.431202981	iş ₁₁	1.80880675	şu ₁₁	1.703013331
u ₉	1.431202981	kab	1.645361752	nun	1.703013331
sum	1.431202981	se ₁₁	1.619356098	şa ₁₀	1.703013331
kun ₃	1.431202981	re	1.568075837	kur	1.703013331
ib ₂	1.431202981	un	1.568075837	we	1.703013331
re ₂	1.347629658	qu ₂	1.56399021	pa ₂	1.69043491
par ₂	1.347629658	num	1.484426073	al	1.69043491
gur	1.347629658	la ₂	1.388553884	u	1.69043491
qur	1.347629658	uz	1.342110283	ki	1.69043491
şim	1.347629658	de ₃	1.328955355	şa	1.69043491
kak	1.347629658	er	1.229854594	sar	1.642244435
iz	1.347629658			sal ₄	1.422929132
ħar	1.347629658			bir ₅	1.422929132
bar	1.302612779			ub	1.422929132
tar ₂	1.302612779			şi ₂	1.408110193
nim	1.203189376			ut	1.375395679
zum	1.203189376			sa ₃	1.375395679
su ₄	1.166967631				
şi ₂	1.103759203				

Table 4.1: The syllabic values that are further examined based on the loading ranges outlined in Figures 4.2, 4.5, and 4.8.

4.1.1 Geographic variation: the primary explanation of variation in the data

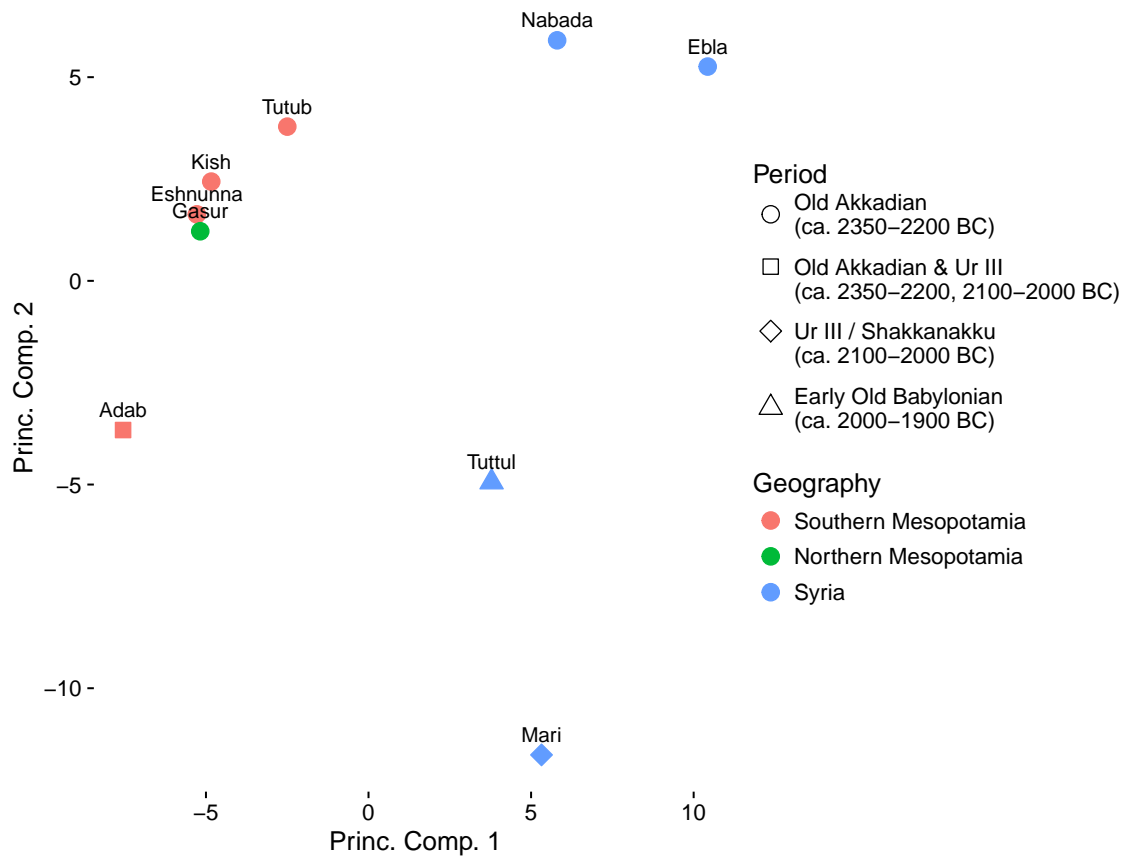


Figure 4.1: The plot graph comparing the first and second principal components of the filtered dataset shows that the first principal component can be attributed to geographic variation in the sites examined.

The results of the principal component analysis on the filtered dataset reveal that geographic variation is the most significant factor contributing to the observed variation. This can be clearly observed in the plot graph in Figure 4.1: the first principal component is plotted along the x-axis of the graph, and shows that Adab, Gasur, Eshnunna, Kish, and Tutub (the sites in Mesopotamia, plotted in red for southern sites and green for the northern site) cluster together on the left-hand side, while Mari, Tuttul, Nabada, and Ebla (the sites in Syria, plotted in blue) cluster together on the right-hand side.

The 34 most important variables for this component are shown in Table 4.2 with

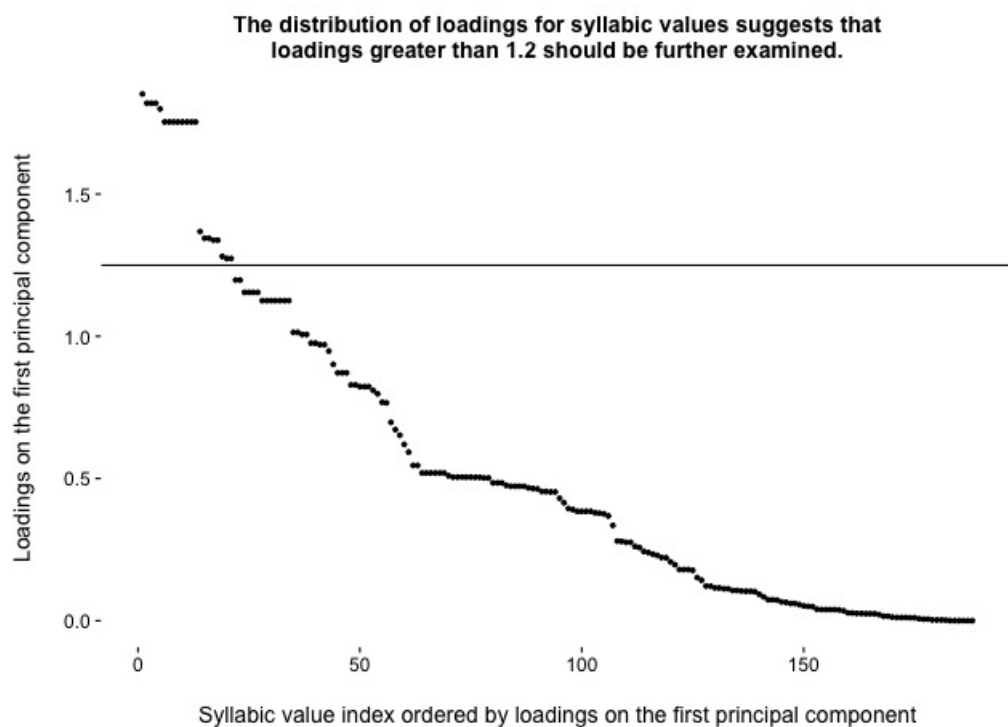


Figure 4.2: The distribution of loadings for syllabic values on the first principal component (see Table 4.1 for the list of syllabic values and their respective loading).

the contexts in which they occur. These contexts will be described further below. Not every syllabic value is attested at each Syrian site, and occasionally a syllabic value is not attested at any Syrian site; this is indicated by blank cells in the table.

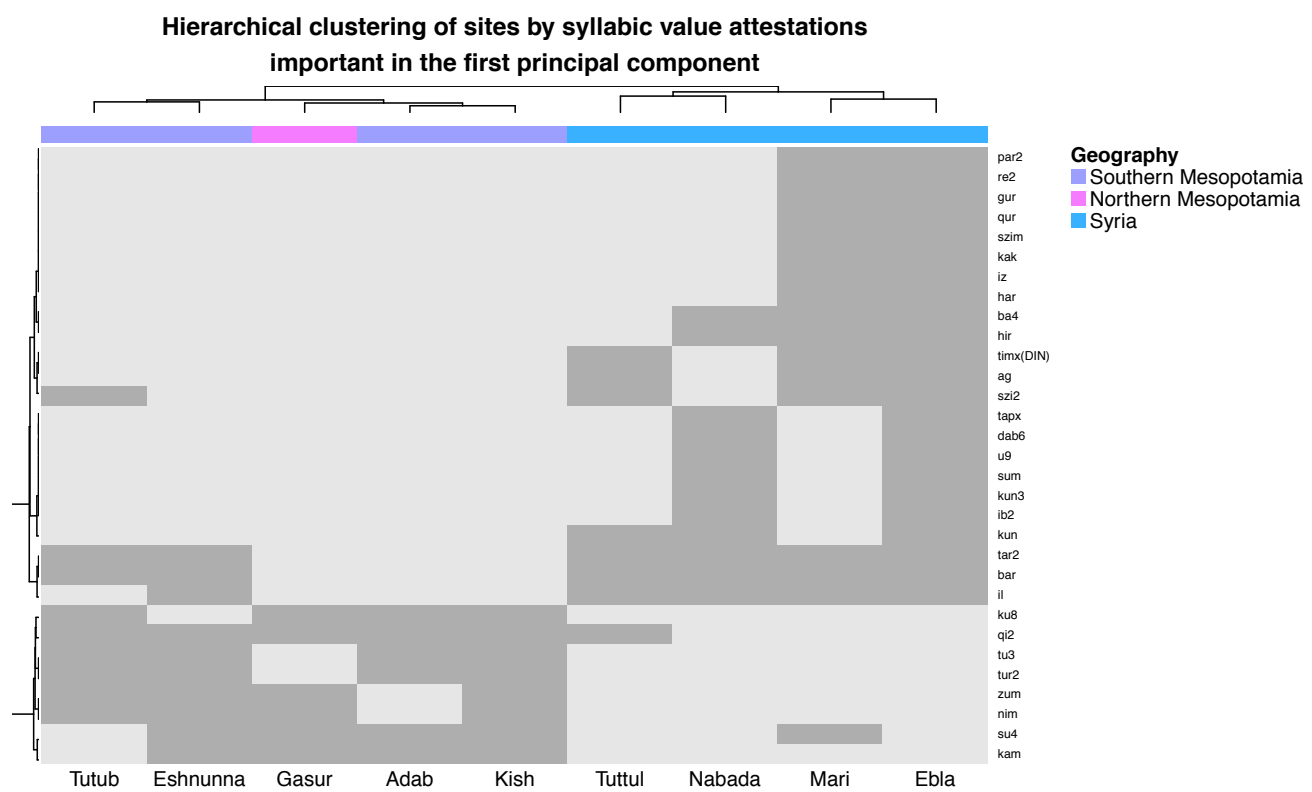


Figure 4.3: The 31 variables with loadings greater than 1.2 that inform the first principal component. These 31 syllabic values are presented along with their lexical contexts in Table 4.2.

Syl. Value	Ebla	Mari	Nabada	Tuttul
hir	$\text{'}a_x(\text{NI})\text{-}hir\text{-}tum$ ($\text{'}ahirtum$, “remainder”, nom. s. noun; <i>VE</i> 465)	$sa_3\text{-}hir\text{-}tum$ ($sahirtum$, “foodstuff”, nom. s. noun; ARM XIX 212; 213; 215; 216; 220; 221); $hir\text{-}tim_x$ ($h\bar{r}tim$, “spouse”, gen. s. noun; ARM XIX 258, 16).	$tap_x(\text{URUDU})\text{-}hir\text{-}tum$ ($taph\bar{r}tum$, “temple collection (possibly of beer)”, nom. s. noun; Subartu 2, 44 r. i 5; Subartu 2, 54 o. iv 7; Subartu 2, 57 r. ii 4; Subartu 2, 59 o. ii 9; Subartu 2, 131 o. iv 2')	
ba ₄	$gi\text{-}ku\text{-}la\text{-}ba_4^{ki}$ (cf. perhaps $kun\text{-}kul\text{-}aba^{ki}$ at Tell Abu Salabikh; Krebernik 1982, 187); $ga\text{-}a\text{-}ba_4$ (meaning uncertain; MEE 2, S. 340)	$i\text{-}din\text{-}il_3\text{-}a\text{-}ba_4$ ($iddin\text{-}ilaba$, “Ilaba gave”, from the root $n\text{-}d\text{-}n$, “to give”, G-stem pret. 3 m. s. + DN; ARM XIX 110; 290; 321; 324; 365, 12; 368; 369).	$na\text{-}ba_4\text{-}da^{ki}$ (GN; passim); $a\text{-}ba_4\text{-}la\text{-}da^{ki}$ (GN; passim); $ba_4\text{-}ba_4\text{-}tum$ (perhaps $b\bar{a}b\bar{a}tum$, “commercial goods”, nom. pl. noun; Subartu 02, 145: r. col. 1 l. 7)	
qi ₂				$ia_8\text{-}qi_2\text{-}ru\text{-}um$ ($y\bar{a}qirum$, from root $w\text{-}q\text{-}r$, “to be rare, precious”, nom. s. noun; KTT 21 o. 1)

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
kun	<i>kun</i> (<i>kūn/kûn</i> , perhaps from the root <i>k-ṣ-n</i> , “to be firm, true”; <i>ARET</i> 5, 5 o. i 3 ; <i>ARET</i> 5, 16 o. ii 3)		<i>a₃-kun</i> (perhaps <i>akūn</i> , “I became permanent, true, firm”, from the root <i>k-ṣ-n</i> , “to be firm, true”, G-stem pret. 1 c. s.; Subartu 2, 1 o. ii 6; Subartu 2, 4 r. 4 2; Subartu 2, 5 o. iii 6, r. v 6; Subartu 2, 104 o. v’ 8’)	<i>i₃-li₂-kun</i> (<i>ilī-ikūn</i> , “my god became true”, or <i>ilī-kūn</i> , “become true, O my god!”, from the root <i>k-ṣ-n</i> , “to be firm, true”; KTT 21 I 7)
ag	<i>ag-lum</i> (<i>Hag(a)lum</i> , nom. s. noun; EV 39); <i>ga-na-ag¹</i> (SUM)- <i>um</i> (nom. s. noun; VE 464)	<i>pa₂-ag-ru</i> or <i>ba-aq-ru⁷</i> (<i>pa-gru(m)</i> , “body; corpse”, or <i>baqru(m)</i> , “claimed”, nom. s. noun; ARM XIX 303)		
tim _x (DIN)	<i>si-ba-tim_x</i> (<i>sibātim</i> , gen. pl. noun; <i>ARET</i> 5 8 r. ii 2).	ITI <i>e-bir₅-tim_x</i> (DIN) (<i>waraḥ ebirtim</i> , “the month of <i>ebirtim</i> ”, MN; passim); ITI <i>li-li-a-tim_x</i> (DIN) (<i>waraḥ liliātim</i> , “the month of <i>liliātim</i> ”, MN; ARM XIX 280)		<i>ab-du-be-la₂-tim_x</i> (DIN) (<i>abdu-bēlatim</i> , “servant of the lady”, nom. s. noun without mimation (from <i>abdum</i>) + gen. s. noun (from <i>bēlatim</i>); KTT 25 r. 6)

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

⁷This word occurs in the expression UDU *pa₂-ag-ru*, which could also be read UDU *ba-aq-ru*.

Syl. Value	Ebla	Mari	Nabada	Tuttul
tu ₃	<p><i>ku_x</i>(TIK)-<i>ru₁₂</i>-<i>ma-tu₃</i> (<i>kurummatu(m)</i>, “food; a type of bread”, nom. s. noun without mimation, cf. Akk. <i>kurummatum</i>; <i>VE</i> 39); <i>šu-ba-tu₃</i> (<i>šub(a)tu(m)</i> or perhaps <i>tub(a)tu(m)</i>, “residence; dwelling”, nom. s. noun without mimation, cf. Akk. <i>šubtum</i>; <i>VE</i> 88); <i>tu₃-bu-a-tum</i> (<i>tūbuwātum</i>, “goodness”, nom. s. noun, cf. Akk. <i>tūbatū</i> (MSL 13, 98:80-81); <i>VE</i> 61); <i>sara-tu₃-um</i> (<i>šaratum</i>, likely related to the Akkadian word <i>šārtum</i>, “hair”⁸, nom. s. noun, cf. Akk. <i>šarātum</i>; <i>VE</i> 260)</p>			

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

⁸See Bonechi 2008, pp. 2-3.

Syl. Value	Ebla	Mari	Nabada	Tuttul
il	<i>a-ba₄-^dil</i> (<i>aba-il</i> , “the father is the god Il”, nom. s. noun + DN; <i>ARET</i> 12, 1266 r. col. iii 2; <i>ARET</i> 12, 1392 r. col. i 2’; <i>ARET</i> 3, 404 r. col. iv’ 2’); <i>a-ma-^dil</i> (<i>ama-il</i> , “the mother is the god Il”, nom. s. noun + DN; <i>ARET</i> 12, 1341 r. col. i’ 3’); <i>a-šū-ur-^dil</i> (<i>aššur-il</i> , perhaps “I take care of the god Il”, from the root ʾ-š-r, “to check, take care of, check up on”, G-stem pret. 1 c. s. + DN; <i>ARET</i> 12, 343 r. col. ii 2; <i>ARET</i> 3, 128 r. col. iii 2’; <i>ARET</i> 3, 629 r. col. iii 2’)	<i>bi-il-ti-^dda-gan</i> (<i>bilti-dagan</i> , “the tribute of Dagan”, nom. s. noun in const. st. + DN; ARM XIX 391; 375)	<i>i-TI-il</i> (perhaps <i>iddi-il</i> , “god lay down”, or <i>itti-il</i> , “with god”; Subartu 2, 2 o. col. 3 2); <i>ip-ṭur₂-il</i> (<i>iptur-il</i> , “god released; dispelled”, from the root <i>p-ṭ-r</i> , “to loosen, release, dispel”, G-stem pret. 3 m. s. + DN; Subartu 2, 5 o. col. iii 9); <i>i-šū-il</i> (<i>išū-il</i> , “he has a god”, from the root ʾ-š-ʾ, “to have” + DN; Subartu 2, 10 o. col. i 8)	<i>ia-ta-ni-il</i> (“(the god) Il gave”, from the root <i>y/n-t-n</i> , ⁹ “to give” + DN; KTT 5 o. 3; KTT 15 o. 3); <i>ia-wi-il</i> (“(the god) Il spoke”, from the root ʾ-w-ʾ, ¹⁰ “to speak”, + DN; KTT 5 o. 5); <i>i-ba-ni-il</i> (<i>ibanni-il</i> , “the god builds”, from the root <i>b-n-ʾ</i> , “to build, create”, G-stem dur. 3 m. s. + DN; KTT 11 o. 9); <i>ia-ša-ri-il</i> (possibly from the root <i>š-r-ʾ</i> , “to be rich,” ¹¹ or ʾ-š-r, “to take care of” ¹² or “to be well, straight, fair,” ¹³ or <i>w-š-r</i> , “to release, set free; neglect” ¹⁴ ; KTT 12 o. 4); <i>i-qa-ni-il</i> (perhaps <i>iqanni-il</i> , “he keeps possession of god” or “god keeps possession”)

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

⁹Presumably the Amorite root meaning “to give.” Cf. the verbs *nadānum* in Akkadian, *ytn* in Ugaritic and Phoenician, *תן* in Hebrew, and *תן* in Aramaic.

¹⁰This root is likely related to either the Akkadian verb *awûm*, “to speak”, or *ewûm*, “to become.”

¹¹Cf. the Akkadian verb *šarûm*.

¹²Cf. the Akkadian verb *ašûrum*.

Syl. Value	Ebla	Mari	Nabada	Tuttul
dab ₆	<i>dab₆-bu₃</i> (<i>dabbu(m)</i> , “bear” cf. Akk. <i>dabû</i> , nom. s. noun; <i>VE</i> 870)		<i>dab₆/tap_x-ra</i> (meaning uncertain; Subartu 2 95 o. i 2); <i>dab₆/tab_x-kun</i> (meaning uncertain; Subartu 2, 5 o. v 6)	
tap _x	<i>tap_x-ti-du</i> (<i>taptīdu(m)</i> , “enclosed” cf. Akk. <i>pādum</i> , nom. s. noun; <i>VE</i> 70); <i>ma-ša-tap_x-ti-nu</i> (<i>maštaptin(n)u</i> , “potter’s pole” cf. Akk. <i>muštaptinnum</i> , nom. s. noun; <i>VE</i> 403)		<i>tap_x-hir-tum</i> (<i>taphīrtum</i> , a type of temple collection, nom. s. noun; Subartu 2, 44 r. i 5; Subartu 2, 54 o. iv 7; Subartu 2, 59 o. ii 9)	

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

¹³Cf. the Akkadian verb *ešērum*.

¹⁴Cf. the Akkadian verb *wašārum*.

Syl. Value	Ebla	Mari	Nabada	Tuttul
u ₉	<p><i>u₉-ba-ra-du-um</i> <i>((h)ubaratum</i>, “(resident) aliens”, nom. s. noun, cf. Akk. <i>ubārum</i>; <i>VE</i> 91); <i>qa₃-ma-u₉</i> (<i>qamā(h)u(m)</i>, “to crush; to burn”, nom. s. noun without mimation, cf. Akk. <i>qamûm</i>; <i>VE</i> 169); <i>na-^ru₉[?]-lum</i> (<i>na’ulum</i> or <i>nahhulum</i>, “to rest”, inf., cf. Akk. <i>nâlum</i>; <i>VE</i> 801¹⁵); <i>ma-u₉</i> (<i>māyū</i>, “water”, nom. pl. noun; <i>VE</i> 626); <i>na-za-u₉</i> (<i>nazālu(m)</i>, “to pour”, inf., cf. Akk. <i>nazālum</i>; <i>VE</i> 607)</p>		<p><i>u₉-bi₂-la</i> (<i>ūbila</i>, “bearer”, a form of the root <i>w-b-l</i>, “to carry, bear”; Subartu 2, 6 r. i 2); <i>bi-zi-la-u₉</i> (meaning uncertain, possibly not Semitic; Subartu 2, 23 r. iii 2); <i>u₉-kun</i> (a proper noun (?), possibly not Semitic or possibly from the root <i>k-^s-n</i>, “to be firm, true”; Subartu 2, 146 o. i 2)</p>	

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

¹⁵See also Bonechi 2008, pp. 12-13.

Syl. Value	Ebla	Mari	Nabada	Tuttul
sum	<i>pi</i> ₅ - <i>sum</i> (<i>piššum</i> or <i>pittum</i> , “a ration of oil”, cf. Akk. <i>piššatum</i> ; VE 502)		<i>ha-sum</i> (perhaps <i>hassum</i> , “wise, clever”, nom. s. noun; Subartu 2, 1 o. 8); <i>šu-šum</i> ₂ - <i>am</i> (<i>šū-šumum</i> , “he is the name”, 3 m. s. ind. pronoun (- <i>šu</i>) + nom. s. noun (from <i>šumum</i>); Subartu 2, 5 o. col. iii 3); <i>zu-SUM</i> (meaning uncertain; Subartu 2, 5 r. col. i 5); <i>nu-na-SUM</i> (meaning uncertain; Subartu 2, 35 o. col. iii 9)	
kun ₃			<i>ta</i> ₂ - <i>kun</i> ₃ - <i>aš-dur</i> ₂ (<i>takūn-ašdur</i> , “you are firmly established, O Ašdur”; Subartu 2, 124 r. col. i 5')	
re ₂	<i>re</i> ₂ - <i>ḥe</i> _x (EN)- <i>mu</i> ⁷ (<i>reḥmu(m)</i> , nom. s. noun; cf. Sem. <i>raḥm</i> -“uterus, womb”; VE 324)	<i>ka</i> ₃ - <i>ša-re</i> ₂ - <i>en</i> (meaning uncertain, but the value <i>re</i> ₂ is established based on the initial vowel of the next sign, <i>en</i> ; ARM XIX 248)		

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
par ₂	<i>a-par₂-tum</i> (<i>apārtum</i> , “headpiece”, nom. s. noun from the root <i>ṗ-p-r</i> , “to cover the head”; VE 545)	<i>par₂-šum</i> (meaning uncertain, nom. s. noun likely from the root <i>p-r-š</i> , “to separate”; ARM XIX 223-234; 243; 261; 262; 264; 265; 439)		
gur	<i>a-gur-il</i> (possibly <i>agur-il</i> , “baked brick, building block of (the god) Il”, nom. s. noun (from <i>agurru</i>) in const. st. + DN; ARET 3 421 r. ii’ 4); <i>a-gur-li-im</i> (possibly <i>agur-līm</i> , “baked brick, building block of (the god) Līm”, nom. s. noun (from <i>agurru</i>) in const. st. + DN; ARET 7 150 r. iii 3)	<i>šu-gur-ri</i> (<i>šugurri</i> , “stamp”, nom. s. noun in const. st. (from <i>šugurru</i>); ARM XIX 334); <i>gur-pi₂-sa-tim_x</i> (<i>gurpisātīm</i> , “pieces of protective clothing”, gen. pl. noun; ARM XIX 463)		
qur	<i>qur-du[m]-mu</i> (<i>qur-dum(m)u(m)</i> , “ax” cf. Heb. <i>qardōm</i> , Ar. <i>quddūm</i> , nom. s. noun; Conti 1990, p. 138)	<i>qur-na-tum</i> (<i>qurnatum</i> , “mint” or “oregano” ¹⁶ , nom. s. noun; ARM XIX 365 r. 6, 10)		

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

¹⁶See Thompson, DAB, p. 78.

Syl. Value	Ebla	Mari	Nabada	Tuttul
šim	<i>ma₂-ra-šim</i> (gen. s. noun; <i>ARET</i> 11, 3 o. iv 1, 6)	<i>da-šim</i> (<i>daššim</i> , “goat”, gen. s. noun; ARM XIX 324)		
kak	<i>kak-kab</i> (<i>kakkab</i> , “star”, abs. noun, cf. Sem. * <i>k-k-b</i> ; <i>VE</i> 791)	<i>puzur₄-kak-ka₃</i> (<i>puzur-kakka</i> , “the protection of Kakka”, nom. s. noun in abs. + PN; ARM XIX 316; 317; 318)		
iz	<i>iz-mu</i> (<i>izmu(m)</i> , an extispicy technique at Mari, nom. s. noun without mimation; <i>ARET</i> 16, 27 o. vi 13)	^{giš} <i>ki-iz-kar₃-ra-tum</i> (a type of wooden object, nom.s. noun; ARM XIX 460); <i>bi-ri₂-iz-zi-ri₂-im</i> (meaning uncertain, gen. s. noun; ARM XIX 248)		
ḥar	<i>ḥar/hur-tum</i> (<i>ḥa/wrtum</i> , meaning uncertain, nom. s. noun; <i>ARET</i> 5, 7 o. ii 4); <i>ip-ḥur-il</i> (<i>ibḥar-il</i> , “the god gathered”, from the root <i>p-h-r</i> , “to gather, come together”, G-stem pret. 3 m. s. + nom. s. noun in abs. (from <i>ilum</i>); <i>ARET</i> 15, 2 o. ix 9; <i>ARET</i> 15, 57 o vi 2)	<i>ḥar-^a₃-an</i> (<i>ḥarân</i> , a type of vase or vessel, s. noun in const. st.; ARM XIX 301)		

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
bar	<i>ka₃-bar-tum</i> (<i>kabārtum</i> , “great (of rank)”, nom. s. noun from the root <i>k-b-r</i> , “to be big, great”; <i>VE</i> 747)	<i>bar-šum</i> (meaning uncertain, nom. s. noun likely from the root <i>b-r-š</i> , “to pluck out”; ARM XIX 223-234; 243; 261; 262; 264; 265; 439)	<i>si-bar</i> (meaning uncertain, possibly Sumerian; Subartu 2, 1 o. ii 2; Subartu 2, 5 o. ii 5; Subartu 2, 145 r. ii 3); <i>i-mu-bar-um</i> ^{ki} (GN; Subartu 2, 23 r. ii 4)	<i>i₃-li₂-ka-bar</i> ¹ (MAŠ) (<i>ilī-kabar</i> , “my god is great” ¹⁷ , nom. s. noun <i>ilum</i> + 1 c. s. poss. suffix <i>-ī</i> + s. abs. noun from the root <i>k-b-r</i> , “to be big, great”; KTT 49 II 5)
tar ₂	<i>aš-tar₂</i> (<i>attar</i> , cf. Akk. <i>Ištar</i> , DN; Conti 1990, p. 193)	<i>eš₄-tar₂-dam-qa₂</i> (<i>eštar-damqa</i> , “E/Ištar is good”, DN + acc. s. noun without mimation; ARM XIX 303; 324; 325; 340; 384, 14)	<i>ta-ri₂-aš-tar₂</i> (perhaps <i>tāri-aštar</i> , “Attar/Ištar is the leader”, act. part. (from the root <i>t-r-š</i> , “to lead away”) + DN; Subartu 12, 150 o. i 6); <i>tar₂-am₆-EN</i> (<i>tarām-bēlim</i> , “the beloved of the lord”, nom. s. noun in const. st. (from the root <i>r-š-m</i> , “to love”) + gen. s. noun (from <i>bēlum</i>); Subartu 2, 150 r. v 1)	<i>i-tar₂[?]-ba-al</i> (perhaps <i>itār-ba-al</i> , “Ba-al relents”, from the root <i>t-š-r</i> , “to return, turn back”, G-stem dur. 3 m. s. + DN; KTT 32 i 1)

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

¹⁷Although if there is no scribal error this name could be interpreted perhaps as *ilī-kamaš*, “my god is kneeling” or “I am kneeling (before) my god.”

Syl. Value	Ebla	Mari	Nabada	Tuttul
nim		<i>zi-za-num/nim</i> (perhaps related to <i>zizānum</i> , “cricket”, nom./gen. s. noun; ARM XIX 177; 178; 187; 192; 198; 199)		<i>ma-ga-la₂-num/nim</i> (proper noun, meaning uncertain; KTT 54 o. 4)
su ₄		<i>su₄-ni</i> (-s/šuni, “their”; ARM XIX 379)		
ši ₂	<i>ši₂-bu₃-um</i> (<i>šibum</i> / <i>šiybum</i> , “seniority”, nom. s. noun; Conti 1990, p. 79); <i>ši₂-bil₂-tum</i> (<i>šipirtum</i> , “assignment”, nom. s. noun; Conti 1990, p. 88); <i>ši-šu₁₁</i> (<i>širšu(m)</i> , “root” cf. Akk. <i>šuršum</i> , nom. s. noun; Conti 1990, p. 138)	<i>da-ši₂</i> (<i>daššī</i> , “goats”, acc./gen. pl. noun; ARM XIX 107; 110; 116; 117; 120; 139; 142; 143; 155; 157; 164)	<i>ši₂-a-ḥa</i> (perhaps <i>šī-aḥa</i> , “she is the side; she is beside”, 3 f. s. ind. pronoun + acc. s. noun (from <i>aḥum</i>); Subartu 2, 63 o. ii 3, 7; o. iii 4, 5; Subartu 2, 143 o. ii’ 4’; Subartu 2, 145 o. iii 3, 4; Subartu 12, 150 o. iii 4, 5)	<i>ša₁₀-am-ši₂-^dda-gan</i> (<i>šamši-dagan</i> , “the sun of Dagan”, nom. s. noun in const. st. (from <i>šamšum</i>) + DN; KTT 8 ii 10)

Table 4.2: The contexts of the syllabic values with loadings greater than 1.2 that inform the first principal component.

4.1.2 Temporal variation: the secondary explanation of variation in the data

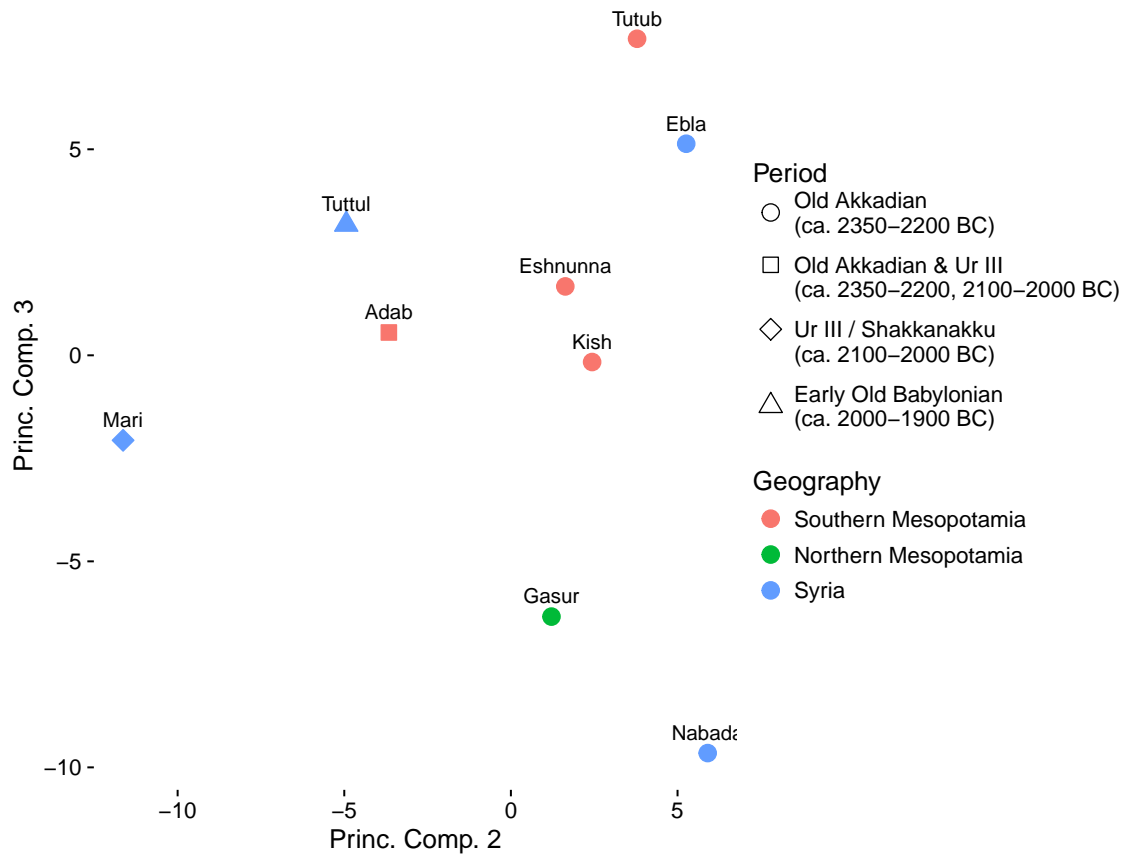


Figure 4.4: The plot graph comparing the second and third principal components of the filtered dataset shows that the second principal component can be attributed to temporal variation in the corpora of the sites examined.

The second principal component (Figure 4.4, plotted along the x-axis), which accounts for 15% of the variation observed in the filtered dataset, shows that Mari and Tuttul, and to a lesser extent Adab, are outliers, while shows the other sites cluster together. This pattern can be attributed to the temporal variation in the corpora examined: the syllabaries of most of the sites examined (Ebla, Nabada, Kish, Eshnunna, Tutub, Assur, and Gasur) are derived from texts dating from the Old Akkadian period (ca. 2350-2200 BC), designated with a circular plot. The texts from Adab included in this study date from both the Old Akkadian period and from the Ur III period (ca. 2100-2000 BC), designated with a square plot;

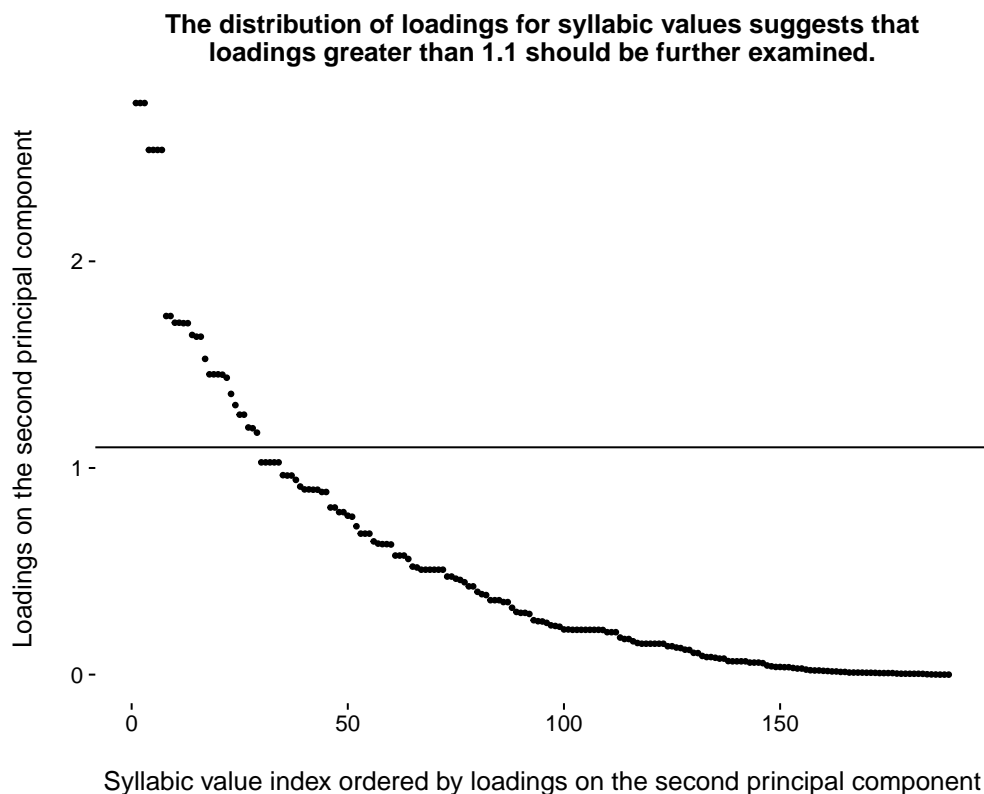


Figure 4.5: The distribution of loadings for syllabic values on the second principal component (see Table 4.1 for the list of syllabic values and their respective loading).

from Mari, they date to the Ur III (or Šakkanakku) period, designated with a diamond-shaped plot; and from Tuttul, they date from the Early Old Babylonian period (ca. 2000-1900 BC), designated with a triangular plot.

The 23 most important variables for this component are shown in Table 4.3 with the contexts in which they occur. These contexts will be described further below. Not every syllabic value is attested at each Syrian site, and occasionally a syllabic value is not attested at any Syrian site; this is indicated by blank cells in the table.

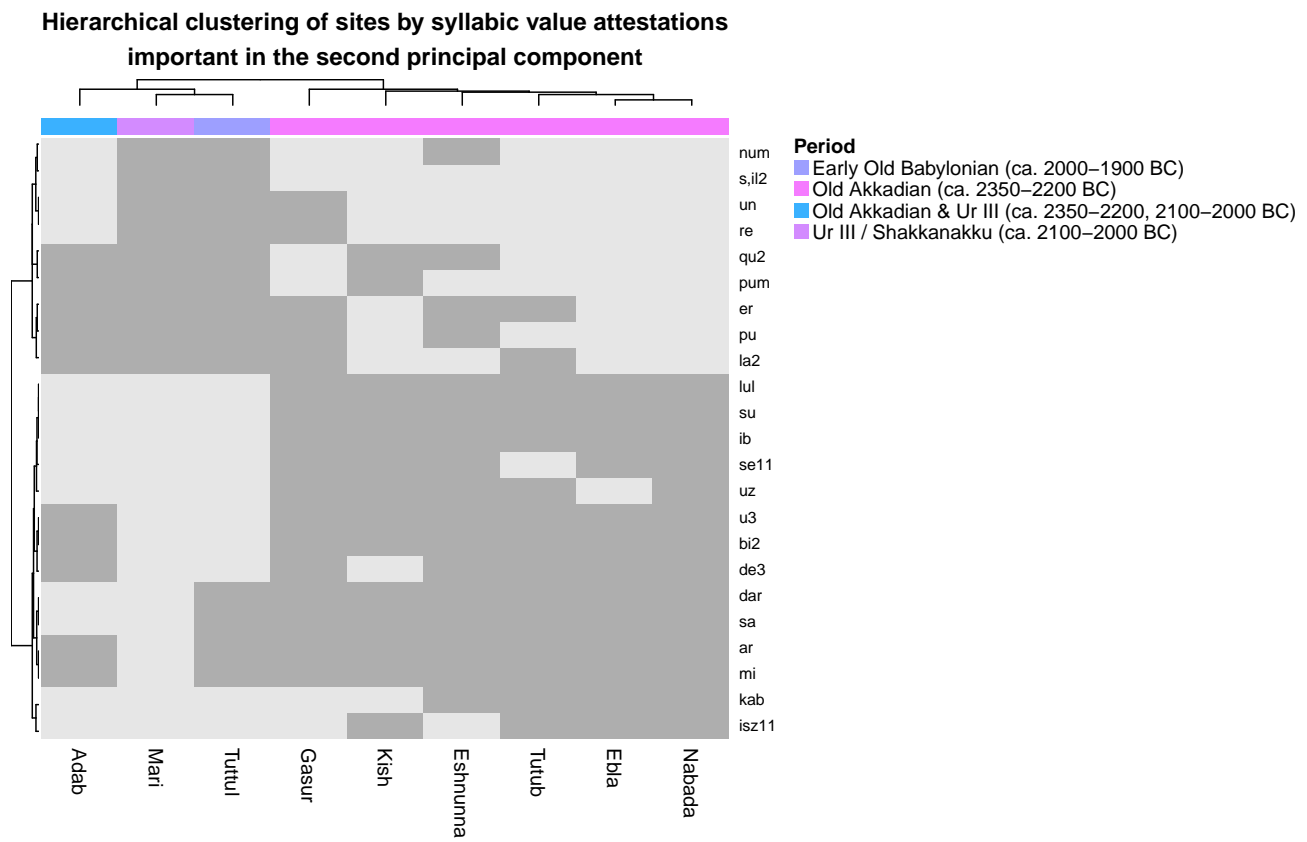


Figure 4.6: The 23 variables with loadings greater than 1.1 that inform the second principal component. These 23 syllabic values are presented along with their lexical contexts in Table 4.3.

Syl. Value	Ebla	Mari	Nabada	Tuttul
su	<i>kar-su-um</i> (<i>karsum</i> or <i>karšum</i> , meaning uncertain, nom. s. noun; <i>VE</i> 576)		<i>su-lum</i> ^{ki} (GN; Subartu 2, 30 r. III 3'; 140 v. I 2; 42 o. III 2; passim)	
lul	<i>ib-lul-il</i> (<i>iblul-il</i> , perhaps “the god mixed/brewed/had a share”, from the root <i>b-l-l</i> , “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs.; <i>ARET</i> 2, 4 o. vi 7; <i>ARET</i> 13, 4 r. vi 5); <i>ib-lul-ma-lik</i> (<i>iblul-malik</i> , perhaps “the king/the god Malik mixed/brewed/had a share”, from the root <i>b-l-l</i> , “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs./DN; <i>ARET</i> 12, 1307 r. ii' 1')		<i>ib-lul-il</i> (<i>iblul-il</i> , perhaps “the god mixed/brewed/had a share”, from the root <i>b-l-l</i> , “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun in abs.; Subartu 2, 74 r. col. i 2); <i>ib-lul-DINGIR</i> (<i>iblul-ilum</i> , perhaps “the god mixed/brewed/had a share”, from the root <i>b-l-l</i> , “to mix, brew; have a share”, G-stem pret. 3 m. s. + nom. s. noun; Subartu 2, 109 r. col. ii 5); <i>lul-la-ša</i> (Subartu 2, 10 r. col. i 1)	

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ib	<i>ib-su₁₁</i> ((<i>h</i>) <i>ibšu(m)</i>), perhaps related to Sem. * <i>h-b-š</i> , “to tie; bind”; <i>VE</i> 525)		<i>ib-lu₅-DINGIR</i> , <i>ib-lu₅-il</i> (meaning uncertain apart from the theophoric element DINGIR/ <i>il</i> , “god”; Subartu 2, 109 r. col. ii 5; Subartu 2, 74 r. col. i 2); <i>ib-ba-ru-ša-nu</i> (perhaps <i>ibbarū-šanû</i> , “they embrace twice/another”, from the root <i>ʔ-b-r</i> , “to embrace”, G-stem pret. 3 m. pl. + the root <i>š-n-ʔ</i> , “to do twice, again”; Subartu 2, 69 o. col. ii 7)	
bi ₂	<i>iš-bi₂-lu</i> (<i>ʔitbīru(m)</i>), “finely ground”, nom. s. noun; cf. Akk. <i>šebērum</i> , Sem. * <i>tbr</i> ; <i>VE</i> 77)		<i>u₉-bi₂-la</i> (<i>ubīla</i> , “he carried”, from the root <i>w-b-l</i> , “to bring, carry”, G-stem pret. 3 m. s.; Subartu 2, 6 r. col. i 2); <i>u₂-ḫu-ra-bi</i> (<i>uḫu-rabi</i> , “ <i>uḫu</i> is great”, PN + verb. adj. from the root <i>r-b-ʔ</i> , “to be big, great”; Subartu 2, 10 r. col. iii 8)	

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ṣil ₂		<i>ṣil₂-la₂-^dnu-nu</i> (<i>ṣilla-nunu</i> , perhaps “Nunu is the shade”, acc. s. noun without mimation (from <i>ṣillum</i>) + DN; ARM XIX passim)		<i>ṣil₂-li₂-ḥu-um</i> (<i>ṣilli-ḥum</i> , “the protection of <i>ḥum</i> ”; KTT 7 o. 10); <i>ṣil₂-li₂-pi₂-el</i> (<i>ṣilli-pî-el</i> , “the protection of the word of god” (lit.: “the protection of the mouth of god”), nom. s. noun in const. st. (from <i>ṣillum</i>) + gen. s. noun in const. st. (from <i>pûm</i>) + gen. n. in abs. (from <i>illum</i>) or DN (El); KTT 8 o. 4); <i>ṣil₂-la a-na</i> (<i>ṣilla</i> , “protection”, acc. s. noun; KTT 14 o. 5)
u ₃	<i>u₃-ba-su-um</i> (<i>ʾubāšum</i> , meaning uncertain, nom. s. noun; <i>VE</i> 149); <i>wa-ba-u₃-um</i> (<i>wabāʾum</i> , “to lie flat”, inf.; <i>VE</i> 310); <i>wa-ṣa-u₃</i> (<i>waṣāʿu(m)</i> , “to stretch”, inf. without mimation; <i>VE</i> 129)		<i>u₃</i> (<i>u</i> , “and”, conj.; passim)	

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
mi	<i>ta₂-ta₂-mi-su</i> (<i>tat-tam(m)išu(m)</i>), from the root <i>n-m-š</i> , “to move”, nom. s. noun without mimation; <i>VE</i> 126 ¹⁸); <i>ša-mi-nu</i> (<i>šarminu(m)</i>), “cypress”, nom. s. noun without mimation; <i>VE</i> 379); <i>mi</i> (<i>mī</i> , perhaps “water”, perhaps gen. pl. noun; <i>VE</i> 616)		<i>mi-at</i> (<i>mīat</i> , “hundred”, s. noun in abs.; Subartu 2, 4 r. col. iv 3, 9; passim)	<i>i-di-ka-mi-iš</i> (<i>idī-kamīš</i> , “my arm is bound”, nom. s. noun (from <i>idum</i>) + 1 c. s. poss. suffix (- <i>ī</i>) + verb. adj. + term.-adv. ending; KTT 7 o. 7); <i>a-ab-du-e-mi</i> (meaning uncertain; KTT 8 o. 9); <i>ha-mi-du-um</i> (<i>hāmīdum</i> , perhaps act. part. from the root <i>h-m-d</i> , “to hide away, hoard”; KTT 12 o. 10)
ar	<i>ar-ša-lu</i> (<i>aršālu(m)</i>), “a humble man”, nom. s. noun without mimation, cf. Ar. <i>r-d-l</i> , “to be humble”; <i>VE</i> 133); <i>ar-zatum</i> (<i>arzatum</i> , “conifer”, nom. s. noun, cf. Ug. <i>ʔ-r-z</i> ; <i>VE</i> 471); <i>ar-ra-bu₃</i> (<i>arrabu(m)</i>), “dormouse”, nom. s. noun without mimation; <i>VE</i> 873)		<i>ar-rum₂</i> (meaning uncertain, likely nom. s. noun; Subartu 2, 3 o. col. ii 2); <i>ar-ši-a-ḥu</i> (<i>arši-aḥu</i> , “I got a brother”, from the root <i>r-š-ʔ</i> , “to get, acquire”, G-stem pret. 1 c. s. + acc. s. noun without mimation (from <i>aḥum</i>); Subartu 2, 3 o. col. iii 6)	<i>ia-ar-ḥi-el</i> (meaning uncertain; KTT 5 o. 6); <i>i-ši₂-qa-ta-ar</i> (perhaps from the roots <i>w-š-ʔ</i> , “to go out”, and <i>q-t-r</i> , “(to) smoke”; KTT 10 o. 4); <i>qa-ar-nu-um</i> (<i>qarnum</i> , “horn”, nom. s. noun; KTT 54 o. 3)

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

¹⁸See also Bonechi 2008, pp. 12-13.

Syl. Value	Ebla	Mari	Nabada	Tuttul
sa	$sa^2 a_3 bu_3$ (<i>sahābu(m)</i>), “to pull away”; <i>VE</i> 73); <i>ra-sa-um</i> (<i>rasāhum</i> , “to sprinkle with water; to soak” cf. Akk. <i>russû</i> ; <i>VE</i> 127)	$gur-pi_2 sa-tim_x$ (<i>gurpisātīm</i> , “pieces of protective clothing”, gen. pl. noun; ARM XIX 463)		
dar	$šar_x^? (NE)-u_3 a-dar-tu_3$ ($z/dar^3 u (h)adārtu$, “fermented seeds?” cf. Akk. <i>zērum</i> “seed”, Ar. <i>hadara</i> “fermented”, nom. s. noun without mimation + nom. s. adj. without mimation; Conti 1990, p. 179)		NI- <i>ba-dar</i> (meaning uncertain; Subartu 2, 5 o. v 8, r. v 10; Subartu 2, 40 o. ii 8)	$eš_{18} dar-ra-ma-aš_2$ (<i>ešdar/eštar-rāmaš(u)</i> , “Ešdar/Eštar loves him”, DN + act. part. (from <i>r->m</i> , “to love”) + 3 m. s. acc. suffix (-š u))

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
pum	<i>ša-qi₃-lum</i> <i>a-pum</i> (<i>daqirum</i> 'appum, "to be high/big of nose", nom. s. noun + nom. s. noun; VE 212)	<i>za-na-b/pum</i> (meaning uncertain; ARM XIX 247; 258; 259; 362)	<i>ša-ra-b/pum</i> (likely related to either the root <i>š-r-b</i> , "to wander about", or <i>š-r-p</i> , "to burn, burn away"; Subartu 2, 59 r. col. I 1); <i>pum-en</i> (meaning uncertain, perhaps <i>pûmēn</i> , "mouths", du. noun; Subartu 2, 6 o. col. III 11); <i>ḥa²-la²-b/pum</i> (likely related to either the root <i>ḥ-r-b</i> , "to milk", or <i>ḥ-r-p</i> , "to slip into, through"; Subartu 2, 29 o. col. IV 3)	<i>ka₃-ta₂-pum</i> (<i>katappum</i> , some type of wooden, silver, or copper object, PN; KTT 53 o. 5; 10; 15)

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
pu				<i>i₃-li₂-e-pu-uh</i> (<i>ilī-epuh</i> , “my god...”, nom. s. noun (from <i>ilum</i>) + 1 c. s. poss. suffix (- <i>ī</i>) + uncertain verbal form from a root <i>ṣ-p-h</i> ; KTT 6 o. 4); <i>i-iš-pu-ḥi a-na</i> (personal name; KTT 8 o. 3); <i>ia-pu-ḥu-um</i> (personal name; KTT 18 r. 15); <i>pu-uh</i> PN (<i>pūh</i> PN, “exchange/substitute of PN”, nom. s. noun in const. st. (from <i>pūhum</i>); KTT 20 o. 19, 24); <i>pu-ul-su₂-mi-il</i> (personal name; KTT 49 o. 2)

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
iš ₁₁	<i>iš₁₁-a-il</i> (perhaps <i>iša-il</i> , from the root ›-š-›, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; passim); <i>iš₁₁-a^dda-mu</i> (perhaps <i>iša-damu</i> , from the root ›-š-›, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; <i>ARET</i> 4, 3 r. viii 21); <i>iš₁₁-a^dma-lik</i> (perhaps <i>iša-malik</i> , from the root ›-š-›, “to have; exist”, unusual form of the G-stem pret. 3 m. s. + DN; passim)		<i>eš₃/iš₁₁-gar₃^{ki}</i> (GN; Subartu 2, 2 o. col. iii 3); <i>eš₃/iš₁₁-gi</i> (proper noun, meaning uncertain; Subartu 2, 2 o. col. iii 4)	

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
kab	<i>kak-kab</i> (<i>kakkab</i> , “star”, s. noun in const. st./abs.; <i>VE</i> 791) ¹⁹ .		<i>šu-kab-ba₄</i> / <i>šu-kab-ba</i> (meaning uncertain; Subartu 2, 15 r i 1; 74 o. iii 1; 76 o. i 1; 77 o. iii 4; 80 o. 1 2; 83 o. ii 1; 87 o. iii 1; 100 r. i 3; 107 r ii 4; 109 r i 2; 111 o. ii 5; 115 o. ii 4; 116 o i 5)	
se ₁₁	<i>ni-se₁₁</i> (<i>nīs/šē</i> , “people”, acc./gen. s. noun; passim)		ITI SAR <i>ma-se₁₁-tim</i> (meaning uncertain; Subartu 2, 9 o. 2)	
re		<i>šu re-ši</i> (<i>šū rēši</i> , “he is the head of...”, 3 m. s. ind. pronoun + acc. s. noun in const. st. (from <i>rēšum</i>); ARM XIX 87-91)		<i>ne₂-re-eb</i> (<i>nēreb(um)</i> , “entrance”, nom. s. noun; KTT 50 ia 12)
un		<i>ku-un^d-da-gan</i> (<i>kûn-dagan</i> , “be firm, O Dagan!”, from the root <i>k-ṽ-n</i> , “to be firm, true”, G-stem imp. + DN; ARM XIX 248)		<i>zi-la₂-un</i> (meaning uncertain; KTT 53 o. 16; KTT 54 o. 11)

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

¹⁹Cf. Archi, NABU, 1988/44; Fronzaroli 1980a, 40, n. 27.

Syl. Value	Ebla	Mari	Nabada	Tuttul
qu ₂		<i>mu-qu₂-tum</i> (<i>muquttûm</i> , “claim falling due”, nom. s. noun; ARM XIX 326; 327; 329-339); <i>qu₂-pa₂-e-en</i> (<i>qupa²ēn</i> , “two baskets”, du. noun; ARM XIX 103)		<i>ip-qu₂-il₃</i> (<i>ipqu-il</i> , “embrace/protection of the god”, nom. s. noun in unusual form of the const. st. (from <i>ipqum</i>) + nom. s. noun in abs. (from <i>ilum</i>); KTT 23 r. 1); <i>qu₂-ra-da-an</i> (proper noun related to <i>qurādum</i> , “hero”, perhaps <i>qurādān</i> , “the two heroes”, du. noun; KTT 35 r. 5); <i>ku-nu-ku-um</i> (<i>kunukkum</i> , “seal”, nom. s. noun; KTT 54 o. 5)
num		<i>zi-za-num/nim</i> (perhaps related to <i>zizānum</i> , “cricket”, nom./gen. s. noun; ARM XIX 177; 178; 187; 192; 198; 199)		<i>ma-ga-la₂-num/nim</i> (proper noun, meaning uncertain; KTT 54 o. 4)

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
la ₂				<i>ni-iš-la₂-u-um</i> (<i>nīš-laʾûm</i> , perhaps either “lifting/raising of the small child” or “life of the small child”, inf. in const. st. or nom. s. noun in const. st. + gen. s. noun ²⁰ (from <i>laʾûm</i>); KTT 53 o. 7); <i>pa₂-la₂-šū-um</i> (<i>palāšum</i> , “to pierce; perforate” inf.; KTT 53 o. 14); <i>ab-du-be-la₂-tim_x</i> (DIN) (<i>abdu-bēlatim</i> , “servant of the lady”, nom. s. noun in const. st. (from <i>abdum</i>) + gen. s. noun (from <i>bēlatum</i>); KTT 25 r. 6)
uz			<i>uZ-zu₂-lum</i> (proper noun, meaning uncertain; Subartu 12, 150 o. col. iii 7); <i>ʾa₃-uZ</i> (proper noun, meaning uncertain; Subartu 2, 5 o. col. iii 2)	

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

²⁰Although the form appears to be a nom. s. noun.

Syl. Value	Ebla	Mari	Nabada	Tuttul
de ₃			aš-de ₃ ²¹ (<i>ašde</i> , “from”, prep.; Subartu 2, 7 r. ii 1; passim)	
er	<i>te₉-er-iš-tu₃-um</i> (<i>te(h)rištum</i> , “cultivated land”, nom. s. noun; <i>VE</i> 790 A)	<i>in te-er</i> (“in ...”; meaning uncertain, but the syllabic value of <i>er</i> is determined based on the preceding sign; ARM XIX 34-37); <i>a-me-er-d^dnu-nu</i> (<i>ʾāmer-nunu</i> , “watcher of Nunu”, act. part. in const. st. from the root ʾ-m-r, “to watch” + DN; ARM XIX 384)		

Table 4.3: The contexts of the syllabic values with loadings greater than 1.1 that inform the second principal component.

²¹The nature of the initial dental is uncertain.

4.1.3 Random variation: the third explanation of variation in the dataset

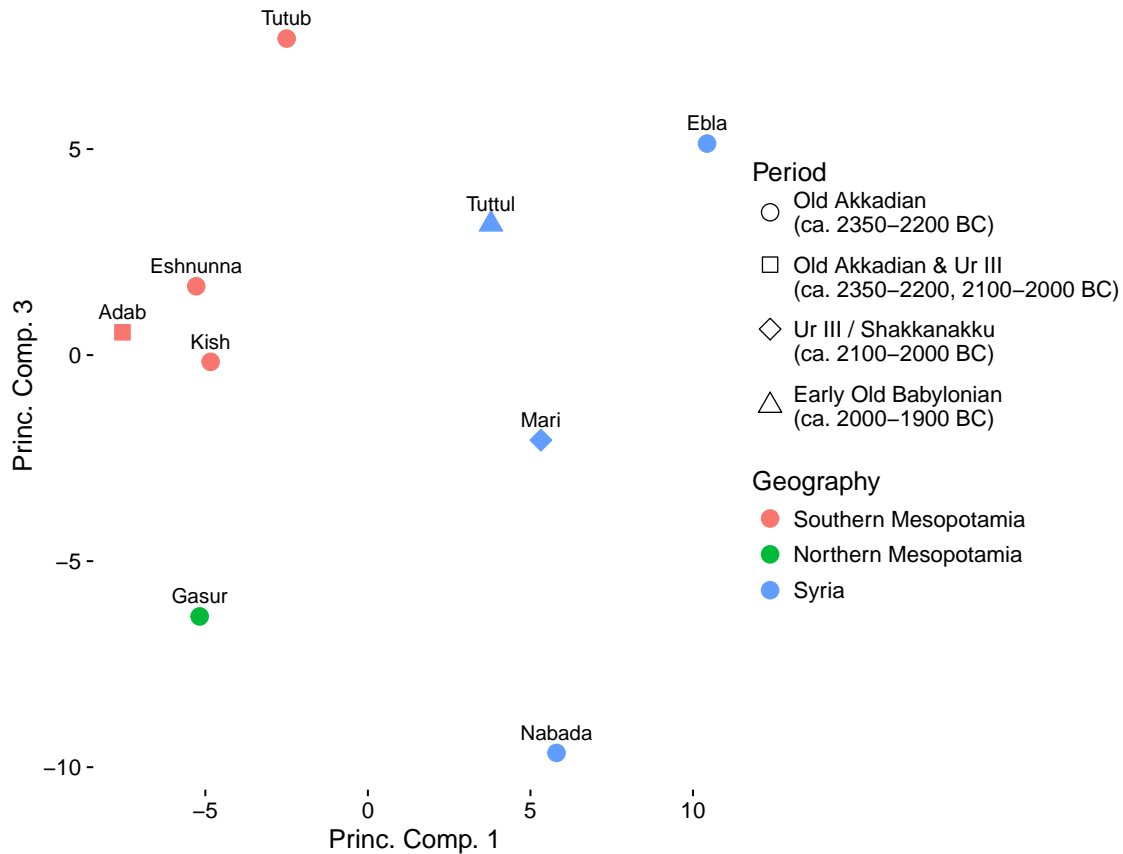


Figure 4.7: The plot graph comparing the first and third principal components of the filtered dataset shows that there is no apparent pattern to the clustering observed in the third principal component.

The third principal component (Figures 4.4 and 4.7, plotted along the y-axis) displays no apparent pattern. Nabada and Gasur lie in opposition to Tutub, while the other sites are distributed evenly between them. This principal component is included as a point of comparison, and demonstrates that random similarity in the data can contribute to the results of this type of analysis; it is only with further inspection that the significance of the results of PCA can be verified and qualified.

The 29 most important variables for this component are shown in Table 4.4 with the contexts in which they occur. These contexts will be described further below. Not every syllabic value is attested at each Syrian site, and occasionally a syllabic

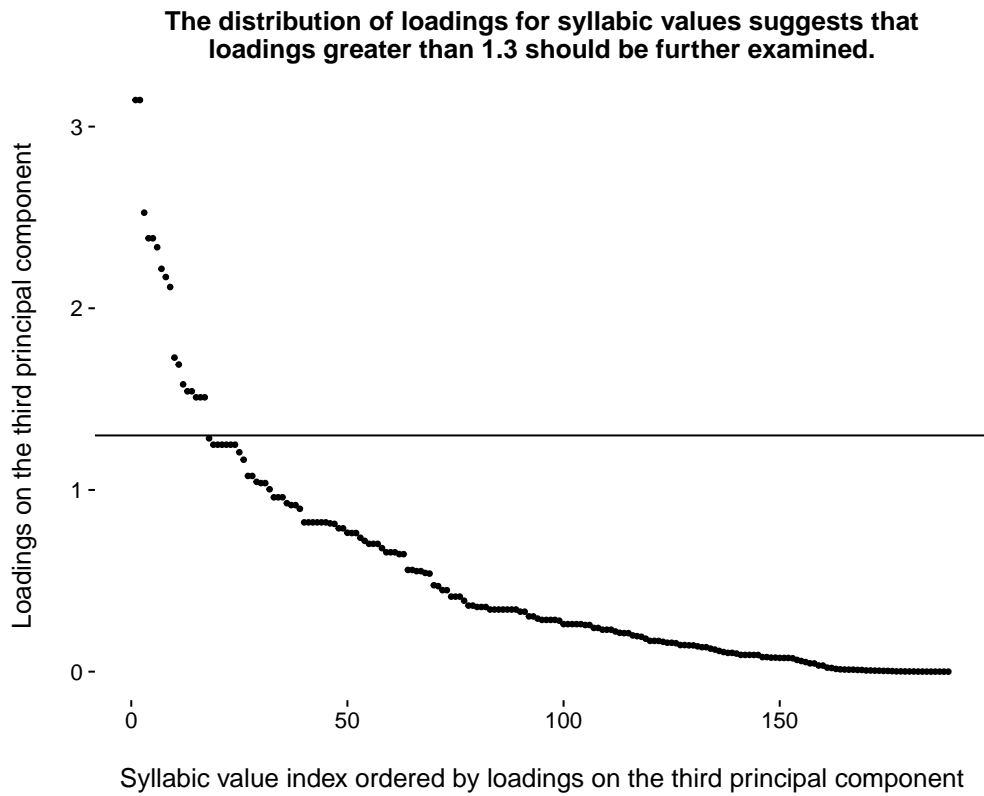


Figure 4.8: The distribution of loadings for syllabic values on the third principal component (see Table 4.1 for the list of syllabic values and their respective loading).

value is not attested at any Syrian site; this is indicated by blank cells in the table.

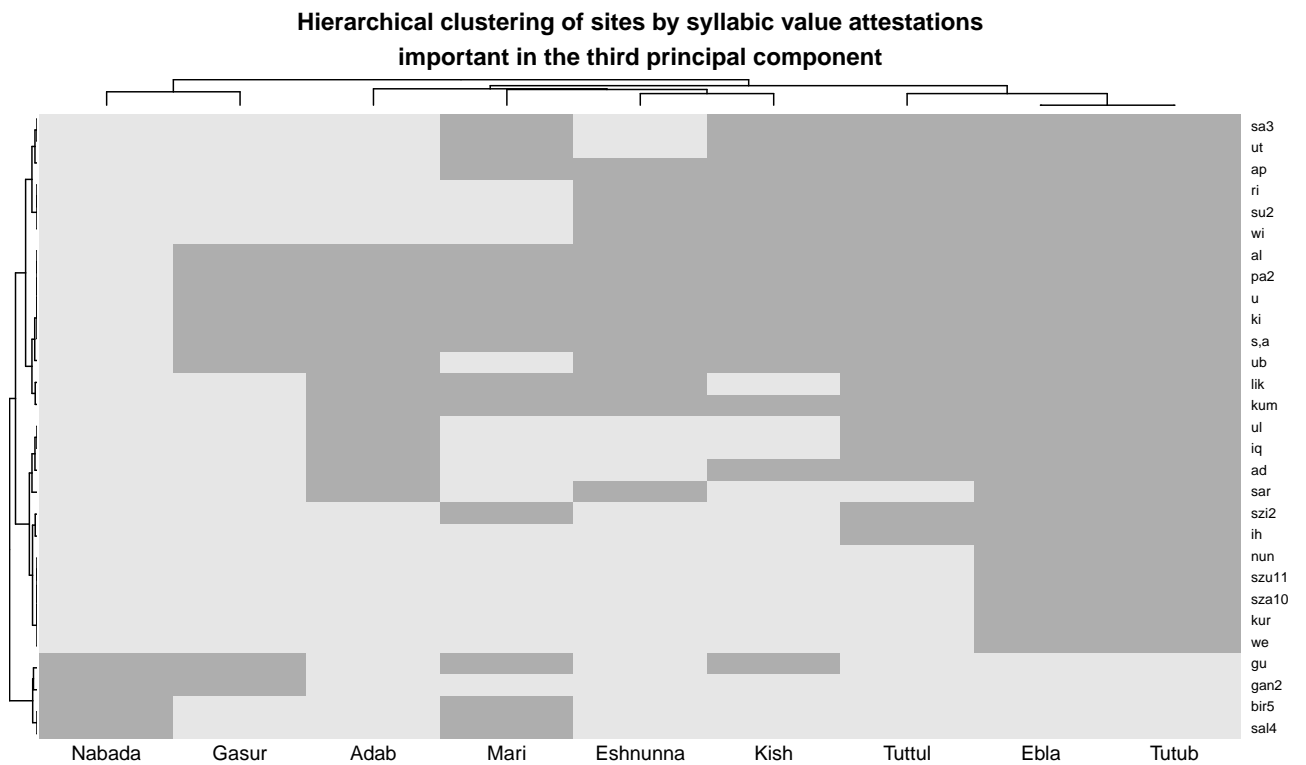


Figure 4.9: The 29 variables with loadings greater than 1.3 that inform the third principal component. These 29 syllabic values are presented along with their lexical contexts in Table 4.4.

Syl. Value	Ebla	Mari	Nabada	Tuttul
gan ₂			^d ša-ma-g/kan ₂ (DN; Subartu 2, 101 o. col. i 3)	
kum	<i>kum</i> -(^d) <i>i-šar</i> (<i>kum-išar</i> , “shrine of (the god) Išar”, nom. s. noun in const. st. + DN; <i>ARET</i> 4, 14 o. iv 10; passim); <i>kum</i> - ^d <i>ma-lik</i> (<i>kum-malik</i> , “shrine of (the god) Malik”, nom. s. noun in const. st. + DN; <i>ARET</i> 1, 5 r. xii 19; <i>ARET</i> 8, 533 o. x 5); <i>ma/mi-kum</i> - ^d <i>KU-ra</i> (<i>mā/mī-kum-kurra</i> , “what/who is the shrine of Kurra”, interr. pronoun + acc. s. noun in const. st. + DN; <i>ARET</i> 4, 24 r. vi 9; <i>ARET</i> 1, 5 r. iii 22; passim)	<i>za-kum</i> (<i>zakûm</i> “pure”, verb. adj.; ARM XIX 316, 317)		<i>ma-al-kum</i> (<i>malkum</i> , “king”, nom. s. noun; KTT 39 o. 1; 25 o. 15)
gu				<i>gu/ku_g-li-sum</i> (meaning uncertain; Subartu 2, 74 o. col. i 2; Subartu 2, 77 o. col. i 3; Subartu 2, 87 o. col. i 2; Subartu 2, 100 o. col. i 2)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
su ₂	<i>pu₃-ra-su₂-um</i> (<i>purrasum</i> , meaning uncertain but likely from the root <i>p-r-s</i> , “to cut off, decide”; <i>VE</i> 195)			<i>ia-su₂-um</i> (meaning uncertain; KTT 6 II: 8)
ri		<i>ku-ra-ri-di</i> (meaning uncertain; RIME 2.1.4.46 composite 7')		<i>ia-ri-bu-um</i> (perhaps from the root <i>ṛ-r-b</i> , “to enter”, nom. s. noun; KTT 7 ii 6); <i>mi-ri-mi-ru</i> (meaning uncertain; KTT 55a ii 14); <i>ta-ri-im-ša-ki-im</i> (meaning uncertain; KTT 16 ii 10; 20 ii 17)
wi	<i>da-wi-du</i> (proper noun, <i>dāwidu</i> , “beloved”, nom. s. noun without mimation cf. Heb. <i>dwd</i> ; <i>ARET</i> 15, 17 o. v 4); <i>il₂-wi-i^{ki}</i> (GN; <i>ARET</i> 12, 343 r. iii 12; <i>ARET</i> 12, 1364 r. ii' 4')		see the entry above for <i>we</i>	<i>a-wi-lum</i> (<i>awīlum</i> , “man”, nom. s. noun; KTT 53 o. 8, 13)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
lik	<i>a-bu₃-ma-lik</i> (<i>abu-mālik</i> , “the father is the king/ruler/adviser”, nom. s. noun without mimation (from <i>abum</i>) + acc. s. noun in abs. (from <i>mālikum</i>); passim)	DINGIR- <i>ma-lik</i> (<i>ilum-mālik</i> , “the god is the ruler”, nom. s. noun (from <i>ilum</i>) + acc. s. noun in abs. (from <i>mālikum</i>); ARM XIX)		
iḥ	<i>iḥ-su-ub^d-da-mu</i> (perhaps <i>iḥšub-damu</i> , “(the god) Damu reckoned”, from the root <i>h-š-b</i> , “to count, reckon”, G-stem pret. 3 m. s. + DN; passim)			<i>ni-iḥ-ma-nu</i> (<i>nīḥ-mannu</i> , perhaps “who is at rest?”, a form of the root <i>n-ḥ</i> , “to rest”, + interr. pronoun; KTT 9 o. 5)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
iq	<i>ti-iq-ta₃-ra-ab</i> (<i>tiqtarrab</i> , “you will draw near; become close”, from the root <i>q-r-b</i> , “to be(come) close”, G-stem perf. 2 m. s.; <i>ARET</i> 11, 1 r. 9, 5)			<i>a-na ni-iq</i> LUGAL (<i>ana nīq šarrim</i> , “for the offering of the king”, prep. + gen. s. noun in const. st. from the root <i>n-ᵛ-q</i> , “to run, go (forth)”, + gen. s. noun from <i>šarrum</i> ; KTT 79a o. 6); <i>ITI ni-iq-mi-im</i> (<i>warah niqmim</i> , “the month of Niqum”, nom. s noun in const. st. from <i>warhum</i> + gen. s. noun; KTT 79 r. 1’; KTT 81 r. 2); <i>i-ti-iq</i> (<i>ittiq</i> , “he will go through, past, cross over”, from the root <i>ᵛ-t-q</i> , “to go through, past, cross over”, G-stem dur. 3 m. s.; KTT 97 r. 3)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ul	<i>ib/p-su-ul^dda-mu</i> (meaning uncertain, appears to be a G-stem pret. 3 m. s. verbal form + DN; <i>ARET</i> 15, 36 o. iii 14); <i>ik-bu₃-ul^dma-lik</i> (meaning uncertain, appears to be a G-stem pret. 3 m. s. verbal form + DN; passim); <i>kab-lu-ul^{ki}</i> (GN; passim)			<i>pu-ul-su₂-mi-il</i> (meaning uncertain; KTT 49 o. 2)
ad	<i>a-me-da-ad</i> (<i>ameddad</i> , “I will measure out, weight”, from the root <i>m-d-d</i> , “to weigh out, measure”, G-stem dur. 1 c. s.; <i>ARET</i> 5, 6 r. viii 3)			<i>ia-ḥa-ad-x</i> [...] (meaning uncertain; KTT 49 ii 14), <i>a-ḥu-a-ḥa-ad^l</i> (<i>aḥu-aḥad</i> , perhaps “the one/only brother”, nom. s. noun (from <i>aḥum</i>) + the W. Sem. root for “one”; KTT 55a ii 15)
ap	<i>ra-sa-ap</i> (<i>rašap</i> , meaning uncertain, cf. Ug. <i>ršp</i> , head of the netherworld, cf. Akk. <i>rasāb/pum</i> , “to smite”; <i>VE</i> 806)	<i>na-ap-la₂-da²-an</i> (ARM XIX p. 154)		<i>ap²-pa²-a-na</i> (meaning uncertain, value <i>ap</i> determined based on the next sign <i>pa</i> ; KTT 14 ii 6)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
š _{u11}	<i>ta₂-ta₂-mi-š_{u11}</i> (<i>tattam(m)išu(m)</i> , nom. s. noun from the root <i>namāšum</i> “to move”; <i>VE</i> 126); <i>u₃-ba-š_{u11}-um</i> (<i>’ubāšum</i> , “imposter”, nom. s. noun; <i>VE</i> 149); <i>š_{u11}-ma-tum</i> (<i>šummattum</i> , “tether” cf. Akk. <i>šummannu</i> , nom. s. noun; <i>VE</i> 483); <i>kar-su-um</i> (<i>karsum</i> or <i>karšum</i> , meaning uncertain, nom. s. noun; <i>VE</i> 576); <i>š_{u11}-mu-um</i> (<i>šumum</i> , “name”, nom. s. noun; <i>VE</i> 1144)		<i>š_{u11}-a-ḥu</i> (<i>š_u-aḥu</i> , “he is the brother”, 3 m. s. ind. pronoun (<i>š_u</i>) + nom. s. noun (from <i>aḥum</i>); Subartu 2, 5 r. II 6); <i>su-lum</i> ^{ki} (GN; Subartu 2, 30 r. III 3’; 140 v. I 2; 42 o. III 2; passim)	
nun	<i>i₃-nun-na-ad</i> (meaning uncertain; <i>ARET</i> 15, 37 re. 1); <i>’a₅-nun-gi</i> (meaning uncertain; <i>ARET</i> 5, 6 r. ii 3); <i>’a₅-nun-na-at</i> (<i>ARET</i> 15, 18 r. x 2)			

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ša ₁₀	ša ₁₀ -ša-bu ₃ (<i>šadbu(m)</i> , “milk” cf. Akk. <i>šizbu</i> ; <i>VE</i> 82); š ₁₀ a-ta ₂ -um (<i>šatālum</i> , “to discuss; to converse” cf. Sem. *š _l “to ask”; <i>VE</i> 147)	šum-ša ₁₀ -ni (Frayne 1993, RIME 2.01.04.51, ex. 1)		ša ₁₀ -am-ši ₂ - ^d da-gan (<i>šamši-dagan</i> , “the sun of Dagan”, nom. s. noun in const. st. (from <i>šamšum</i>) + DN; KTT 8 ii 10); ša ₁₀ -ra-tu-um (<i>šarratum</i> , “queen”, nom. s. noun; KTT 55a ii 17); [x]-x-ša ₁₀ -am-ši ₂ -na (<i>šamši-ana</i> , “Sun the bedouin” ²² ; KTT 20 ii 6)
kur	be-su ₃ -kur ^{ki} (GN; <i>ARET</i> 15 7 r. iii 15); ga-ra-kur-tum ^{ki} (GN; <i>ARET</i> 15 31 o. x 18); kur-a-ad ^{ki} (GN; <i>ARET</i> 15 33 o. viii 15)			
we	en-bu _{3/14} -we-rum (<i>enbuwerum</i> , “fruit, progeny of (the god) Werum”, nom. s. noun in const. st. (from <i>enbum</i>) + DN; <i>ARET</i> 15 42 r. vii 5, 15)			

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

²²For a discussion of these -(h)ana names, see (Durand and Marti 2004, p. 126).

Syl. Value	Ebla	Mari	Nabada	Tuttul
pa ₂	<i>ra-pa₂-qu₃</i> (<i>rapāqu(m)</i> “to lean, support”, inf. of the root <i>r-p-q</i> ; <i>VE</i> 248)	<i>pa₂-ag-ru</i> (<i>pa-gru(m)</i> “carcass”, nom. s. noun; <i>ARM XIX</i> 303); <i>pa₂-an</i> (<i>pān</i> , “face of / (in) front of”, nom. s. noun in const. st. (from <i>pānum</i>); passim)		<i>pa₂-ti-u₂-tum</i> (<i>patiūtum</i> , meaning uncertain, likely from the root <i>p-t-ʔ</i> , “to open”; <i>KTT</i> 53 v. 12)
al	^d <i>ba-al-tum</i> (DN; <i>ARET</i> 15, 33 o. iii 8; <i>ARET</i> 15, 43 o. ix 18); <i>iš₁₁-a-^dal</i> (DN; <i>ARET</i> 15, 37 o. viii 11)	ITI <i>ma-al-ka₃-ni</i> (PN; <i>ARM XIX</i> 390; 394; passim)		<i>al</i> (<i>al</i> , “at the place of; on, over, above; against; more than”, prep.; <i>KTT</i> 41 o. 2); <i>ma-al-kum</i> (<i>malum</i> , “king; ruler”, nom. s. noun; <i>KTT</i> 39 o. 1); <i>qa-al-nu-um</i> (meaning uncertain, nom. s. PN; <i>KTT</i> 11 r. 6)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
u	<i>u-da-il</i> (<i>ūda-il</i> , “he knows the god” or “the god knows”, from the root <i>w-d-</i> , “to know”, G-stem dur. 3 m. s. + nom./acc. s. noun in abs. (from <i>ilum</i>); <i>ARET</i> 15, 42 le 12); <i>u-da-a-ḥa</i> (<i>uda-aḥa</i> , “he knows the brother” from the root <i>w-d-</i> , G-stem dur. 3 m. s. + acc. s. noun in abs. (from <i>aḥum</i>); <i>ARET</i> 12, 1057 r. ii’ 4’)	<i>tim-za-u</i> (verb, possibly from the root <i>m-z-</i> , “to press, squeeze”, or the root <i>m-ṣ-</i> , “to correspond, comply with”; ARM XIX 38-45)		<i>u-ub-²a₃-ar</i> (<i>ubbar</i> , possibly from the root <i>ṽ-b-r</i> , “to embrace, bind”, D-stem dur. 3 m. s.; KTT 29 o. 6); <i>ra-pi₂-qa-u</i> (proper noun, meaning uncertain; KTT 29 o. 3); <i>ra-bi-u-um</i> (<i>rabi²um</i> , “great”, verb. adj.; KTT 39 o. 3)
ki	<i>ib-ki-da-mu</i> (<i>ibki-damu</i> , “Damu wept”, from the root <i>b-k-</i> , “to weep”, G-stem pret. 3 m. s. + DN; <i>ARET</i> 4, 17 o. xi 12; r. xiii 15; <i>ARET</i> 15, 28 r. ix 14)	<i>ki-ru</i> (<i>kirru(m)</i> , a type of sheep, nom. s. noun without mimation; ARM XIX 182); <i>si-ki</i> (<i>sikki</i> , “messenger”, s. noun in const. st.; ARM XIX 288)		<i>i-ṣi₂-ki-in^d-da-gan</i> (<i>iṣi-kīn-dagan</i> , “the righteous/loyal/true (one) of Dagan came out”, from the root <i>w-ṣ-</i> , “to exit, go out”, G-stem pret. 3 m. s. + nom. s. noun in const. st. (from the verb. adj. <i>kīnum</i>) + DN; KTT 6 o. 5); <i>in ki-ri₂-im</i> (<i>in kirī^m</i> , “in/for the orchard”, prep. + gen. s. noun (from <i>kīrum</i>); KTT 25 o. 3)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ša	<i>wa-ša-u₃</i> (<i>wašā^uum</i> , “to stretch; lay out”, inf. without mimation; <i>VE</i> 129); <i>ša-ni-um</i> (<i>šanī^uum</i> , “strong”, nom. s. noun, cf. Sem. *š-n-, “to be strong”; <i>VE</i> 511)	<i>mar-ša-at</i> (<i>maršat</i> , “sick”, 3 f. s. stat.; ARM XIX 14; 16; 17; 23); <i>ka₃-ša-re₂-en</i> (<i>kašsarēn</i> , “two drivers”, du. noun; ARM XIX 248)	<i>za-la-tum</i> (perhaps related to <i>šāltum</i> , “combat, strife”; Subartu 2, 38 o. col. iii 3; 5)	<i>ša-ru-ur</i> (meaning uncertain ²³ ; KTT 34 o. 1); <i>hu-ra-ša-an</i> (proper noun from <i>hurāšum</i> , “gold”, possibly a du. noun; KTT 37 o. 2)
šar	<i>šar-ša₁₀-rum₂</i> (<i>šaršārum</i> , “saw”, nom. s. noun, cf. Akk. <i>šaššārum</i> , Ug. <i>ššrt</i> , Sem. *w-š-r/n-š-r “to saw”; <i>VE</i> 766)	<i>šar-ru</i> (<i>šarru</i> , a type of foodstuff, nom. s. noun without mimation; ARM XIX 214; 258); <i>šar-ru-ba-ni</i> (<i>šarru-bāni</i> , “the king is the creator”, nom. s. noun without mimation + act. part. from the root <i>b-n-</i> , “to build, create”; ARM XIX 196; 400)	<i>il₂-e-i-šar</i> (<i>ile-išar</i> , “the god is Išar”, nom. s. noun (from <i>ilum</i>) + DN; Subartu 2, 4 o. col. i 6); EN- <i>i-šar</i> (<i>bēlum-išar</i> , “the lord is Išar”, nom. s. noun + DN; Subartu 2, 5 o. col. ii 4); <i>šar-ra-bu₃</i> (<i>šar-rabû</i> , “the king is great”, nom. s. noun in abs. (from <i>šar-rum</i>) + verb. adj. without mimation; Subartu 2, 17 o. col. ii 2)	<i>ti-ir-šar-ri</i> (<i>tīr-šarrī</i> , “courtier of the gods”, nom. s. noun in const. st. (from <i>tīrum</i>) + gen. pl. noun (from <i>šarrum</i>); KTT 121 r. 2; KTT 136 o. 7)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

²³This appears in the line: 2 UDU *in ša-ru-ur in u₂-ri₂-im*, “two sheep in/for *ša-ru-ur*, in/for *u₂-ri₂-im*”. The rest of the text consists of four more lines on the obverse, each with a number of sheep followed by a proper noun. It is therefore unclear if “*in ša-ru-ur in u₂-ri₂-im*” should be interpreted as a proper noun or as a description of those two particular sheep; this therefore makes it difficult to identify the meanings of the words *ša-ru-ur* and *u₂-ri₂-im*.

Syl. Value	Ebla	Mari	Nabada	Tuttul
sal ₄			<i>sal₄-mu</i> (<i>salmū</i> , “amicable”, from the root <i>s-l-m</i> , “to be(come) at peace, amicable”, G-stem 3 m.pl. verbal adjective; Subartu 2, 1 o. col. III 4; passim)	
bir ₅		<i>a-bir₅-tu[m]</i> (<i>abirtum</i> > <i>ebertum</i> , “opposite bank”, nom. s. noun from the root <i>ʾ-b-r</i> , “to cross over”; ARM XIX 430)	<i>su-a-bir₅</i> (perhaps <i>šū-ābir</i> , “he is the crosser-over”, 3 m. s. ind. pronoun + act. part. (from the root <i>ʾ-b-r</i> , “to cross over”); Subartu 2, 75 o. i 4)	
ub	<i>du-ub^{ki}</i> (GN; passim); <i>lu-ub^{ki}</i> (GN; passim); <i>u₃-nu-ub^{ki}</i> (GB; <i>ARET</i> 8, 523 r. vii 19; <i>ARET</i> 8, 526 r. ix 14, 17)			<i>u-ub-ʾa₃-ar</i> (meaning uncertain; KTT 26 o. 6; KTT 38 o. 1)
ši ₂	<i>ši₂-bu₃-um</i> (<i>šībūm</i> / <i>šiybum</i> , “seniority”, nom. s. noun; Conti 1990, p. 79); <i>ši₂-bil₂-tum</i> (<i>šipirtum</i> , “assignment”, nom. s. noun; Conti 1990, p. 88); <i>ši-šu₁₁</i> (<i>širšu(m)</i> , “root” cf. Akk. <i>šuršum</i> , nom. s. noun; Conti 1990, p. 138)	<i>da-ši₂</i> (<i>daššī</i> , “goats”, acc./gen. pl. noun; ARM XIX 107; 110; 116; 117; 120; 139; 142; 143; 155; 157; 164)	<i>ši₂-a-ḥa</i> (perhaps <i>šī-aḥa</i> , “she is the side; she is beside”, 3 f. s. ind. pronoun + acc. s. noun (from <i>aḥum</i>); Subartu 2, 63 o. ii 3, 7; o. iii 4, 5; Subartu 2, 143 o. ii’ 4’; Subartu 2, 145 o. iii 3, 4; Subartu 12, 150 o. iii 4, 5)	<i>ša₁₀-am-ši₂-^dda-gan</i> (<i>šamši-dagan</i> , “the sun of Dagan”, nom. s. noun in const. st. (from <i>šamšum</i>) + DN; KTT 8 ii 10); <i>ia-si-mu-um</i> (proper noun, meaning uncertain; KTT 17 ii 1)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

Syl. Value	Ebla	Mari	Nabada	Tuttul
ut	<i>iš₁₁-ru₁₂-uD</i> (proper noun, meaning uncertain; <i>ARET</i> 9, 66 o. v 13; <i>ARET</i> 9, 68 o. i 10; o. viii 3; <i>ARET</i> 9, 103 r. iii 6); <i>a-nu-uD^dda-mu</i> (proper noun; <i>ARET</i> 12, 090 o. ii' 7)	<i>šu-ut</i> (<i>šūt</i> , “they”, 3 m. pl. ind. pronoun; ARM XIX 248)	<i>hu-UD-da</i> (meaning uncertain; Subartu 2, 104 o. col. v' 6')	<i>mu-ut^dda-gan</i> (proper noun, <i>mūt-dagan</i> , “warrior (lit.: “husband”) of Dagan”, nom. s. noun in const. st. (from <i>mūtum</i>) + DN; KTT 23 o. 15); <i>mu-ut-ḥa-li</i> (<i>mūt-ḥāli</i> , “warrior (lit.: “husband”) of the uncle”, nom. s. noun (from <i>mūtum</i>) + gen. s. noun without mimation (from <i>ḥālum</i>); KTT 11 r. 4)
sa ₃	<i>sa₃-ki₂-ra-tum</i> (<i>sakīratum</i> , “barrier”, nom. s. noun; <i>VE</i> 38); <i>ka₃-sa₃-pu₃</i> (<i>kasāpu(m)</i> , nom. s. noun without mimation, cf. Akk. <i>kasāpum</i> , “to tear to pieces”; <i>VE</i> 104)	<i>sa₃-ḥir-tum</i> (<i>saḥirtum</i> , “foodstuff”, nom. s. noun; ARM XIX 212; 213; 215; 216; 220; 221)		<i>a-sa₃-dan</i> (perhaps <i>asa-dan</i> , perhaps “strong bear”; KTT 36 o. 1)

Table 4.4: The contexts of the syllabic values with loadings greater than 1.3 that inform the third principal component.

4.1.4 Syllabic values filtered out of the original dataset

Hapax syllabic values

There are a significant number (85) of *hapax* syllabic values (Figure 4.5), or syllabic values that occur at only one site, attested within the Syrian corpora studied. The *hapax* sign values were the primary component behind the variation before being filtered out of the dataset, while the ubiquitous values were less significant in driving the variation in the data. Although they were excluded from most of the analysis, the significance and context of these values should be examined further.

Two basic generalisations can be made about the *hapax* values: (1) they predominantly occur in Syria, and (2) there is a relatively high number of CVC signs among them. The majority (69.4%) of *hapax* syllabic values are found in texts from Syrian sites, with Ebla, Tuttul, and Mari having higher numbers than the other sites²⁴ (40%, 12.9%, and 11.7% respectively). There is also a significant number of CVC signs among these *hapax* values (37, 43.5%).

Value	Site	Value	Site	Value	Site	Value	Site
ḥa _x (ḪAL)	Ebla	bil ₂	Ebla	am ₆	Nabada	am ₃	Adab
ḥaš	Ebla	iš _x (USZ)	Ebla	rum ₂	Nabada	qar ₃	Adab
su ₁₁	Ebla	bu _x (NI)	Ebla	(NE+RU)	Nabada	ru ₄	Eshnunna
ra _x (LA)	Ebla	az _x (AŠ ₂)	Ebla	gar ₃	Nabada	ḥub ₂	Gasur
le	Ebla	še	Ebla	šū ₂	Nabada	qer	Gasur
ri _x (LI)	Ebla	us	Ebla	di _x (TAR)	Tuttul	du ₁₀	Gasur
til	Ebla	kar	Ebla	qa	Tuttul	ur ₄	Gasur
ṭi ₃	Ebla	u ₄	Ebla	ka ₄	Tuttul	ṭu	Gasur
maš	Ebla	tin	Ebla	aq	Tuttul	kar ₂	Kish
pir ₆	Ebla	ḥap ₂	Ebla	aš	Tuttul	dur ₈	Kish
dal	Ebla	ru _x (LU)	Ebla	ta	Tuttul	iz ₂	Kish
tal	Ebla	rum _x	Ebla	ia	Tuttul	lik _x (LUḪ)	Kish
		(LUM)		be ₂	Tuttul		
kap	Ebla	šal ₂	Mari	ṭir ₅	Tuttul	kal	Kish
dim	Ebla	šur	Mari	ia ₈	Tuttul	uz _x (EŠ ₅)	Kish
ḥe _x (EN)	Ebla	lal ₃	Mari	em	Tuttul	eš ₃	Tutub
ḥen _x (EN)	Ebla	tap	Mari	as ₃	Adab	as	Tutub
ru ₁₂ (EN)	Ebla	az	Mari	eš ₂₀	Adab	ia ₃	Tutub
lu _x (EN)	Ebla	kar ₃	Mari	ur ₂	Adab	uṭ	Tutub

²⁴The next largest number of *hapax* values are attested at Adab (9, 10.5%).

Value	Site	Value	Site	Value	Site	Value	Site
nab	Ebla	uṣ	Mari	im ₂	Adab	sum ₂	Tutub
dub	Ebla	tir	Mari	tum ₂	Adab		
šar _x (NE)	Ebla	di ₂	Mari	meš ₃	Adab		
ne	Ebla	taš	Mari	qi ₄	Adab		

Table 4.5: The syllabic values that occur at only one site. Of these, 72% are attested at any of the four Syrian sites, while 41.9% occur at Ebla alone.

Many of these syllabic values represent unique phonological phenomena attested at a site, or they are present within words unique to a site. Most of these *hapax* syllabic values are attested in Syrian syllabaries, and when examined independently they may be indicators of variations in dialect or language. The words in which these syllabic values are attested are presented in Table 4.6.²⁵

Value	Site	Context
ḫa _x (HAL)	Ebla	<i>ḫa_x-da-bu₃</i> , <i>ḫa_x-da-bu₃-um</i> (<i>ḫatāpu(m)</i> , “to slaughter”, inf. of the root <i>ḫ-t-p</i> , “to slaughter”; <i>VE</i> 252); <i>ḫa_x-zu-um</i> (<i>ḫassum</i> , “wise, clever”, nom. s. adjective from the root <i>ḫ-s-s</i> , “to be conscious (of), remember”; Conti 1990)
ḫaš	Ebla	<i>mar-ḫaš/ku₅-tum</i> (meaning uncertain; ²⁶ <i>VE</i> 480)
su ₁₁	Ebla	<i>ḫa-si₂-su₁₁</i> (<i>ḫasīsu(m)</i> , “wise”, nom. s. noun from the root <i>ḫ-s-s</i> , “to be conscious; remember”; <i>VE</i> 389)
ra _x (LA)	Ebla	<i>ši-ra_x-tum</i> (<i>širatum</i> , nom. s. noun, cf. Akk. <i>ešertum</i> , “sanctuary”; <i>VE</i> 331); <i>pa₂-ra_x-kum</i> (<i>parākum</i> , “to be hostile”; <i>VE</i> 851)
le	Ebla	<i>le</i> (“to, for”, prep.; <i>ARET</i> 2, 51 r. i 6)
ri _x (LI)	Ebla	<i>tal-ta₂-ri_x-bu₃</i> (meaning uncertain, see Conti (1990, pp. 164-165) for a possible etymology; <i>VE</i> 586)
til	Ebla	<i>be-lu ma-tim</i> or <i>til-lu ma-tim</i> (perhaps <i>bēlu mātīm</i> , “lord(s) of the land”, nom. s./pl. ²⁷ noun (from <i>bēlum</i>) + gen. s. noun (from <i>mātum</i>) or <i>tillu mātīm</i> , “ruin mound of the land”, nom. s./pl. noun (from <i>tillum</i>) + gen. s. noun; <i>VE</i> 795b)

Table 4.6: The contexts in which the Syrian *hapax* syllabic values are attested.

²⁵Only Syrian contexts are explored here.

²⁶Krebernik (1982, 203) reads *ḫaš* here, while Pettinato reads it as *ku₅*. According to the *Concise Dictionary of Akkadian* (Black, George, and Postgate 2000, p. 198), the words *marḫušum/marḫašum* and *markutum* are both attested at Mari as words for types of wood.

²⁷Since we would expect this word to appear in the construct state as *bēl/bēli* (s.) or *bēlī* (pl.) the exact interpretation of this phrase is uncertain.

Value	Site	Context
ṭi ₃	Ebla	<i>ma-ṭi₃-um</i> (<i>maṭṭiyum</i> , a type of weapon, nom. s. noun; <i>VE</i> 481)
maš	Ebla	<i>maš-bi₂-tum</i> (<i>mašbi₂tum</i> , “army” cf. Ge. <i>mašbē₂ti</i> , nom. s. noun; <i>VE</i> 140)
pir ₆	Ebla	<i>pir₆-zu₂</i> (<i>pirzu(m)</i> , “champion” cf. Heb. <i>perez/pārāz</i> , nom. s. noun; <i>VE</i> 536)
dal	Ebla	<i>i-dal^{ki}</i> (GN; <i>ARET</i> 12, 1151 o. i’ 4’)
tal	Ebla	<i>tal-ta₃-i-bu₃</i> (<i>taltah(h)ibu(m)</i> ; <i>VE</i> 74 ²⁸); <i>tal-ta₃-bi₂-lu-um/lum</i> (<i>VE</i> 208)
kap	Ebla	<i>kap-la-lu^{ki}</i> (GN; <i>ARET</i> 16 27 o. vi 13)
dim	Ebla	<i>ma-dim</i> (<i>ma²dîm</i> , “numerousness, plenty”, gen. s. noun; <i>ARET</i> 11 1, r. xvi 10’)
ḥe _x (EN)	Ebla	<i>re₂-ḥe_x-^rmu^r</i> (<i>reḥmu(m)</i> , “uterus” cf. Sem. * <i>raḥm-</i> , nom. s. noun; <i>VE</i> 324) ²⁹
ḥen _x (EN)	Ebla	<i>ḥen_x-nu</i> (<i>ḥennu(m)</i> , “a gracious gift” ³⁰ , nom. s. noun; <i>VE</i> 68 ³¹)
ru ₁₂ (EN)	Ebla	<i>pa₃-ta₃-ru₁₂</i> (<i>paṭāru(m)</i> , “to loosen”, inf.; <i>VE</i> 95)
lu _x (EN)	Ebla	<i>zi-lu-lu_x-um</i> (perhaps “potter’s studio” (Conti 1990, p. 119); <i>VE</i> 326)
nab	Ebla	<i>nab-zu</i> (meaning uncertain; <i>VE</i> 246); <i>ḥa-nab-šu-ru₁₂</i> (meaning uncertain; <i>VE</i> 306); <i>nab-ḥa-il</i> (perhaps <i>nabḥa-(^d)il</i> , “ornament of (the god) Il”, nom. s. noun in const. st. (related to the Akkadian word <i>nabiḥu</i> , a type of ornament ³²) + DN; <i>ARET</i> 4, 12 r. i 6; <i>ARET</i> 15, 10 o. iv 5, v ii)
dub	Ebla	<i>dub-da-lu-um³³</i> (<i>dubdalum</i> , meaning uncertain; <i>VE</i> 990)
šar _x (NE)	Ebla	<i>šar_x-bu_x(NI)</i> (<i>darbu</i> , from the W. Sem. root * <i>d-r-b</i> , “to hit, beat”; cf. Ge. <i>zaraba</i> ; <i>VE</i> 257)
ne	Ebla	<i>ne-ki₂-su₂</i> (<i>nekkissu(m)</i> , “account” ³⁴ ; cf. Akk. <i>nikkassum</i> , nom. s. noun; <i>VE</i> 420)
bil ₂	Ebla	<i>mu-ta₂-bil₂-tu₃</i> (<i>muttābiltu(m)</i> , (< <i>multābiltum</i> < <i>muštābiltum</i>), a kind of tax or tribute, nom. s. noun without mimation; <i>VE</i> 529 ³⁵)
iš _x (USZ)	Ebla	<i>iš_x(UŠ)-^dda-mu</i> (<i>iš-damu</i> , meaning uncertain, perhaps “for Damu”, prep. + DN; <i>ARET</i> 15, 20 o. vii 11)
bu _x (NI)	Ebla	<i>bu_x-tu₃-tu₃</i> (<i>buṭuttu(m)</i> , “pistachio”, nom. s. noun without mimation; <i>VE</i> 462)

Table 4.6: The contexts in which the Syrian *hapax* syllabic values are attested.

²⁸See also Bonechi 2008, pp. 12-13.

²⁹See also Krebernik, ZA 73 (1983); p. 14.

³⁰The etymology of this root, *h-n-n*, was proposed by Hecker in BaE, p. 212.

³¹See also Bonechi 2008, pp. 12-13.

³²CAD Volume 11, Part 1 p. 24-25.

³³Var. *du-ub-da-lu-um*.

³⁴See M. Krebernik, ZA 73 (1983), p. 16; F.M. Fales, SLE, p. 178.

³⁵See also Bonechi 2008, pp. 12-13.

Value	Site	Context
az _x (AŠ ₂)	Ebla	<i>az_x-bu₃</i> (ʾazbu(m), “hyssop”, nom. s. noun without mimation, cf. Heb. ʾēzōb, Akk. zūpum; VE 474)
še	Ebla	<i>i-še^dli-im</i> (iše-līm, perhaps “(the god) Lim confused”, from the root ʾ-š-, “to confuse”, G-stem pret. 3 m. s. + DN; ARET 15 2 r. vii 7); <i>še-ba^dda-mu</i> (perhaps “(the god) Damu is the elder” or “(the god) Damu is satisfied”; ARET 15 49 r. iv 8)
us	Ebla	<i>en-bu₃-us^dli-im</i> (enbūš(u)-līm, “(of the god) Lim, (he) is his offspring”, nom. s. noun (from <i>enbum</i>) + 3 m. s. poss. suffix (-šū) + DN; ARET 15 52 o. 1 2)
kar	Ebla	<i>a-q/kar</i> (proper noun, meaning uncertain; ARET 15 12 o. vii 5); <i>a-kar-na-ad^{ki}</i> (GN; MEE 12, 29 r. iv 4); <i>a-kar-na-at^{ki}</i> (GN; MEE 12, 29 r. v 4); <i>ib-k/qar^dda-mu</i> (proper noun, possibly <i>ibqar-damu</i> “Damu made a claim”, from the root <i>b-q-r</i> , “to make a claim”, G-stem pret. 3 m. s. + DN; ARET 9 37 o. i 4)
u ₄	Ebla	<i>tu₃-ša-ne-u₄</i> (<i>tušanni^u(m)</i> or <i>tušanniu(m)</i> , “anger”, nom. s. noun without mimation; VE 574 ³⁶); <i>ša-na-u₄</i> (<i>šanā^u(m)</i> or <i>šanāyu(m)</i> , “to be angry”, inf. without mimation; VE 575)
tin	Ebla	<i>bu₃-ur-d/tin^{ki}</i> (GN; ARET 15, 8 r. ix 14; ARET 14, 59 r. vii 12); <i>d/tin-sum^{ki}</i> (GN; ARET 2, 29 o. iv 15)
ḥap ₂	Ebla	<i>ḥap₂-pu₃</i> (<i>ḥappu(m)</i> , a type of weapon, nom. s. noun; VE 458)
ru _x (LU)	Ebla	<i>iš-bi₃-ru_x</i> (<i>išbīru(m)</i> , “finely ground”, nom. s. noun without mimation, cf. Akk. šebērum, “to break”; VE 77)
rum _x (LUM)	Ebla	<i>ḥa-ma-rum_x(LUM)</i> (<i>ḥamārum</i> , “to hide”, inf.; VE 118); <i>ma-ḥi-rum_x(LUM)</i> (<i>māḥīrum</i> , “receiver”, act. part. from the root <i>m-ḥ-r</i> , “to receive”; VE 157)
šal ₂	Mari	<i>šal₂-la₂-šum</i> (proper noun from the word <i>šalāšum</i> ³⁷ , “three”; ARM XIX 267)
šur	Mari	<i>ka₃-šur</i> (GN, related to <i>ka₍₁₋₃₎-šur^{ki}</i> , “Gasur”; ARM XIX 64; 114; 324); <i>a-s/šur^dda-gan</i> (perhaps <i>āšur-dagan</i> , “I took care of Dagan”, from the root ʾ-š-r, “to take care of; to check up on”, G-stem pret. 1 c. s. + DN; ARM XIX 376)
lal ₃	Mari	<i>id-lal₃^dda-gan</i> (<i>idlal-dagan</i> , “he sang the praises of Dagan”, from the root <i>d-l-l</i> , “to praise; to sing praise”, G-stem pret. 3 m. s. + DN; ARM XIX 212-217); <i>id-lal₃-e₂-a</i> (<i>idlal-ea</i> , “he sang the praises of Ea”, from the root <i>d-l-l</i> , “to sing; sing praise”, G-stem pret. 3 m. s. + DN; ARM XIX 369); <i>i-ki-id-li-im</i> (meaning uncertain; ARM XIX 205)
tap	Mari	<i>gir₃-tap-pa₂-tim_x</i> (possibly related to <i>geršepum</i> , “stool; stepping-stool”, gen. pl. noun; ARM XIX 104)

Table 4.6: The contexts in which the Syrian *hapax* syllabic values are attested.

³⁶See also Bonechi 2008, pp. 12-13.

³⁷Although this could also be read as *sal₄-la₂-šum*.

Value	Site	Context
az	Mari	<i>ma-az-um</i> (nom. s. noun from the root <i>m-z-</i> , “to press, squeeze”; ARM XIX 310)
kar ₃	Mari	<i>kar₃-ka₃-mi₃-si-um</i> (PN; ARM XIX 299)
uṣ	Mari	^d <i>da-gan-nu-uṣ-ra</i> (<i>dagan-nuṣra</i> , “Dagan is the protection”, DN + a form of the root <i>n-ṣ-r</i> , “to guard, protect”; ARM XIX 341; 449)
tir	Mari	<i>tir-ku</i> (nom. s. noun without mimation, likely from the root <i>t-r-k</i> , “to beat, thump; to be dark”; ARM XIX 280; 339)
di ₂	Mari	<i>ni-di₂</i> (<i>nidi</i> , “deposit!”, from the root <i>n-d-</i> , “to throw (down); deposit”, G-stem imper.; ARM XIX 165; 308)
taš	Mari	ITI <i>taš-ni-tim_x</i> (MN; passim)
am ₆	Nabada	<i>ir₃-am₆-EN</i> (<i>irâm-bēlum</i> , “the lord loves (him)” or <i>ir am-bēlam</i> , “he loved the lord”, from the root <i>r-ṣ-m</i> , “to love”, G-stem pret. 3 m. s. + nom./acc. s. noun; Subartu 2, 1 o. I 3; II 1)
rum ₂ (NE+RU)	Nabada	<i>ba-rum₂</i> (proper noun, possibly related to either <i>bārûm</i> , “diviner”, or <i>bârum</i> , “to appear; be durable”; Subartu 2, 1 o. col. i 7); <i>ar-rum₂</i> (<i>arrum</i> , possibly a type of agricultural or animal husbandry profession, nom. s. noun; Subaru 2, 3 o. col. ii 2)
gar ₃	Nabada	<i>na-gar₃^{ki}</i> (GN; Subartu 2, 37 o. ii’ 2’; 2, 78 o. i 2; 2, 107 o. i 2; 2, 109 o. i 2; 2, 111 o. i 2; 2, 122 o. i 2)
šu ₂	Nabada	<i>i-šu₂-DINGIR</i> (<i>iššu-ilam</i> , “he has a god”, or <i>ššu-ilum</i> , “the god exists”, from the root <i>ṣ-š-</i> , “to have; to exist”, G-stem dur. 3 m. s. + nom./acc. s. noun; Subartu 2, 29 o. col. iv 6)
di _x (TAR)	Tuttul	<i>di_x-ša-nu-u₂</i> (KTT 13 o. 8, 9); <i>ba-du-di_x-el</i> (KTT 5 o. 10); <i>i-di_x-im-li-im</i> (KTT 10 o. 8)
qa	Tuttul	<i>qa/ka₄-al-nu-um</i> (meaning uncertain; KTT 11 r. 6); <i>qa-ar-nu-um</i> (personal name from <i>qarnum</i> , “horn”, nom. s. noun; KTT 54 o. 2); <i>ra-pi₂-qa/ka₄-u</i> (meaning uncertain; KTT 30 o. 6)
ka ₄	Tuttul	see the entry for the syllabic values <i>qa</i> above
aq	Tuttul	<i>a-aq-bi-u-um</i> (meaning uncertain, but likely from the root <i>q-b-</i> , “to say”; KTT 41 i 4); <i>ia-aq-bi-u₂</i> (meaning uncertain, but likely from the root <i>q-b-</i> ; KTT 55a ii 13); <i>pa₂-aq-da</i> (<i>paqdā</i> , “they (f.) are entrusted, appointed”, stat. f. pl. from the root <i>p-q-d</i> , “to entrust; care for; appoint”; KTT 52 i 3)
aṣ	Tuttul	<i>a-ḥi-ma-ra-aṣ</i> (<i>aḥi-maraṣ</i> , “my brother is sick”, nom. s. noun (from <i>aḥum</i>) + 1 c. s. poss. suffix (-i) + stative noun; KTT 8 ii 2; 19 ii 18)
ta	Tuttul	<i>ia-ta-ni-il</i> (“(the god) Il gave”, from the root <i>y/n-t-n</i> , ³⁸ “to give” + DN; KTT 5 ii 3; 15 ii 3); <i>ša-la-ta-am</i> (<i>šallatam</i> , “plundered thing(s); booty”, acc. s. noun; KTT 55a ii 10); <i>wa-ar-ka-ta-am</i> (<i>warkatam</i> , “later”, acc. s. noun; KTT 55a ii 19)

Table 4.6: The contexts in which the Syrian *hapax* syllabic values are attested.

³⁸Presumably the Amorite root meaning “to give.” Cf. the verbs *nadānum* in Akkadian, *ytn* in Ugaritic and Phoenician, *נתן* in Hebrew, and *נתן* in Aramaic.

Value	Site	Context
ia ³⁹	Tuttul	<i>ia-ta-ni-il</i> (KTT 5 o. 3; KTT 15 o. 3), <i>ia-wi-il</i> (KTT 5 o. 5): <i>ia-ar-ḥi-el</i> (KTT 5 o. 6); <i>ia-su₂-um</i> (KTT 6 o. 8); <i>ia-ri-bu-um</i> (KTT 7 o. 6; 13 o. 7); <i>ia-ta-nu-um</i> (KTT 7 o. 8); <i>ia-ṣi₂-u₂</i> (KTT 9 o. 6); <i>ia-ša-ri¹-il</i> (KTT 12 o. 4); <i>ia-su^d-da-gan</i> (KTT 15 o. 6); <i>ia-si-mu-um</i> (KTT 17 o. 1); <i>ia-su-um</i> (KTT 17 o. 6); <i>ia-ri¹-[im[?]-li[?]]-im</i> (KTT 18 r. 10); <i>ia-wi^d-iškur</i> (KTT 18 r. 11); <i>ia-ku[?]-ra-an</i> (KTT 18 r. 14); <i>ia-pu-ḥu-um</i> (KTT 18 r. 15), <i>ia¹-ḥa¹-ta-ru¹-[um[?]]</i> (KTT 18 r. 17); <i>ia[?]-ki[?]-ru[?]-um¹</i> (KTT 18 r. 25); <i>ia-ḥa¹-li-um</i> (KTT 19 o. 12); <i>ia-wi¹-ma-da-ar</i> (KTT 19 o. 13); <i>ia-aḥ-du-li-im</i> (KTT 55a o. 3, 15); <i>zi¹-im-ri-ia[?]</i> (KTT 19 o. 3)
be ₂	Tuttul	<i>a-li-be₂-lu⁴⁰</i> (<i>ali-bēlu(m)</i>), possibly either “at the place of the lord” or “surely he is my lord” or “the lord is Ali”, gen./nom. s. noun; KTT 9 r. 3); <i>a-p/be₂-en</i> (meaning uncertain, but BI value determined based on initial vowel of the following sign; KTT 47 o. 3)
ṭir ₅	Tuttul	<i>sa₂-ṭir₅</i> (<i>ṣaṭir</i> , “written”, verb. adj.; KTT 50 o. 16)
ia ₈ ⁴¹	Tuttul	<i>ia₈-qi₂-ru-um</i> (personal name from the root <i>y-q-r</i> (Akkadian <i>w-q-r</i>), “to be precious, rare”, nom. s. noun; KTT 21 o. 1); <i>ia₈-din-il₃</i> (<i>yaddin-il</i> , “(the god) Il gave (a life, child)”, G-stem pret. 3 m. s. from the root <i>n-d-n</i> , “to give” + DN; KTT 21 o. 4); <i>a-ia₈-ṣu₂-um</i> (<i>ayyaṣum</i> , meaning uncertain; KTT 53 o. 8, 13); <i>ia-aḥ-du-li-im</i> (<i>yaḥdu-līm</i> , “(the god) Līm rejoiced”, from the root <i>h-d-ṣ</i> , “to be joyful, rejoice”, + DN; KTT 55a o. 3, 15)
em	Tuttul	<i>e-em-ṣi₂-u₂-um</i> (personal name, syllabic value <i>em</i> is determined based on the previous sign; KTT 11 o. 5); <i>mu-tu-ra-me-em</i> (personal name, syllabic value <i>em</i> is determined by the previous sign; KTT 14 o. 7)

Table 4.6: The contexts in which the Syrian *hapax* syllabic values are attested.

Some of these *hapax* signs represent slightly different readings of signs that occur elsewhere in the corpora examined, or represent different versions of syllables common among the corpora of this period. These, which are listed below, may not be indicative of dialectical variation.

³⁹See Section 4.6.3 below for more about the names in which this syllabic value occurs.

⁴⁰Compare this name with the alternative spelling of the word “lord” at Tuttul, *beḥlum* (see Section 4.6.2 below).

⁴¹See Section 4.6.3 below for more about the names in which this syllabic value occurs.

- *haš* at Ebla vs. no equivalent CVC sign elsewhere
- *su₁₁* at Ebla vs. *su* at Ebla and Nabada vs. *su₂* at Ebla and possibly Mari, Nabada, and Tuttul
- *le* at Ebla vs. no equivalent value at Mari, Nabada, or Tuttul
- *til* at Ebla vs. no equivalent CVC sign elsewhere
- *ti₃* at Ebla vs. no equivalent CV sign elsewhere
- *maš* at Ebla vs. no equivalent CVC sign elsewhere
- *pir₆* at Ebla vs. no equivalent CVC sign elsewhere
- *tal/dal* at Ebla vs. no equivalent CVC sign elsewhere
- *kap* at Ebla vs. no equivalent CVC sign elsewhere
- *dim* at Ebla vs. no equivalent CVC sign elsewhere
- *nab* at Ebla vs. no equivalent CVC sign elsewhere
- *dub* at Ebla vs. no equivalent CVC sign elsewhere
- *ne* at Ebla vs. *ne₂* at Mari, Nabada, and Tuttul
- *bil₂* at Ebla vs. no equivalent CVC sign elsewhere
- *iš_x*(UŠ) at Ebla vs. *iš* at Ebla⁴², Mari, Nabada, and Tuttul; and *iš₁₁* at Ebla and possibly Nabada
- *bu_x*(NI) at Ebla vs. *bu* at Ebla, Mari, Nabada, and Tuttul
- *še* at Ebla vs. *še₃* at Ebla and Tuttul
- *us* at Ebla vs. no equivalent VC sign elsewhere⁴³

⁴²Although *iš* at Ebla may represent the syllable /it̄/.

⁴³Although the sign UZ, representing the syllables /us/, /uz/, and /uš/, is attested at all four Syrian sites.

- *kar* at Ebla vs. *kar*₃ at Mari and possibly Nabada
- *u*₄ at Ebla vs. *u* at Ebla, Mari, and Tuttul; *u*₂ at Mari, Nabada, and Tuttul; and *u*₃ at Ebla and Nabada
- *hap*₂ at Ebla vs. no equivalent CVC sign elsewhere
- *ru*_x(LU) at Ebla vs. *ru* at Ebla, Mari, Nabada, and Tuttul
- *šur* at Mari vs. no equivalent CVC sign elsewhere
- *lal*₃ at Mari vs. no equivalent CVC sign elsewhere
- *tap* at Mari vs. *tap*_x(URUDU) at Ebla and Nabada
- *az* at Mari vs. *az*_x(AŠ₂) at Ebla
- *kar*₃ at Mari vs. *kar* possibly at Ebla
- *uṣ* at Mari vs. no equivalent VC sign elsewhere⁴⁴
- *rum*₂(NE+RU) at Nabada vs. *rum*_x(LUM) and *rum* at Ebla
- *gar*₃ at Nabada vs. no equivalent CVC sign elsewhere
- *šu*₂ at Nabada vs. *šu* at Ebla, Mari, Nabada, and Tuttul; and *šu*₁₁ at Ebla
- *di*_x(TAR) at Tuttul vs. *di* at Ebla and Tuttul; and *di*₂ at Mari; and *di*₃ at Ebla and Nabada
- *aṣ* at Tuttul vs. no equivalent VC sign elsewhere⁴⁵
- *ta* at Tuttul vs. *ta*₂ at Ebla, Mari, Nabada, and Tuttul
- *be*₂ at Tuttul vs. *be* at Ebla, Mari, Nabada, and Tuttul
- *tir*₅ at Tuttul vs. no equivalent CVC sign elsewhere

⁴⁴Although the sign UZ, representing the syllables /us/, /uz/, and /uṣ/, is attested at all four Syrian sites.

⁴⁵Although the sign AZ, with the syllabic readings /az/, /aṣ/, and /as/, is also attested at Ebla and Mari.

Certain syllabic values, however, substantially differ from the syllabic values attested for the same signs elsewhere during this period. These syllabic values are likely indicative of dialectical variation in the Semitic language attested at the Syrian sites in which they occur. The dialectical variation may indicate a separate language group, like Eblaite or Amorite,⁴⁶ or a variation of the Akkadian language. The syllabic values that fall into this category include:

- The syllabic value ha_x (HAL) representing the loss of final /l/ in certain CVC signs.
- The syllabic value $\check{s}ar_x$ (NE) possibly representing the syllable /dar/ at Ebla.
- The syllabic values ri_x , ru_x , and rum_x (LI, LU, and LUM) reflecting the /r/-/l/ interchange at Ebla.
- The syllabic values he_x and hen (EN) indicating the presence of the phoneme /ḥ/ at Ebla.
- The syllabic values ia and ia_8 as alternative third person verbal prefixes at Tuttul (see below).
- The syllabic value am_6 possibly representing the CVC syllable /am/ at Nabada (while the syllabic value am represents the VC syllable /am/).

Ubiquitous syllabic values

ba	nu	i	bi	da	ḥi	mu	si	am	ir	ša	ku	ta ₂
an	ḥu	at	li ₂	aš ₂	im	ri ₂	en	in	i ₃	ma	me	
be	ma ₂	tum	e	šu	lu	ti	um	iš	ra	bu	a	

Table 4.7: The 37 signs that occur at every site (not including Assur).

There are fewer ubiquitous syllabic values than *hapax* syllabic values among the syllabaries. While a high percentage of the *hapax* syllabic values were CVC

⁴⁶For more about Eblaite and Amorite, see: Huffmon 1965; Buccellati 1966; Cagni 1981; Fronzaroli 1982; Buccellati 1992; Lipiński 2001; Archi 2006; Fronzaroli 2006; Gordon 2013.

signs, there are comparatively very few CVC signs among the ubiquitous syllabic values. Not including syllabic values that may include a guttural or glottal stop (/ʕ/ or /ʔ/), there is only one CVC sign among the signs that occur at every site (0.03%), while there are 37 CVC signs among the *hapax* values (43.5%). Since these ubiquitous syllabic values do not provide any additional information about the Syrian syllabaries, they will not be examined further here.

4.2 Unique features of the Syrian syllabaries

The distinct linguistic features present in the Syrian texts likely impacted the local scribes' use and adaptation of the cuneiform script. These include features that come from the non-Akkadian Semitic languages/dialects Eblaite and Amorite.

The writing, language, and linguistics of the Ebla⁴⁷ and Mari texts⁴⁸, and to a lesser extent of the Nabada⁴⁹ and Tuttul⁵⁰ texts, have been treated in a number of works and are not described thoroughly here. The descriptions below focus instead on particular aspects of the syllabaries and texts that may have implications for the (non-Akkadian) language or dialect being represented, with references, where relevant, to previous research to the language attested at these Syrian sites. The features discussed below are based primarily on the important syllabic values identified through the principal component analysis, and in particular the *hapax* syllabic values.

4.3 Ebla

4.3.1 The syllabary

The Ebla syllabary bears the most similarity to the Nabada syllabary, although there is still significant variation in the Ebla syllabary compared to the other syllabaries, both unfiltered and filtered, examined in this study. The relatively

⁴⁷Fronzaroli 1979; Fronzaroli 1980b; Fronzaroli 1980a; Cagni 1981; Fronzaroli 1982; Krebernik 1982-1983; Pettinato 1982; Biga and Milano 1984; Fronzaroli 1984a; Fronzaroli 1984b; Archi 1985; Archi et al. 1985; Archi 1987; Archi 1988/44; Conti 1990; Archi 2006; Fronzaroli 2006; Lahlouh and Catagnoli 2006; Bonechi 2007; Bonechi 2008.

⁴⁸Bottéro and Finet 1954, Limet 1976, Westenholz 1978.

⁴⁹Talon 1996.

⁵⁰Krebernik 2001; Durand and Marti 2004.

high number of *hapax* signs is the dominant factor in the variation observed in the unfiltered dataset, and these signs (outlined above) represent differences in certain aspects of the phonology and cuneiform writing system at Ebla. These factors which are observable in the syllabaries can be characterised as follows:

- The syllabic value ha_x (HAL) representing the loss of final /l/ in certain CVC signs: $ha_x-da-bu_3(-um)$, $hatāpu(m)$, “to slaughter”, inf. of the root $h-t-p$, “to slaughter” (VE 252); $ha_x-zu-um$, $hassum$, “wise, clever”, nom. s. adjective from the root $h-s-s$, “to be conscious (of), remember” (Conti 1990)
- The syllabic value $šar_x$ (NE) possibly representing the fact that the phoneme /d/ had not coalesced with /z/, so both /d/ and /t/ were written with Š-series: $šar_x-bu_x$ (NI), $darbu$, from the W. Sem. root * $d-r-b$, “to hit, beat”; cf. Ge. *zaraba* (VE 257)
- The syllabic values ri_x , ra_x , ru_x and rum_x (LI, LA, LU, and LUM) reflecting the /r/-/l/ interchange at Ebla: $tal-ta_2-ri_x-bu_3$, meaning uncertain, see Conti (1990, pp. 164-165) for a possible etymology (VE 586); $ši-ra_x-tum$, $širatum$, nom. s. noun, cf. Akk. *ešertum*, “sanctuary” (VE 331); $iš-bi_3-ru_x$, $išbīru(m)$, “finely ground”, nom. s. noun without mimation, cf. Akk. *šebērum*, “to break” (VE 77; VE 851); $ha-ma-rum_x$ (LUM), $hamārum$, “to hide”, inf. (VE 118); $ma-ḥi-rum_x$ (LUM), $māhirum$, “receiver”, act. part. from the root $m-ḥ-r$, “to receive” (VE 157)
- The syllabic values he_x and hen (EN) indicating the presence of the phoneme /ḥ/ at Ebla: re_2-he_x (EN)- mu , $reḥmu(m)$, “uterus” cf. Sem. * $raḥm-$, nom. s. noun (VE 324)⁵¹; hen_x-nu , $hennu(m)$, “a gracious gift”, nom. s. noun (VE 68)⁵²
- The non-expression of closed syllables:

⁵¹See also Krebernik, ZA 73 (1983); p. 14.

⁵²See also Bonechi 2008, pp. 12-13.

- C₁V₁+V₁C₂: *tu₃-uš-ta₂-ki₂-lum*, *tuštakkilum* “to allow to eat constantly” (VE 164)
- C₁V₁C₂: *kal₂-la-tum*, *kallatum* “bride, daughter in law” (VE 322)
- C₁V₁+C₂V₁: The second vowel repeats the vowel of the preceding syllable and is technically redundant: *i₃-ri₂-sa-tum*, *iršatum* “wish” (VE 234)
- C₁V₁+C₂V₂: The second vowel repeats the vowel of the following syllable and is technically redundant: *a-ka₃-lu bu₃-ta-ma-tim*, *akallu buṭmātim* “pistachio bread” (VE 32)
- C₁V: *sa-ma*, *šalma* “be healthy” (VE 827)
- with a CV₁-C+I-sign: *ur-ba-tum/u₃-ri₂-ba-tum/u₉-ri₂-ba-tum = ḫurbatum* “sword” (VE 548)

4.4 Mari

4.4.1 The syllabary

According to the results of the computational analyses performed on the dataset, the Mari syllabary is most similar to the Tuttul syllabary. Certain particularities exist that distinguish Mari from the other corpora.

The Mari syllabary does not often indicate double consonants, such as in the following examples (Limet 1976, p. 7): *bi-lim* (from *billum*, “alloy (of metals)”); ARM XIX 342); *ku-ku-šu* (from *kukkušum*, a type of flour; ARM XIX 329); *da-šu-pa₂-tim_x* (related to the Assyrian term *duššupum*⁵³, “sweet, treat”; ARM XIX 393); *ka₃-ša-re₂-en* (from *kaššarum*, “caravan leader”; ARM XIX 248); *ki-ru* (from *kirrum*, a type of sheep⁵⁴; ARM XIX 182).

There are certain “syncopated” spellings of the form (C)VC-V- that, according to Limet (1976, p. 7),⁵⁵ represent without a doubt a strong aspiration. Although given the roots of these words, I believe that the (C)VC-V- spelling more likely indicates

⁵³See also Limet 1976, 164, footnote 4.

⁵⁴See also Limet 1976, 165, footnote 12.

⁵⁵Limet writes, “Ce procédé indique sans doute une forte aspiration, c’est le cas de *maš’anum* certainement.”

an intervocalic guttural or glide (/ʔ/, /ʕ/, /y/, /w/): *maš-a-na-an* (*mašʔanān*, “sandals, shoes” (du.), from the root *š-ʔ-n*, “to put on shoes”; ARM XIX 279; 280; 282-3; 285-6; 288; 292; 295-6; 299; 301); *tab-u₂-tum*, *tab-a-an* (*tabʔutum*, *tabʔān*, meaning uncertain⁵⁶; ARM XIX 279; 281; 282; 285; 286; 289; 292; 290; 339); *ra-at-u₂-tim_x* (*ratʔutim*, “handle (of a plow)”; ARM XIX 395). A similar phenomenon is the presence of CV₁-V₂(C) spellings: *sa₂-pu-a-an*⁵⁷ (*s/šapwān*, “supple, flexible” (du.); ARM XIX 279); *ra-bu-a-an* (*rabwān*, “big” (du.), from the root *r-b-ʔ*; ARM XIX 279; 292; 295-6; 298-9); *tim-za-u*, *im-za-ʔa₃* (from the root *m-z-ʔ*, “to press, squeeze”; ARM XIX 38-50).

The common usage of the dual form (*-ēn/-ān*) is also notable in this corpus. Its preservation in the language of Mari, at least in its written form, is representative of its conservative nature (Limet 1976, p. 9).

4.4.2 Unique lexical items

The *hapax* syllabic value *taš* at Mari is attested in the month name *taš-ni-tim_x* (passim⁵⁸). This month name is unique to the Mari calendar (Limet 1976, pp. 10-12).

The other *hapax* syllabic values in the Mari corpus (*šal₂*, *šur*, *lal₃*, *tap*, *az*, *kar₃*, *us*, *tir*, *di₂*) include a geographic name (*ka₃-šur^{ki}*; ARM XIX 64; 114; 324), personal names (*id-lal₃-^dda-gan* (ARM XIX 212-217); *id-lal₃-e₂-a* (ARM XIX 369); *i-ki-id-li-im* (ARM XIX 205); *^dda-gan-nu-uš-ra* (ARM XIX 341; 449)), nouns (*tir-ku* (ARM XIX 280; 339); *kar₃-ka₃-mi₃-si-um* (ARM XIX 299); *ma-zu-um* (ARM XIX 310); *gir₃-tap-pa₂-tim_x* (ARM XIX 104)), and a verbal form (*ni-di* (ARM XIX 165; 308)). The forms of these words and proper nouns do not appear to reflect any variation in the dialect or writing system at Mari.

⁵⁶This word occurs exclusively in this corpus as an adjective describing shoes (*mašʔanān*) and likely stems from the root *t-b-ʔ*, which in this context might mean “ready (to wear)”, “sturdy” (lit.: “unrelenting”), or “for going, walking” (see CAD, Vol. 17, Part 2, pp. 306-320).

⁵⁷Alternatively written *sa₂-pu-wa-an* (ARM XIX 295-297).

⁵⁸See also CAD, Vol. 18, p. 295.

4.5 Nabada

4.5.1 The syllabary

The syllabary from Nabada indicates a closer affiliation with Ebla than with the rest of Syrian or the Mesopotamian sites. There are a few notable exceptions to this trend: for example, Nabada and Mari both implement the signs *ru* and *bi₂/bi* to write /ru/ and /bi/, as opposed to Ebla's exclusive use of *ru₁₂* and *bi₂*. Further, the syllabic reading *lim* for the sign IGI is attested at Nabada whereas it is absent entirely at Ebla and not yet attested at Mari during this time period. One situation in which the syllabary of Nabada differs from that of Mari concerns the genitive and construct state forms of words ending in /l/: Nabada uses the sign *li₂*, as in *be-li₂*⁵⁹ = /ba·li/, while Ebla and Mari exclusively use the sign *li*. Finally, it must be noted that the attribute of Pre-Sargonic orthography in which an open syllable C₁V can be represented by a closed syllable C₁VC₂, as in *ša* = /šat/, is also a feature of the Syrian syllabaries.

The orthography of the Nabada syllabary is largely similar to the orthography of pre-Sargonic cuneiform. There are a few notable exceptions (as noted by Ismail et al. 1996, pp. 33-34): *hu* is written identical to the sign RI; UŠ has a syllabic reading /(j)ir/, which the Subartu series (Ismail et al. 1996) transliterates *ir₃* since the sign ARAD is not attested at Nabada; *e₃* is a composite of DUxUD, with UD being written smaller above DU; *rum₂* is a ligature of NE+RU, except the final vertical wedge of NE is absent.

Declension and case endings are consistent with Akkadian usage and mimation is also regularly present.⁶⁰ Only nominative and genitive constructions are attested⁶¹: *ku₈-li-sum* /kullizum/ 'cowherd'; *za-la-tum* 'a kind of flour'; *nig₂-sam₂ ti-na-tim* /tinātim/ 'price of figs.'

⁵⁹Note also the difference between this form of the word for 'lord' and the form attested at Tuttul, *behlum* (see below).

⁶⁰Compare this with the inconsistent mimation attested in the texts from Tuttul; see below.

⁶¹This is presumably due to the limited linguistic data in the corpus.

4.5.2 Unique lexical features

The *hapax* syllabic values at Nabada occur exclusively within proper nouns. This is likely due to the relatively low number of syllabically-written words and proper nouns attested at Nabada (excluding Assur, Nabada has the fewest number of syllabic values attested, especially in comparison to the number of texts examined⁶²).

Verbs in particular are predominantly written logographically using Sumerian logograms⁶³. The few verbal forms that are written syllabically (Talon 1996, pp. 71-72) include:

- *u₉-bi₂-la* (Subartu 6 ii 5-iii 2) *siki bar AŠ 1 za-NE-a wa da-da-Lum u₉-bi₂-la* “1 wool fleece: PN₁ and PN₂ brought (it)”; the form represents the preterite dual /jūbilā/ of the verb *wabālum*.
- *u₉-da-ra* (113 i 2-ii 2) *en in kaskal u₉-da-ra anše 11 EREN₂ še ku₃ 0;7.0* “the lord...in the expedition: 11 donkey teams, barley fodder: 420 sila”; there is not straightforward explanation of this verb. Several possibilities have been suggested: the D durative /yutawwara/ or /yutâra/ of the verb *târum* “to come back/return” plus a shortened or defective ventive morpheme -a(m); if one interprets the CV sign *ra* as the consonantal ending *ar*, then the verb could be /yutawwar/ of the previous verb; the G perfect or Dt form of *warûm* “to bring” or *wârum* “to go away, to send.”
- *du-da-ma* (35 vi 8-11) *en-ma [...] du-da-ma in-du₈*; it is not entirely certain that this is a verbal form, especially since the majority of the line is lost. Since the clause is opened with *en-ma*, one would expect *du-da-ma* to be a declarative verb (Talon 1996, p. 72), perhaps *wamā’um* or *tamā’um* “to swear.”

⁶²The syllabic values attested for the corpora examined in this thesis are: Ebla = 202, Mari = 143, Nabada = 105, Tuttul = 136, Adab = 117, Eshnunna = 145, Kish = 143, Tutub = 155, Assur = 24, Gasur = 127. This compares to the following numbers of texts: Ebla = ca. 7000, Mari = 463, Nabada = 223, Tuttul = 54, Adab = 2076, Eshnunna = 261, Kish = 80, Tutub = 73, Assur = 20, Gasur = 220.

⁶³This feature likely contributed to there being far fewer *hapax* syllabic values attested at Nabada compared to Ebla or Tuttul.

- *ba-ri₂* (passim) *ba-ri₂* udu “shepherd”; this verb is the G participle of *barûm* (<**bāriyum*) “to watch over, inspect” in the construct state.

Some words are attested in the Nabada corpus, such as *dab₆-hir-tum* / *taphīrtum* / ‘total,’ are not attested in Akkadian (Talon 1996, p. 69). In the example given above, the word must be a *taPRīSt* form, that is, a *nomen actionis* derived from the D-stem *puḥḥurum* (Soden and Mayer 1995, p. 68).

4.6 Tuttul

Aside from Ebla, the texts from Tuttul appear to have the most unique features, both in terms of the syllabary and in terms of the language. These features may be interpreted as Amorite in origin (see also the section below on Amorite personal names). Given the presence of Amorite lexical and grammatical features in the economic and administrative texts from Tuttul, there was likely a significant Amorite population that either lived at Tuttul or interacted with Tuttul in a commercial sense during this time period.

4.6.1 The syllabary

Most of the *hapax* syllabic values attested at Tuttul appear to be variants of common syllables found throughout the corpora (e.g., *ta* used at Tuttul vs. *ta₂* used at Ebla, Mari, Nabada, and also Tuttul); however, the syllabic values *ia* and *ia₈* reflect a variance in the dialect at Tuttul that is not present in the other Syrian sites examined (see Section 4.6.3). This and other unique features of the Tuttul corpus is discussed below.

4.6.2 Unique lexical features

There are several lexemes attested in the Early Old Babylonian corpus of texts from Tuttul that are not found, at least during this early period, in the Akkadian texts from other sites.

The terms *šītum* and *irbum*

The terms *šītum* and *irbum*⁶⁴ only occur in texts from the Early Old Babylonian period (ca. 2000-1900 BC) or earlier, and not in Old Babylonian texts at Tuttul. They always occur at the end of administrative texts (often referring to sheep), or at the end of an entry in an administrative text.

The word *šītum* is attested meaning “exit tax” at Mari during the Old Babylonian period and in Mesopotamia in the Neo-Babylonian period (CAD 16, *šītu* 4d, p. 237). MAD (3, 262) lists a similar word *šītum* “rest,” “remnant” – from the root *š-ʾ-t* – which later evolves into *šītum*, however the root of the word in these texts appears to be *w-š-ʾ*, with the basic meaning ‘to exit.’ The term *šītum* is always written *ši₂-tum* or *ši₂-tu-um* in the Tuttul⁶⁵ corpus and is therefore unlikely to represent the word *šītum*, as defined in MAD 3.

The term *irbum* (transcribed with a short initial vowel /i/) – from the root *ʾ-r-b* ‘to enter’ (listed in MAD 3 as *ʾ₅-r-b*, *arābum*, cf. Ug. *ʾrb* “to enter”) – is also attested at Mari from the Old Babylonian period and elsewhere in Mesopotamia meaning “import duty” (CAD 7, *irbu* 3, p. 189). Likewise, earlier attestations of a similar if not identical term occur in the Old Assyrian corpus, but in these cases the word is invariably spelled *er-bu-um* / *er-bi₄-im* / *er-ba-am*, with no indication of an initial long vowel or guttural .

In the third millennium Tuttul corpus, the word is always written with the same additional vowel sign, which indicates it should be rendered as a long vowel: *i₃-ir-bu-um*.⁶⁶ The plene spelling of the initial /i/ could indicate one of two things:

1. that the word begins with a long vowel /ī/ and the initial guttural of the root is dropped – as is common in later dialects of Akkadian = *īrbum*

⁶⁴Durand and Marti (2004, pp. 128-129) mention these two terms and I agree with them in the interpretation of their meanings.

⁶⁵KTT 27 r. 1; KTT 28 r. 2; KTT 29 r. 1; KTT 30 r. 2; KTT 31 r. 1; KTT 32 r. 6; KTT 33 r. 3; KTT 34 r. 1; KTT 35 r. 6; KTT 46 r. 3; KTT 47 o. 4; KTT 48 o. 3; KTT 49 r. 7.

⁶⁶KTT 36 o. 6; KTT 37 r. 1; KTT 38 r. 1; KTT 39 o. 6; KTT 40 o. 7; KTT 41 o. 7; KTT 42 r. 4; KTT 43 o. 2; KTT 44 o. 1; KTT 45 r. 1; KTT 46 r. 6; KTT 47 r. 2; KTT 48 r. 3.

2. that the initial guttural is preserved and followed by a short vowel /i/ = *‘irbum*

Given that the sign NI with the value i_3 is typically used to represent a CV syllable containing a guttural (e.g., / ‘/, / ’/, /h/, /ḥ/, or /ġ/) in the third millennium Syrian cuneiform syllabaries, the second option is preferable, allowing us to confidently transcribe this word as *‘irbum*.

Neither of these terms is listed in MAD, which could suggest that their earliest attestations are in Syria as technical terms in the context of small-scale economic transactions. Based on the content of the texts in which these terms are found – such as the fact that they are almost always used to count sheep, – and on meanings of similar or identical words in other contexts, I suggest that *ṣītum* and *‘irbum* are most likely specialist terms meaning “exit tax” and “entrance tax” respectively, and that their use in the early Tuttul corpus are their earliest attestations with these meanings and perhaps derived from the symbiotic interactions between the city-dwellers and nomadic herdsman of northern Mesopotamia and Syria that dominated the late third millennium Syrian economy.

The term *abdum*

There are nine instances of personal names containing the element *abdu(m)*⁶⁷, “slave” (cf. Sem. **-b-d*, generally “to serve, work”, Bib. Heb. עֶבֶד *eved* “slave, worker”, Ar. عَبْد *‘abd* “servant, slave”) in the Early Old Babylonian texts from Tuttul. This word occurs in place of the Akkadian term for slave, *wardum*.

a-ab-du!-e-mi, *‘abdu-emi(m)*, “servant of the father-in-law”⁶⁸ (KTT 8 o. 9)

ṽ*a*⁷-*ab-du-a-na-ta*, *abdu-anata*, “servant of *Anata*”⁶⁹ (KTT 10 o.10)

a-ab-du-e-mi-im, *abdu-emim* “servant of the father-in-law” (KTT 20 o. 4, 10)

⁶⁷See CAD, vol. 1, part 1, p. 51 for later usage of this word in Akkadian.

⁶⁸The word *emum* can also be interpreted as son-in-law, among other male relatives. See CAD, vol. 4, pp. 154-156.

⁶⁹The word *anata* could be interpreted as a theophoric element or as related to the bedouin designator (*h*)*a-na*. See Durand and Marti 2004, p. 127 for a brief discussion of this name.

*ab-du*₂^d *da-gan*, *abdu-dagan*, “servant of Dagan” (KTT 24 r. 4; KTT 26 o. 4; KTT 30 o. 3)

*ab-du*₂-*be-la*₂-*tim*_x(TIN), *abdu-bēlatim*, “servant of the lady” (KTT 25 r. 6)

These names can be compared to similar Amorite names from Old Babylonian Mari (Huffmon 1965, pp. 118-119; Streck 2000, pp. 292-293) and from Ugaritic texts (Aisleitner and Eissfeldt 1963, nos. 1957-86). In the Old Babylonian examples from Mari, Huffmon transliterates this word as *habdu*, although both spellings, *ha-ab-du-* and *ab-du-*, are attested.

The term *behlum*

From the Ur III period, the most common form of the Akkadian word for “lord” is *bēlum*, a change from the earlier form *ba^clum*. At Tuttul, there appear to be perhaps two forms corresponding to the Akkadian *bēlum*: *behlum* and *ba^clum/ba^cal(um)*. The latter of these is perhaps a remnant of the older Akkadian form of the word for “lord”, or as the name of the West Semitic deity Ba^cal (as suggested by Huffmon (1965, p. 100)). The former’s etymology is more uncertain; it may, perhaps, be the Amorite word for “lord”.⁷⁰

There are four instances of the word *behlum* (“lord”, cf. Akk. *bēlum*) within proper nouns at Tuttul during the Early Old Babylonian period, and there are potentially four instances of the word *ba^clum/ba^cal(um)* attested within personal names.

With *behlum*:

*be-eh-lu-šum*₂-*li*, *behlu-šumlī*⁷¹ (KTT 11 o. 10)

be-eh-li^d *da-gan*, *behlī-dagan*, “my lord is Dagan” (KTT 15 o. 2)

be-eh-lum, *behlum*, “lord” (KTT 16 o. 4)

be-eh-li-šū^d *iškur*, *behlīšū-adad*, “his lord is Adad” or *behlī-šū-adad*, “my lord, he is Adad” (KTT 18 r. 8)

⁷⁰See Huffmon 1965, pp. 174-175 for a discussion of the equivalent element, *ba^hlum*, within Old Babylonian Amorite names at Mari. See also Aisleitner and Eissfeldt 1963, no. 545 for comparable Ugaritic examples.

⁷¹Perhaps “the lord is (on) my left,” from Akk. *šumēlum*, but this is very uncertain.

With *ba^clum/ba^cal(um)*:

ṛi-*iš-ḥi-ba-al*, *išḥi-ba^cal*, “arm/strength of Ba^cal” (KTT 17 o. 4)

i-ṛ*tar₂?*-*ba-al*, *itâr-ba^cal*, “Ba^cal relents” (KTT 32 o. 1)

ba-al-ta₂-ma-ṛtim, *ba^clta-mātim*, “lady of the land” (KTT 35 o. 2, 5)

x-a-ba-al, uncertain (KTT 39 o. 1)

4.6.3 Personal names

Amorite verbal forms

Around 30 personal names (of which 25 are reasonably clear) in 17 texts from the Early Old Babylonian period (ca. 2000-1900 BC) Tuttul corpus contain a verbal element that does not appear to conform with standard Akkadian or Old Akkadian. The distinctive feature of these verbal forms is the 3rd masculine verbal prefix *ia-/ia_s /ya/* instead of the normative Akkadian prefix *ī-*. These forms are often interpreted as being features of the Amorite language.⁷²

- *ia-ta-ni-il*, “(the god) Il gave”, from the root *y/n-t-n*,⁷³ “to give” + DN (KTT 5 o. 3; KTT 15 o. 3)
- *ia-wi-il*, “(the god) Il spoke/became”, from the root *ṽ-w-ṽ*,⁷⁴ “to speak” or “to become”, + DN (KTT 5 o. 5)
- *ia-ar-ḥi-el*, “(the god) El engendered”, possibly from the root *r-ḥ-ṽ*,⁷⁵ “to engender, inseminate”, + DN (KTT 5 o. 6)
- *ia-ri-bu-um*, from the root *ṽ-r-b*,⁷⁶ “to enter” (KTT 7 o. 6; 13 o. 7)
- *ia-ta-nu-um*, from the root *y/n-t-n*, “to give” (KTT 7 o. 8)

⁷²For studies on the Amorites and their language, see Huffmon (1965), Buccellati (1966), Wilcke (1969), Archi (1985), and Streck (2000).

⁷³Presumably the Amorite root meaning “to give.” Cf. the verbs *nadānum* in Akkadian, *ytn* in Ugaritic and Phoenician, *תָּן* in Hebrew, and *תָּן* in Aramaic.

⁷⁴This root is likely related to either the Akkadian verb *awûm*, “to speak”, or *ewûm*, “to become.”

⁷⁵Cf. the Akkadian verb *reḥûm* “to pour out; have sexual intercourse with; inseminate.”

⁷⁶Cf. the Akkadian verb *erēbum*, “to enter.”

- *ia-ṣi₂-u₂*, from the root *y/w-ṣ-ṣ*,⁷⁷ “to go out, depart, exit” (KTT 9 o. 6)
- *ia-ša-ri-il*, possibly from the root *š-r-ṣ*, “to be rich,”⁷⁸ or *ṣ-š-r*, “to take care of”⁷⁹ or “to be well, straight, fair,”⁸⁰ or *w-š-r*, “to release, set free; neglect”⁸¹ (KTT 12 o. 4)
- *ia-su^dda-gan*, meaning uncertain (KTT 15 o. 6)
- *ia-su₂-um*, meaning uncertain (KTT 6 o. 8)
- *ia-si-mu-um*, meaning uncertain (KTT 17 o. 1)
- *ia-su-um*, meaning uncertain (KTT 17 o. 6)
- *ia-ri-[im?-li?]-im*, meaning uncertain (KTT 18 r. 10)
- *ia-wi^diškur*, “(the god) Iškur spoke/became”, from the root *ṣ-w-ṣ*, “to speak” or “to become”, + DN (KTT 18 r. 11)
- *ia-ku?-ra-an*, meaning uncertain (KTT 18 r. 14)
- *ia-pu-ḫu-um*, meaning uncertain (KTT 18 r. 15)
- *ia-ḫa-ta-ru-[um?]*, if reconstructed correctly, possibly related to the Akkadian verb *ḫatārum*, “to flutter, twitch” (KTT 18 r. 17)
- *ia?-qi₂?-ru?-um*, if reconstructed correctly, likely from the root *y/w-q-r*,⁸² “to be rare, precious” (KTT 18 r. 25)
- *ia-ḫa-li-um*, perhaps related to the root(s) *ḫ-l-ṣ/h-l-l*⁸³ (KTT 19 o. 12)
- *ia-wi-ma-da-ar*, perhaps “(the god) Madar spoke/became”, from the root *ṣ-w-ṣ*, “to speak” or “to become”, + DN (KTT 19 o. 13)

⁷⁷Cf. the verbs *waṣûm* in Akkadian, **צָצַ** in Hebrew, *yṣ* in Ugaritic, and **وَصَّأ** in Arabic.

⁷⁸Cf. the Akkadian verb *šarûm*.

⁷⁹Cf. the Akkadian verb *ašārum*.

⁸⁰Cf. the Akkadian verb *ešērum*.

⁸¹Cf. the Akkadian verb *wašārum*.

⁸²Cf. the Akkadian verb *waqārum*.

⁸³Cf. the word *ḫelûm* (“to be bright, cheerful”) in Akkadian, **הָלַל** in Hebrew, and **هَلَّلَ** in Arabic.

- *ia₈-qi₂-ru-um*, from the root *y/w-q-r*,⁸⁴ “to be rare, precious” (KTT 21 o. 1)
- *ia₈-tin-il₃*, “(the god) Il gave”, from the root *y/n-t-n*, “to give”, + DN (KTT 21 o. 4)
- *a-ia₈-ṣu₂-um*, perhaps a negative particle (*ay*) + a form of the root *y/w-ṣ-ṣ* (KTT 53 o. 8, 13)
- *ia-ah-du-li-im*, “(the god) Līm rejoiced”, from the root *h-d-ṣ*, “to be joyful, rejoice”, + DN (KTT 55a o. 3, 15)

The *a-na* names

Many personal names⁸⁵ in the Early Old Babylonian texts from Tuttul are followed by the term *a-na*. It has been suggested that this is a descriptor indicating an affiliation with the pastoral nomadic tribes, or *hanûm*, and may correspond to the descriptor ^{lu2}*ha-na* that occurs in the Mari corpus (Durand and Marti 2004, pp. 5-6). Etymologies for most of these names cannot be determined.

- *bu-na-ha a-na* (KTT 5 o. 4)
- *i-ša-ba a-na* (KTT 5 o. 7)
- *zu-ab?-ba-na a-na* (KTT 5 o. 8)
- *ṛa¹-da-na a-na* (KTT 6 o. 10)
- *i-iš-pu-ḫi ṛa-na¹* (KTT 8 o. 3)
- *mi-na a-na* (KTT 9 o. 10)
- *ṛa¹-ab-du a-na-ta*, includes the element *abdu(m)*, “servant, slave” (KTT 10 o. 10)
- *ra-ha-ta a-na* (KTT 11 o. 17)

⁸⁴Cf. the Akkadian verb *waqārum*.

⁸⁵There are 21 attestations in 13 texts.

- *ma-še₃-ha a-na* (KTT 12 o. 1)
- *ku-di a-na* (KTT 12 o. 2)
- *ʿzi-ik-ra a-na*, from the root *z-k-r*, “to speak, say, talk” (KTT 13 o. 2)
- *i-ʿDIʿ? a-na* (KTT 13 o. 3)
- *i-si-it-na a-na* (KTT 14 o. 4)
- *šil₂-la a-na*, includes a form of the word *šillum*, “shade, protection” (KTT 14 o. 5)
- *ʿapʿ-paʿʿ? a-na* (KTT 14 o. 6)
- *ma-da-ra a-na* (KTT 14 o. 10)
- *mu-ta a-na* (KTT 15 o. 7)
- *su-ma-ta a-na* (KTT 16 o. 2)
- *da-ka-a-na* (KTT 16 o. 8)
- *ma-qa-ra a-na* (KTT 17 o. 2)
- *ʿa-zi-ʿgaʿ? a-na* (KTT 17 o. 5)
- *ʿlaʿ?-aszʿ a-na* (KTT 22 o. 10)

4.7 Summary and Conclusions

A close examination of syllabaries of late third millennium and early second millennium BC sites in Syria and Mesopotamia reveals that the adaptation of the syllabaries and distribution of syllabic sign values is neither consistent across the region nor random.

The results of the first two principal components demonstrate strong associations to geographic and temporal variation between the sites and corpora examined, while the presence of *hapax* syllabic values can be seen to largely represent differences

in Semitic dialect; these differences are more pronounced in Syria, with Ebla being the most significant outlier. A closer examination of these sign values both corroborates what is already known about these linguistic difference, and can also direct further inquiry into previously undetected anomalies. Further implications of these interpretations will be discussed in Chapter 5.

5

Conclusions

5.1 Summary of results

A close study of the syllabaries used at particular sites produces an informative dataset; when analysed using a number of complementary techniques, this dataset can reveal new insights and confirm previous assumptions about the nature of the relationships between sites that use the syllabic sub-system within the cuneiform writing system. While similarities between syllabaries during particular periods or within particular regions may have been assumed to exist, this methodology proves that these trends are both clearly present and strongly supported by the data.

The three computational techniques applied to this data set produced similar general results: (1) Ebla is an outlier; (2) the Mesopotamian sites tend to cluster together more closely; and (3) the Syrian sites cluster. The concurrence in the results of these methods strongly suggests that there is indeed variation between the syllabaries of the ten sites examined, and that that variation is not simply random.

The results of the principal component analysis on the unfiltered, or original, dataset suggest that the driving factor behind the variation in the unfiltered dataset is the number of syllabic values attested at each site. The principal component analysis on this dataset reveals that Ebla and Assur are outliers on either end of the spectrum within the first principal component: the large number of *hapax* syllabic

values attested at Ebla and the lack of sufficient data at Assur are the significant factors influencing the first principal component. The results of the principal component analysis on the filtered dataset suggest that geographic, temporal, and random variation are driving the observed variation within the filtered dataset.

By describing and comparing the most important syllabic values behind the principal components, it became apparent that dialectical variation is another driving factor behind the variation observed. This factor is most significantly observed in the unfiltered dataset due to the relatively large number of *hapax* syllabic values attested at Syrian sites.

5.2 Research questions reconsidered

After reconstructing the syllabaries of the ten sites examined, using computational models to analyse them, and interpreting the results, the questions posed in the introduction of this thesis are reconsidered:

1. Did each third millennium site in Mesopotamia and Syria have its own unique syllabary?
2. What were the primary factors that influenced the differences between the syllabaries?

The results of this study provide clear answers to these research questions: (1) yes, each site in Mesopotamia and Syria used its own unique syllabary, and (2) the number of unique syllabic values at each site, the geographic location of the site, the time period the tablets date from, and random variation seem to be the primary factors in determining this differentiation.

It has also been determined, based on the principal component analysis, that temporal variation, random variation, and dialectical variation are significant factors driving the clusterings observed in the data.

5.3 Concluding comments

Computational models of analysis can provide useful insights into the development and adaptation of the Semitic cuneiform writing system during the late third millennium and early second millennium BC. While it has long been understood that some variation in cuneiform syllabaries existed, this research has demonstrated that a close examination of syllabaries can provide detailed information about the environments in which they were used. In particular, this research has shown that geographic, temporal, and linguistic variation is detectable by comparing the syllabaries of different sites.

This comparative approach attempts to give a broader view of the spread and adaptation of cuneiform across a large geographic area as opposed to examining each site individually as an isolated case. Furthermore, a complete, comprehensive syllabary allows us to determine whether an experimental phase in the writing system occurred at each site. The presence of this sort of experimentation helps us ascertain whether the cuneiform script was fully adopted by each city in Syria, inclusive of all its orthographic tendencies, or whether each city's writing system underwent a phase of experimentation to create a slightly different result. Preliminary evidence suggests that there were clear deviations in the syllabaries of Syria from normative Mesopotamian cuneiform, which indicates that scribes experimented with the writing system more during this period than during later periods. Precisely what this can tell us about the linguistic nature of third millennium Syria should be examined through further study.

The adaptation and use of cuneiform in Syria provides an interesting case study for examining how people interacted with logosyllabic and syllabic writing systems. The preliminary evidence suggests that in the third millennium, particularly at sites farther away from the control of the Mesopotamian core cities, scribes were more innovative in their adaptation and use of syllabic values; there are clear deviations in the Akkadian syllabaries of Syria from normative Mesopotamian cuneiform, and also inconsistencies in the sign values and number of signs used syllabically across each of the sites investigated. This suggests that, while there

must have been a more prescriptive educational approach to learning the cuneiform signs themselves and their Sumerian values, during this time period a prescribed method of writing and adapting cuneiform to write Akkadian was not included in the scribal curriculum. This led to different adaptations of the cuneiform script and to slight variations in the number, types, and values of syllabic signs used in the individual syllabaries from sites in Syria.

5.4 Broader implications

5.4.1 The cuneiform syllabaries of late third and early second millennium Syria

The syllabaries reconstructed from the cuneiform tablets found at Tuttul, Nabada, Ebla, and Mari indicate that the important urban centres in Syria utilised the southern Mesopotamian writing system for bureaucratic purposes while also adapting them, in varying degrees, to the local languages. The non-standard Akkadian linguistic information gleaned from these tablets suggests that at least some portion of the inhabitants of west and northeastern Syria spoke other Semitic dialects, such as Eblaite and Amorite. In this way, third millennium Syrian societies operated in a culture of diglossia in that they interacted with two distinct dialects or languages.

There are a large number of syllabic values that are unique to individual sites in Syria or to the region as a whole. This adaptation of the script supports the conclusion that the Syrian scribes had more autonomy in their adaptation of the cuneiform script to write Semitic languages during this time period.

5.4.2 Scribal education in the late third and early second millennium

Scribal training was an integral part of Sumerian and Akkadian culture, and the ancient scribe's role is important to our understanding of Mesopotamian society: through the scribe's recorded works we can begin to understand how the state functioned and how Mesopotamian history and tradition were promulgated. The

fact that scribes could act as state or private correspondents, mathematicians, court secretaries, temple officials, authors, poets, or singers, among other professions, necessitates that they must have undergone extensive and specialised training. However, for this early period in the history of writing we have little direct evidence for how the scribes lived and worked; we therefore must look toward new methods to help us understand this crucial period in history.

A combination of data mining, computational tools for multivariate data analysis and evolutionary modelling, and traditional lexical and philological methods can provide a multi-faceted view of the early phenomenon of script spread and adaptation in ancient Mesopotamia. Although this approach could be viewed as indirect to the question of scribal practice and training, it is clear that the tools explored here can provide a unique and complimentary view of the changes that were occurring within the cuneiform script in the late third and early second millennium BC.

A preliminary analysis of the data using different, complimentary techniques indicates that there was no uniform adaptation of the cuneiform script and its transmission during this time period. It appears that the third millennium scribes adapted the cuneiform script to write Semitic dialects on a local level from the earliest attestations of Semitic at Fara and Tell Abu Salabikh around 2600 BC, right up until the Old Babylonian period when we start to see a shift towards a more uniform cuneiform syllabary across the region.

While an examination of the third millennium cuneiform syllabaries does not provide any information about the physical structures of third millennium scribal education, it does provide tangential evidence of educational training and practice in the third millennium. The preliminary evidence suggests that in the third millennium scribes had more freedom to adapt the cuneiform script than scribes in later periods did. Based on the Sumerian we find in these same texts, we know that the scribes at each site were rigorously trained in how to read and write Sumerian cuneiform. However, there are clear variations in the Semitic syllabaries of Syria and Mesopotamia and also inconsistencies in the sign values and number of signs used syllabically across each of the sites investigated.

5.5 Future Directions

This preliminary investigation into early cuneiform syllabaries has demonstrated the strengths of data-mining and computational methods of analysis. These methodologies can be readily expanded and adapted to related and un-related areas of research within the field of Assyriology; four such areas are outlined below.

5.5.1 A more comprehensive investigation into third millennium Akkadian

This project could readily be expanded to include the corpora from all sites that produced cuneiform texts in the third millennium. This would have comprised 19 sites in total, including the ten that compose that data sources for this thesis. The additional nine sites include: Nagar, Sheḫna / Shubat-Enlil, Umma, Shuruppak, Abu Salabikh, Nippur, Girsu, Umm al-Jir, and Susa. As was explained in the introduction of this thesis, many of these sites were unable to be included as a part of the current work for a number of practical reasons: (1) inaccessibility to the tablets due to their location in museums in Syria, Iraq, or Turkey; (2) a lack of published photographs, hand drawings, or transliterations and transcriptions of the inaccessible texts; and (3) irrelevance of the texts to this study of the adaptation of cuneiform to write Semitic languages (in the case of Susa). Going forward, it would be possible to expand and update this syllabary to include the orthography of each sign, either in all cases, or, more likely at first, just in the cases where they obviously appear to differ drastically. In the process of its expansion, the syllabary can then be digitised to create a free and easily accessible database.

5.5.2 Applications of this methodology to all East Semitic dialects

Another application of this methodology would be to examine the development of the East Semitic dialects across the entire history of the cuneiform script.¹ The

¹One of the two prominent languages recorded in these documents was Akkadian – which is, in fact, not a single language but an umbrella term for a series of closely related Semitic dialects that were written and spoken primarily in the regions of modern-day Iraq, Syria, and Turkey

wealth of written sources left behind by the cuneiform cultures comprise a unique and comprehensive data set through which we can understand the history and development of these dialects. These developments and relationships have been determined largely through a combination of textual analysis and the comparative method (Hetzron 1974; Hetzron 1976; Faber 1997; Huehnergard 2011), but using computational methods to analyse the relevant data can provide new insights into the evolution and spread of these dialects.² This study would likely examine the following East Semitic dialects:

- Eblaite (ca. 2350-2250 BC)
- Old Akkadian (ca. 2350-2200 BC)
- Ur III Akkadian (ca. 2100-2000 BC)
- Old Assyrian (ca. 1950-1850 BC)
- Old Babylonian (ca. 2000-1600 BC)
- Middle Assyrian (ca. 1400-1000 BC)
- Middle Babylonian (ca. 1400-1100 BC)
- Neo-Assyrian (ca. 911-612 BC)
- Neo-Babylonian (ca. 626-539 BC)

5.5.3 Comparing computational methods to find the optimal approach

The methodology used in this thesis has significant potential to be informative and relevant not only for this particular project, but for other Assyriological research projects as well. A thorough grasp on phylogenetic analysis programs such as MacClade, Mesquite, and PAUP* in addition to the programming languages R, Python, and Perl can enable researchers to build custom code and pipelines specifically for the analysis of syllabaries, orthographies, or other aspects of the cuneiform script. In terms of future research, this will be particularly useful in

from around 2500 BC until 70 AD (Cooper 1996, p. 37). The Akkadian dialects, along with their relative Eblaite, form the entirety of the eastern branch of the Semitic language family.

²The data of this study would consist of the Swadesh 200-word list (Swadesh 1955).

identifying the definitive syllabaries and sign lists for early phases of the cuneiform script – such as Uruk and Ur III sign lists, – as well as for little-understood relatives to the cuneiform writing system, such as Proto-Elamite.

5.5.4 Applications of this methodology to the problem of texts with no known provenance

The methodology used here has the potential to aid in providing provenance to looted or misplaced tablets. In order to do this a much larger dataset is required: in particular, a large collection of digitised texts with adequate encoding of the class of each sign (i.e., syllabic, logographic, determinative, etc.). This dataset can rely largely on the texts published on the CDLI database; computational methods could then be employed to identify the class of the majority of signs attested in most time periods and genres. Once this dataset is collected, principal component analysis can aid in the identification of the distinctive signs or combinations of signs that, when present, suggest a particular provenance.

Appendices



The Syllabaries

These syllabaries aim to provide a clear, consistent, and complete description of syllabic value attestations at certain sites in Syria and Mesopotamia. The table below includes:

- Column 1: the sign number published in Borger (2010)
- Column 2: the sign name
- Column 3: each syllabic value attested
- Columns 4-13: the presence or absence of each syllabic value at each of the ten sites examined (1 = present, 0 = absent)

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
22	URU	re ₂	1	1	0	0	0	0	0	0	0	0
23	URU ₂	ru ₄	0	0	0	0	0	1	0	0	0	0
25	ARAD	i/er ₃	0	1	0	0	0	1	1	1	0	1
27	LA	la	1	0	1	1	1	1	1	1	1	1
27	LA	ra _x	1	0	0	0	0	0	0	0	0	0
29	MAḤ	maḥ	0	1	0	0	0	1	0	0	0	0
30	TU	tu	1	1	1	1	0	1	1	1	1	1
30	TU	du ₂	0	0	0	1	1	1	0	1	0	1
30	TU	ṭu ₂	0	0	0	0	1	1	0	0	0	0
31	LI	li	1	1	1	1	0	1	1	1	0	1
31	LI	le	1	0	0	0	0	0	0	0	0	0
31	LI	ri _x	1	0	0	0	0	0	0	0	0	0
35	MU	mu	1	1	1	1	1	1	1	1	1	1
36	QA	qa	0	0	0	1	0	0	0	0	0	0
36	QA	ka ₄	0	0	0	1	0	0	0	0	0	0
36	QA	šal ₂	0	1	0	0	0	0	0	0	0	0
36	QA	sal ₄	0	1	1	0	0	0	0	0	0	0
41	RU	ru	1	1	1	1	0	1	1	1	0	1
42	BAD	be	1	1	1	1	1	1	1	1	1	1
42	BAD	til	1	0	0	0	0	0	0	0	0	0
43	NA	na	1	1	1	1	0	1	1	1	1	1
46	TI	ti	1	1	1	1	1	1	1	1	1	1
46	TI	dī ₃	1	0	1	0	1	1	1	1	0	1
46	TI	ṭī ₃	1	0	0	0	0	0	0	0	0	0
47	MAŠ	maš	1	1	0	0	0	0	0	0	0	1
47	MAŠ	maš	1	0	0	0	0	0	0	0	0	0
48	BAR	bar	1	1	1	1	0	1	0	1	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
48	BAR	par ₂	1	1	0	0	0	0	0	0	0	0
49	NU	nu	1	1	1	1	1	1	1	1	1	1
51	KUN	kun	1	0	1	1	0	0	0	0	0	0
52	ḪU	ḫu	1	1	1	1	1	1	1	1	0	1
54	NAM	nam	1	1	0	0	0	0	1	0	0	1
54	NAM	bir ₅	0	1	1	0	0	0	0	0	0	0
54	NAM	pir ₆	1	0	0	0	0	0	0	0	0	0
55	IG	ig	1	0	1	1	0	0	1	1	1	0
55	IG	ik	1	0	0	0	1	1	0	1	0	1
55	IG	iq	1	0	0	1	1	0	0	1	0	0
59	ZI	zi	1	1	1	1	0	1	1	1	0	1
59	ZI	ṣi ₂	1	1	0	1	0	1	1	0	0	1
59	ZI	si ₂	1	1	0	0	0	0	0	1	0	0
60	GI	gi	1	0	0	0	0	0	1	0	0	0
60	GI	ki ₂	1	0	0	0	0	1	0	1	0	1
60	GI	qi ₃	1	0	0	0	0	0	1	1	0	0
61	RI	ri	1	0	0	1	0	1	1	1	0	0
61	RI	re	0	1	0	1	0	0	0	0	0	1
61	RI	dal	1	0	0	0	0	0	0	0	0	0
61	RI	tal	1	0	0	0	0	0	0	0	0	0
61	RI	ḫu _x	0	0	0	1	1	0	0	0	0	0
63	NUN	nun	1	0	0	0	0	0	0	1	0	0
64	KAB	kab	1	0	1	0	0	1	0	1	0	0
64	KAB	kap	1	0	0	0	0	0	0	0	0	0
65	ḪUB ₂	ḫub ₂	0	0	0	0	0	0	0	0	0	1
68	DIM	dim	1	0	0	0	0	0	0	0	0	0
68	DIM	tim	1	1	1	1	0	1	1	1	0	1

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
70	AG	ag	1	1	0	1	0	0	0	0	0	0
70	AG	ak	1	1	0	0	0	1	1	1	0	0
70	AG	aq	0	0	0	1	0	0	0	0	0	0
71	EN	en	1	1	1	1	1	1	1	1	0	1
71	EN	ḥe _x	1	0	0	0	0	0	0	0	0	0
71	EN	ḥen _x	1	0	0	0	0	0	0	0	0	0
71	EN	ru ₁₂	1	0	0	0	0	0	0	0	0	0
71	EN	lu _x	1	0	0	0	0	0	0	0	0	0
73	SUR	šur	0	1	0	0	0	0	0	0	0	0
76	SA	sa	1	0	1	1	0	1	1	1	1	1
76	SA	ša ₁₀	1	0	0	0	0	0	0	1	0	0
77	GAN ₂	gan ₂	0	0	1	0	0	0	0	0	0	1
78	KAR ₂	kar ₂	0	0	0	0	0	0	1	0	0	0
79	TIK	gu ₂	0	0	0	0	0	0	1	0	0	1
80	DUR	tur ₂	0	0	0	0	1	1	1	1	0	0
82	LAL ₃	lal ₃	0	1	0	0	0	0	0	0	0	0
83	DAR	dar	1	0	1	1	0	1	1	1	0	1
83	DAR	tar ₂	1	1	1	1	0	1	0	1	0	0
84	GUR	gur	1	1	0	0	0	0	0	0	0	0
84	GUR	qur	1	1	0	0	0	0	0	0	0	0
85	SI	si	1	1	1	1	1	1	1	1	0	1
85	SI	ši ₂	1	1	0	1	0	0	0	1	0	0
86	SU ₄	su ₄	0	1	0	0	1	1	1	0	0	1
88	MA ₂	ma ₂	1	1	1	1	1	1	1	1	0	1
90	TAB	tab	1	1	1	0	0	0	1	0	0	0
90	TAB	tap	0	1	0	0	0	0	0	0	0	0
92	TAG	šum	1	1	1	0	0	1	1	1	0	1

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
93	AB	ab	1	1	1	1	0	0	1	1	0	1
93	AB	ap	1	1	0	1	0	1	1	1	0	0
93	AB	eš ₃	0	0	0	0	0	0	0	1	0	0
94	NAB	nab	1	0	0	0	0	0	0	0	0	0
96	UG	uk	0	1	0	0	0	0	0	1	0	1
97	AZ	az	0	1	0	0	0	0	0	0	0	0
97	AZ	as	0	0	0	0	0	0	0	1	0	0
97	AZ	aš	0	0	0	1	0	0	0	0	0	0
98	URUDU	dab ₆	1	0	1	0	0	0	0	0	0	0
98	URUDU	tap _x	1	0	1	0	0	0	0	0	0	0
100	UM	um	1	1	1	1	1	1	1	1	0	1
101	DUB	dub	1	0	0	0	0	0	0	0	0	0
101	DUB	ṭup	0	0	0	0	1	0	1	0	0	0
102	TA	ta	0	0	0	1	0	0	0	0	0	0
103	I	i	1	1	1	1	1	1	1	1	1	1
104	IA	ia	0	0	0	1	0	0	0	0	0	0
105	KAN	gan	1	1	1	1	1	0	0	1	0	0
108	AD	ad	1	0	0	1	1	0	1	1	0	0
108	AD	at	1	1	1	1	1	1	1	1	0	1
108	AD	aṭ	0	1	0	0	0	0	1	0	0	0
109	ŠI	ši	0	0	0	0	0	1	0	1	0	1
109	ŠI	še	0	0	0	0	1	1	0	0	0	0
110	IN	in	1	1	1	1	1	1	1	1	0	1
112	LUGAL	šar ₃	0	0	0	0	1	0	0	1	0	0
113	ḪIR	ḫir	1	1	1	0	0	0	0	0	0	0
114	BAD ₃	dur ₈	0	0	0	0	0	0	1	0	0	0
114a	EZENxBAD	u ₉	1	0	1	0	0	0	0	0	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
115	SUM	sum	1	0	1	0	0	0	0	0	0	0
115	SUM	šum ₂	0	0	0	1	0	0	0	1	0	0
120	AM	am	1	1	1	1	1	1	1	1	0	1
122	NE	bi ₂	1	0	1	0	1	1	1	1	0	1
122	NE	de ₃	1	0	1	0	1	1	0	1	0	1
122	NE	te ₄	0	0	0	0	1	0	1	1	0	0
122	NE	rum ₂	0	0	1	0	0	0	0	0	0	0
122	NE	šar _x	1	0	0	0	0	0	0	0	0	0
122	NE	ne	1	0	0	0	0	0	0	0	0	0
124	BIL ₂	bil ₂	1	0	0	0	0	0	0	0	0	0
129	KUM	kum	1	1	0	1	1	1	1	1	0	0
129	KUM	qum	0	1	0	0	0	0	1	1	0	0
129	KUM	kun ₃	1	0	1	0	0	0	0	0	0	0
131	UR ₂	ur ₂	0	0	0	0	1	0	0	0	0	0
133	KAŠ ₄	im ₂	0	0	0	0	1	0	0	0	0	0
134	IL	il	1	1	1	1	0	1	0	0	0	0
135	DU	du	1	0	1	1	1	1	1	1	0	0
135	DU	tu ₃	0	0	0	0	1	1	1	1	0	0
135	DU	tum ₂	0	0	0	0	1	0	0	0	0	0
135	DU	im ₆	0	0	0	0	0	1	1	1	0	0
137	TUM	tum	1	1	1	1	1	1	1	1	1	1
137	TUM	dum	1	0	1	1	0	1	0	0	0	0
137	TUM	ṭum	0	0	0	0	0	0	0	0	0	0
137	TUM	ib ₂	1	0	1	0	0	0	0	0	0	0
138	UŠ	uš	1	1	0	0	1	1	1	1	1	1
138	UŠ	us ₂	0	0	0	0	0	0	0	1	0	1
138	UŠ	iš _x	1	0	0	0	0	0	0	0	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
139	IŠ	iš	1	1	1	1	1	1	1	1	1	1
139	IŠ	iz ₂	0	0	0	0	0	0	1	0	0	0
140	BI	bi	1	1	1	1	1	1	1	1	0	1
140	BI	be ₂	0	0	0	1	0	0	0	0	0	0
140	BI	pi ₂	0	0	0	1	1	1	0	0	0	0
141	ŠIM	šim	1	1	0	0	0	0	0	0	0	0
145	KAK	kak	1	1	0	0	0	0	0	0	0	0
146	NI	ni	1	1	0	1	1	1	1	1	1	1
146	NI	li ₂	1	1	1	1	1	1	1	1	1	1
146	NI	ia ₃	0	0	0	0	0	0	0	1	0	0
146	NI	i ₃	1	1	1	1	1	1	1	1	0	1
146	NI	bu _x	1	0	0	0	0	0	0	0	0	0
147	IR	ir	1	1	1	1	1	1	1	1	0	1
147	IR	er	1	1	0	0	1	1	0	1	0	1
148	MAL	ba ₄	1	1	1	0	0	0	0	0	0	0
153	PA	pa	1	0	0	1	0	1	0	0	0	0
156	GIŠ	is	0	1	0	0	1	1	0	1	0	0
156	GIŠ	iš	0	0	0	0	0	1	1	0	0	1
156	GIŠ	iz	1	1	0	0	0	0	0	0	0	0
158	BIL ₃	bil ₃	0	0	0	0	0	0	1	0	0	1
160	AL	al	1	1	0	1	1	1	1	1	0	1
161	UB	ub	1	0	0	1	1	1	1	1	0	1
161	UB	up	0	0	0	1	0	0	1	0	0	1
162	MAR	mar	1	1	0	0	0	1	0	0	0	0
163	E	e	1	1	1	1	1	1	1	1	0	1
165	UN	un	0	1	0	1	0	0	0	0	0	1
168	MES	meš ₃	0	0	0	0	1	0	0	0	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
169	U ₂	u ₂	1	1	1	1	0	1	1	1	0	0
170	GA	ga	1	1	0	1	1	1	1	1	1	1
170	GA	qa ₂	0	1	0	0	1	1	1	1	0	0
170	GA	ka ₃	1	1	1	1	1	1	1	1	0	1
171	IL ₂	il ₂	1	1	1	1	1	1	1	1	0	0
172	LUḪ	lik _x	0	0	0	0	0	0	1	0	0	0
173	KAL	kal	0	0	0	0	0	0	1	0	0	0
173	KAL	dan	0	0	0	1	1	1	1	1	0	0
174	E ₂	e ₂	1	0	0	1	0	0	1	0	0	0
174	E ₂	a ₃	1	1	0	0	1	1	1	1	0	1
176	GI ₄	qi ₄	0	0	0	0	1	0	0	0	0	0
178	RA	ra	1	1	1	1	1	1	1	1	0	1
184	SAR	sar	1	0	0	0	1	1	0	1	0	0
184	SAR	šar	1	1	1	1	1	0	1	1	0	1
186	QAR	qar	0	1	0	0	1	1	0	1	0	0
186	QAR	gar ₃	0	0	1	0	0	0	0	0	0	0
186	QAR	kar ₃	0	1	0	0	0	0	0	0	0	0
187	ID	id	0	1	0	0	1	0	1	1	0	1
187	ID	it	0	0	0	0	0	0	1	0	0	1
191	DA	da	1	1	1	1	1	1	1	1	0	1
191	DA	ṭa	1	0	0	0	0	1	0	0	0	0
191	DA	ta ₂	1	1	1	1	1	1	1	1	0	1
192	AŠ ₂	aš ₂	1	1	1	1	1	1	1	1	0	1
192	AŠ ₂	az _x	1	0	0	0	0	0	0	0	0	0
193	MA	ma	1	1	1	1	1	1	1	1	1	1
194	GAL	kal ₂	1	0	0	0	0	1	0	1	0	1
197	GIR	kir	1	1	0	0	1	1	0	1	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
234	AḪ	aḫ	1	1	0	1	1	1	1	0	0	1
234	AḪ	eḫ	0	0	0	1	0	0	0	1	0	1
234	AḪ	uḫ	1	0	0	1	0	0	0	0	0	1
234	AḪ	iḫ	1	0	0	1	0	0	0	1	0	0
235	KAM	kam	0	0	0	0	1	1	1	0	0	1
236	IM	im	1	1	1	1	1	1	1	1	0	1
236	IM	em	0	0	0	1	0	0	0	0	0	0
238	ḪAR	ḫar	1	1	0	0	0	0	0	0	0	0
238	ḪAR	ḫur	1	1	0	0	1	1	1	1	0	1
238	ḪAR	mur	1	0	0	0	0	0	1	1	0	0
242	U	u	1	1	0	1	1	1	1	1	0	1
248	MI	mi	1	0	1	1	1	1	1	1	0	1
248	MI	šil ₂	0	1	0	1	0	0	0	0	0	0
249	GUL	gul	1	0	0	0	0	0	1	0	0	0
249	GUL	kul ₂	0	1	0	0	0	1	1	1	0	0
251	NIM	nim	0	0	0	0	0	1	1	1	0	1
251	NIM	num	0	1	0	1	0	1	0	0	0	0
254	LAM	lam	1	0	0	0	1	1	0	0	0	1
254 a	LAMxKUR	iš ₁₁	1	0	1	0	0	0	1	1	0	0
258	UL	ul	1	0	0	1	1	0	0	1	0	0
261	IGI	ši	1	1	1	0	0	1	0	1	0	1
261	IGI	lim	1	1	1	0	1	1	1	1	0	0
263	AR	ar	1	0	1	1	1	1	1	1	0	1
264	U ₃	u ₃	1	0	1	0	1	1	1	1	0	1
266	DI	dī	1	0	0	1	0	0	0	0	0	0
266	DI	ti ₄	0	0	0	1	0	0	0	1	0	0
266	DI	sa ₂	1	1	1	1	0	1	1	1	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
269	KI	ki	1	1	0	1	1	1	1	1	0	1
269	KI	qi ₂	0	0	0	1	1	1	1	1	0	1
270	DIN	din	0	1	0	1	0	1	1	0	0	0
270	DIN	tin	1	0	0	0	0	0	0	0	0	0
270	DIN	tim _x	1	1	0	1	0	0	0	0	0	0
270	DIN	di ₂	0	1	0	0	0	0	0	0	0	0
276	ĒŠ ₄	eš ₄	0	1	0	0	0	1	0	0	0	0
277	LAL	la ₂	0	1	0	1	1	0	0	1	0	1
283	TUL ₂	ḥap ₂	1	0	0	0	0	0	0	0	0	0
287	ME	me	1	1	1	1	1	1	1	1	0	1
287	ME	mi ₃	0	1	0	1	0	0	1	0	0	1
289	IB	ib	1	0	1	0	0	1	1	1	0	1
289	IB	ip	0	0	1	1	0	1	1	1	0	0
290	KU	ku	1	1	1	1	1	1	1	1	0	1
290	KU	qu ₂	0	1	0	1	1	1	1	0	0	0
291	ŠE ₃	še ₃	1	1	0	1	1	0	0	1	0	1
291	ŠE ₃	ši ₄	0	0	0	0	0	1	1	0	0	1
292	LU	lu	1	1	1	1	1	1	1	1	0	1
292	LU	ru _x	1	0	0	0	0	0	0	0	0	0
296	ŠU ₂	šu ₂	0	0	1	0	0	0	0	0	0	0
299	ZUM	zum	0	0	0	0	0	1	1	1	0	1
299	ZUM	sum ₂	0	0	0	0	0	0	0	1	0	0
299	ZUM	ṣum	0	1	0	0	0	0	0	0	0	1
300	NIN	nin	0	0	0	0	0	1	1	1	1	0
300	NIN	in ₅	0	0	0	0	0	0	0	0	0	0
301	DAM	dam	1	1	0	0	0	0	1	0	0	0
301	DAM	tam ₂	0	1	0	0	0	1	0	0	0	0

Sign No.	Name	Value	Ebla	Mari	Nabada	Tuttul	Adab	Eshnunna	Kish	Tutub	Assur	Gasur
302	GU	gu	0	1	1	0	0	0	1	0	0	1
302	GU	qu ₃	1	1	0	0	1	0	0	0	0	0
302	GU	ku ₈	0	0	0	0	1	0	1	1	0	1
306	EL	el	0	0	0	1	0	1	0	1	0	0
307	LUM	lum	1	1	1	0	1	1	1	1	0	1
307	LUM	num ₂	0	1	0	0	1	1	1	1	0	0
307	LUM	rum _x	1	0	0	0	0	0	0	0	0	0
310	UR	ur	1	0	0	1	1	1	0	0	0	1
310	UR	lik	1	1	0	1	1	1	0	1	0	0
310	UR	liq	0	0	0	0	0	1	0	1	0	0
310	UR	taš	0	1	0	0	0	0	0	0	0	0
311	A	a	1	1	1	1	1	1	1	1	1	1
312	AM ₃	am ₃	0	0	0	0	1	0	0	0	0	0
316	ZA	za	1	1	1	1	0	1	1	1	0	1
316	ZA	ša	1	1	0	1	1	1	1	1	0	1
316	ZA	sa ₃	1	1	0	1	0	0	1	1	0	0
317	ḪA	ḫa	1	1	1	1	0	1	1	1	0	1
320	SIG	se ₁₁	1	0	1	0	0	1	1	0	0	1
320a	EŠ ₅	uz _x	0	0	0	0	0	0	1	0	0	0
321	UR ₄	ur ₄	0	0	0	0	0	0	0	0	0	1
322	ṬU	ṭu	0	0	0	0	0	0	0	0	0	1
323	NIG ₂	qar ₃	0	0	0	0	1	0	0	0	0	0
	Total:		202	143	105	136	117	145	143	155	24	127

Table A.1: The syllabaries of the ten sites examined.

B

The Code

B.1 Phylogenetic Estimation

B.1.1 Unfiltered data

```
#NEXUS
Begin taxa;
Dimensions ntax=10;
taxlabels
Ebla
Mari
Nabada
Tuttul
Adab
Eshnunna
Kish
Tutub
Assur
Gasur
;
End;
Begin data;
Dimensions ntax=10 nchar=319;
Format datatype=standard;
Matrix
Ebla 1 0 0 1 1 1 1 1 1 1 1 1 1 0 1 1 1 0 0 1 1 1 0 0 1 1 1 1 0 0 1 1 0 1 0 0 1
1 1 1 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 0 1 1 0 1 1 1 0
1 1 1 1 0 1 1 1 1 1 1 0 1 1 0 0 0 0 0 1 1 1 1 1 1 0 1 1 0 1 1 1 1 0 1 0 0 0 0 1 1 1 1 0
```

0 1 0 1 1 1 0 0 0 1 0 1 0 1 1 0 1 1 1 0 0 1 1 1 1 0 1 0 0 1 1 0 0 0 1 1 0 1 1 0 1 1
 0 1 0 0 1 1 1 1 0 1 1 1 1 1 1 0 0 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 0 0 1 1 0 1 1 1 0
 0 0 0 0 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 0 0 1 0 0 0 1 1 1 1 0 1 1 1 1 1 0 1 0 1 0
 1 1 0 1 0 1 1 1 1 1 0 1 0 0 0 1 1 1 1 1 1 1 1 0 1 1 0 0 1 1 0 0 0 1 1 0 1 0 1 0 1 0
 1 1 0 0 0 0 0 0 1 0 0 1 0 0 1 0 1 1 1 0 0 1 0 1 1 1 1 1 1 0 0 0 0

Mari 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 1 0 1 0 0 0 1 1 0 0 1 1 0 1 0 0 1 1 0 0 1 0
 0 1 0 0 1 1 1 1 0 1 1 0 0 1 0 1 1 1 0 1 1 1 0 0 0 0 1 1 1 0 0 0 0 1 0 0 0 0 0 0
 0 1 1 1 0 1 0 0 0 0 1 0 0 0 0 0 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 1 1 0 0 0 0 1 0
 0 0 1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 1 0 0 0 0 0 0 0 1 1 0 0 0 1 0 0 0 0 1 0 0 0 1 0
 0 1 0 1 0 0 1 1 1 1 0 1 0 1 1 1 0 1 0 1 0 1 0 0 1 1 1 0 1 1 1 1 1 0 0 0 0 1 0 1 0
 1 1 0 1 1 0 1 0 1 1 0 1 0 1 0 0 1 1 0 0 0 1 1 0 0 1 1 0 1 0 0 1 0 0 0 1 0 0 0 1 0 1
 0 0 0 0 1 0 1 1 0 1 0 1 0 1 0 1 0 0 0 1 1 0 0 0 0 1 1 0 1 0 1 1 1 1 0 1 1 0 0 1 1 1
 0 1 0 0 0 0 1 0 0 1 1 1 1 0 0 1 1 0 0 1 0 1 1 0 1 1 1 1 1 0 0 0 0 0

Nabada 1 0 0 0 0 1 0 1 0 0 1 0 0 0 0 0 1 1 1 0 1 0 0 0 1 1 1 0 0 0 1 0 0 1 0 0
 1 0 0 1 0 0 0 1 1 1 0 1 1 1 0 0 0 1 0 1 1 1 0 1 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 1 0
 0 0 1 0 0 0 1 0 0 0 0 0 1 0 1 0 0 0 0 1 1 0 0 1 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 1 1 0
 0 0 1 0 1 0 1 0 0 0 1 0 1 0 1 1 0 1 1 1 0 1 0 0 0 0 0 1 0 0 1 1 0 0 0 1 1 0 1 0 0
 0 1 0 1 0 0 0 0 0 1 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 1 0 0 1 0 0 1 1 0 0 0 0 0 1 0 1
 0 1 0 0 0 1 0 1 1 0 1 0 0 0 0 1 1 1 0 0 1 0 1 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0 1 0 0 0
 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0 1 0 1 1 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0 1 0 1 1 1 0 0
 0 1 0 1 0 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 1 0 1 0 0 1 1 0 0 0 0

Tuttul 1 0 0 0 0 1 1 1 1 1 0 0 1 1 1 0 1 0 1 1 0 0 1 1 0 0 1 0 0 0 1 0 0 1 1 0 1
 0 0 1 1 1 0 0 1 1 0 1 1 0 0 0 0 1 0 1 1 1 0 0 0 1 0 1 1 1 0 0 0 0 1 1 0 0 1 0 0 0 0
 0 1 1 0 1 1 0 0 0 0 0 1 0 0 0 0 0 0 1 1 0 0 1 1 0 1 0 0 0 1 1 0 0 0 0 0 1 0 0 1 0
 0 1 1 1 1 1 0 0 0 1 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0 1 1 0 0 0 1 1 0 0 0 0
 0 1 0 1 1 1 0 0 1 1 0 1 0 1 0 0 1 0 0 0 0 1 1 1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 0 1 0
 1 0 0 0 0 0 1 0 1 1 0 1 0 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 0 0 1 1 0 0 1 0 0 0 1 1 0 1
 1 1 1 0 1 1 0 0 0 1 1 1 0 0 0 1 0 0 1 0 0 1 0 1 1 1 1 1 1 0 1 0 0 1 0 1 1 0 1 1 1 1
 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 1 1 0 0 1 0 1 1 1 1 0 0 0 0 0

Adab 1 1 1 0 0 1 1 1 0 0 0 0 0 0 0 0 1 0 0 0 1 0 0 1 1 1 1 0 0 0 1 0 0 0 1 1 0
 0 0 1 0 0 0 0 0 1 0 0 1 1 0 0 0 0 0 1 0 1 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 1 0 1
 0 1 0 1 1 1 0 0 1 1 1 0 0 0 0 0 1 1 1 1 0 0 0 0 1 0 0 1 1 0 1 1 1 0 1 0 0 0 1 0 0 1
 0 1 0 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0 0 1 1 0 0 1 0 1 0 1 1 1 1 0 0 1 0 1 1 1 1 1 1 0
 0 1 0 1 0 1 1 0 1 0 1 0 1 1 1 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 1 0 1 0 0
 0 1 1 0 0 1 0 1 1 0 0 0 0 0 1 0 1 0 1 1 1 0 0 0 1 1 0 0 0 0 0 1 0 1 0 0 0 1 1 1 0
 1 0 0 0 0 0 0 0 0 0 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 0 0 0 0 0 0 1

Eshnunna 0 0 0 0 0 1 1 0 1 0 1 0 0 0 0 0 1 0 1 0 0 0 0 0 1 1 1 0 1 1 1 0 1 1 1
 1 1 0 0 1 0 0 0 0 1 1 0 1 1 1 0 0 0 1 0 1 0 1 0 0 0 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0 1
 0 0 0 1 0 1 0 1 0 0 0 0 0 1 0 0 0 0 1 0 1 1 0 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0 0 0 1
 0 0 0 1 0 0 0 1 0 1 1 1 0 0 0 0 0 0 1 1 1 0 0 0 0 0 1 0 0 0 0 1 1 1 0 1 1 1 0 0 1 0
 0 1 0 1 0 1 0 0 1 1 0 1 0 1 1 0 1 1 1 0 0 1 1 0 1 1 0 0 1 1 1 1 1 0 0 1 0 1 0 1 1 0
 1 0 0 0 0 1 1 1 1 0 1 1 1 0 1 1 1 1 0 0 1 1 1 0 0 0 0 1 0 1 0 0 0 1 1 0 0 0 1 0 1 0
 0 0 1 1 0 0 1 0 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 0 1 0 0 1 0 1 1 1 1 0 1
 1 0 0 1 0 0 1 0 0 1 0 0 0 1 1 1 0 1 1 1 0 1 0 1 1 0 1 1 0 0 0 0

```

Kish 00000111101000001000000101100110010010
01000011011100000101100100110101100000000
010101000001001110100010111011100000000101
01001110010010001101000011000011011000100
11100001101010000101111010011111111101010
00111011010001111001010000100100101001010
001100111101110010011100111100000011111101
10010010101010101100000101111111000

```

```

Tutub 1000011111110000100000100010011001101
001000011011100010101000111101011100001100
010101000001100010110011010011110101000100
010111010110000111110000110000110110001101
010000111101100100011001001111100101011110
01010110111001111010100000001101101010010
1010011111001100111111011110000010101110101
00110100000111110011010111100000

```

```

Assur 0000010100100000100000000010001001000
001000001011000000100000100000000000000000
000000000001000000000000000000000000000000
0100000000000000000000000000000000000000010001001
00000011000000000000000000000000000000000000000
00000000010000000000000000000000000000000000000
00000000000000000000000000000000000000000000000
000000010000000000000000100000000000

```

```

Gasur 0001011101100000100000000110011001101
001000011011101000101100010110010010000001
010001000001010100100010110011000100000100
01000101010000001110000000000000000000010001101
0100001101011000101111011001010000010101010
001110110110101110011100001010000100011111
0110010110001010010110001100000101111010111
0010100001010100100010110110110110110

```

```

;
End;

```

B.1.2 Filtered data

```

#NEXUS
Begin taxa;
Dimensions ntax=9;
taxlabels
Ebla
Mari
Nabada
Tuttul

```

```

Adab
Eshnunna
Kish
Tutub
Gasur
;
End;
Begin data;
Dimensions ntax=9 nchar=188;
Format datatype=standard;
Matrix
Ebla 1 1 1 1 1 1 1 1 1 1 0 1 1 1 0 0 1 1 1 0 0 0 0 1 0 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1
1 1 1 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 0 0 0 0 1 1 1 0 1
1 0 1 0 1 1 1 0 0 1 1 1 0 0 1 1 0 1 1 0 0 1 0 1 1 0 1 0 1 0 1 0 1 0 1 1 1 1 0 0 0 1 1
1 1 1 1 0 0 1 1 1 1 1 1 1 1 1 0 1 1 0 1 1 1 1 1 1 0 1 0 0 0 1 1 1 1 1 1 1 1 1 0 1 1 0 0
1 0 0 0 1 0 0 1 0 0 0 0 1 0 0 1 0 0 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Mari 0 0 1 0 0 0 0 0 0 1 0 0 1 1 0 0 1 1 1 0 0 1 1 1 0 1 1 1 0 1 1 1 0 1 1 1 0 0 0 1 1
1 0 0 0 0 1 0 0 0 1 1 1 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 1 0 1 0 0 0 1 0 0 0
0 0 0 1 1 0 1 0 0 0 0 0 1 0 0 1 1 1 1 0 1 0 1 0 1 0 0 1 1 1 1 1 0 0 1 0 1 1 1 1 0 0
0 1 0 0 0 1 0 1 0 1 0 1 0 1 0 0 1 0 0 0 0 1 1 0 1 0 1 0 1 0 1 0 0 0 1 1 0 0 0 0 1 1 0
1 1 1 1 1 0 0 1 1 0 0 1 0 1 1 1 1 0 0 1 1 0 1 0 1 1 1 1 0
Nabada 1 0 0 0 0 1 0 0 0 1 0 1 0 0 1 1 0 0 0 0 0 1 1 1 0 0 1 0 1 0 1 1 0 0 1 0
0 0 0 0 0 0 0 1 1 0 0 1 0 1 0 0 1 1 0 0 0 0 1 1 1 0 0 1 1 0 1 0 0 0 0 0 1 1 1 0
1 1 0 0 0 1 1 1 0 0 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 1 0 0 0 0
0 0 0 1 0 0 1 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 1 1 1 1 0 0 1 0 0
0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 1 0 0 1 1
Tuttul 1 0 1 1 1 0 0 1 1 1 1 0 1 1 0 0 0 0 0 1 0 1 0 1 0 0 1 0 1 0 0 1 0 1 1 1
0 0 0 0 1 1 1 0 0 1 1 0 1 0 0 0 0 1 1 0 0 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 0 0 1
0 0 0 1 0 0 1 1 0 0 1 0 0 0 1 0 0 1 0 1 0 0 0 0 1 1 1 0 1 1 0 1 1 1 0 0 1 0 0 0
0 0 0 0 0 1 0 0 1 1 1 0 0 0 1 1 1 1 0 0 0 0 1 1 1 0 0 0 1 0 0 1 0 0 1 1 1 1 1
1 1 0 1 1 0 1 1 1 0 0 0 0 0 0 0 0 0 1 0 0 1 1 0 1 1 1 1 0
Adab 1 0 1 0 0 0 0 0 0 0 0 1 0 1 1 1 0 0 0 1 1 0 0 0 1 0 0 0 0 0 0 0 1 1 0 0
0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0 0 1 1 1 0 0 1 1 0 0 0
1 1 1 1 0 0 0 1 1 0 0 0 1 0 1 0 0 1 0 0 1 0 0 0 1 1 0 0 0 0 1 1 1 0 1 1 1 1 1 0 0
0 1 1 0 0 1 0 0 0 0 0 1 1 0 1 0 0 0 1 0 1 0 1 1 0 0 0 0 0 1 0 1 0 1 1 1 0 0 0 1 1
0 0 0 1 0 0 0 1 1 0 0 0 0 0 0 0 0 1 1 0 1 1 1 1 0 0 1 0 0 0
Eshnunna 0 0 1 1 0 1 0 0 0 1 0 0 0 0 1 1 0 1 1 1 1 1 0 1 1 1 0 1 0 0 0 0 0 1 0
1 1 0 0 1 0 1 0 0 0 1 1 0 1 1 0 0 0 1 1 1 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 1 1 0 0 0
0 1 1 0 1 0 0 1 1 1 1 1 0 1 0 1 0 0 1 0 1 1 1 0 0 1 1 0 1 0 1 1 1 1 0 1 1 0 1 0 0
1 1 1 1 1 0 1 1 1 1 0 1 1 0 0 1 0 0 0 1 0 1 0 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1
1 0 1 0 0 1 1 1 0 1 1 0 1 0 1 0 1 0 0 0 1 1 1 1 1 1 1 1 1 0 1 1
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;

End;

B.2 RStudio

```

library("NMF")
library("FactoMineR")
library("data.table")
library("ggplot2")
library("cowplot")
library("ggdendro")
library("pvclust")
#data.df<-data.frame(syl_matrix_forR_090416)[1:319,5:14]
data.df<-data.frame(syl_matrix_forR_090416)[1:319,4:14]
rownames(data.df)<-data.df$Sign.Value
data.df<-data.df[,2:11]
data.df<-data.df[rowSums(data.df)>0,]

#unfiltered w/ Assur
colnames(data.df)<-gsub("Esznunna","Eshnunna",colnames(data.df))
rclust<-hclust(dist(data.df,method="manhattan"), method="ward.D2")
cclust<-hclust(dist(t(data.df),method="manhattan"), method="ward.D2")
aheatmap(data.df,color='grey:2', Rowv=rclust,breaks=c(-0.05,0.5,1.05),
labRow=NULL,main="Hierarchical clustering of sites by syllabic value
attestations \n", legend=FALSE, fontsize=14, cexCol = 0.8)

#unfiltered data w/ Assur
forpca<-t(data.df)
answer<-PCA(forpca,ncp=10,graph=FALSE)
pc.eig.df<-data.frame(answer$eig)
ggplot(data=pc.eig.df[c(1:9),], aes(x=gsub("comp","Comp.",
rownames(pc.eig.df[c(1:9),])), y=percentage.of.variance)) +
geom_bar(stat="identity" +xlab("\nPrincipal Component")
+ylab("Percentage of Variance") +ggtitle("Variance distribution across
principal components derived from viable syllabic values")
coord.rs.df<-data.frame(answer$ind$coord)
gsub("Esznunna","E?nunna", row.names(coord.rs.df))
Geography<-factor(c("Syria", "Syria", "Syria", "Syria", "Southern
Mesopotamia", "Southern Mesopotamia", "Southern Mesopotamia",
"Southern Mesopotamia", "Northern Mesopotamia", "Northern Mesopotamia"),
levels=c("Southern Mesopotamia", "Northern Mesopotamia", "Syria"))
Period<-factor(c("Old Akkadian\n(ca. 2350-2200 BC)", "\nUr III /
Shakkanaku\n(ca. 2100-2000 BC)", "Old Akkadian\n(ca. 2350-2200 BC)",
"\nEarly Old Babylonian\n(ca. 2000-1900 BC)\n", "\nOld Akkadian &
Ur III\n(ca. 2350-2200, 2100-2000 BC)", "Old Akkadian \n(ca. 2350-2200 BC)",
"Old Akkadian\n(ca. 2350-2200 BC)", "Old Akkadian\n(ca. 2350-2200 BC)",
"Old Akkadian\n(ca. 2350-2200 BC)", "Old Akkadian\n(ca. 2350-2200 BC)"),
levels=c("Old Akkadian\n(ca. 2350-2200 BC)", "\nOld Akkadian & Ur

```

```

III\n(ca. 2350-2200, 2100-2000 BC)", "\nUr III / Shakkanakku
\n(ca. 2100-2000 BC)", "\n Early Old Babylonian \n(ca. 2000-1900 BC)\n"))
ggplot(data=coord.rs.df, aes(x=Dim.1, y=Dim.2))+geom_point(aes(shape=Period,
fill=Geography, color=Geography),size=4)+scale_shape_manual
(values=c(21,22,23,24))+xlab("Princ. Comp. 1")+ylab("Princ. Comp. 2")
+geom_text(label=gsub("Esznunna","E?nunna", row.names(coord.rs.df)),
nudge_y=0.7)

#filtering out hapax signs and allsites signs
data2.df<-data.df[rowSums(data.df)>1 & rowSums(data.df)<9,-9]
colnames(data2.df)<-gsub("Esznunna","Eshnunna",colnames(data2.df))
colnames(data.df)<-gsub("Esznunna","Eshnunna",colnames(data.df))

#convert table into final table for thesis for hapax signs
data.onesite.df<-data.df[rowSums(data.df)==1,]
data.onesite.df$Site<-"DUMMY"
data.onesite.df[data.onesite.df$Ebla==1,]$Site<-"Ebla"
data.onesite.df[data.onesite.df$Mari==1,]$Site<-"Mari"
data.onesite.df[data.onesite.df$Nabada==1,]$Site<-"Nabada"
data.onesite.df[data.onesite.df$Tuttul==1,]$Site<-"Tuttul"
data.onesite.df[data.onesite.df$Adab==1,]$Site<-"Adab"
data.onesite.df[data.onesite.df$E?nunna==1,]$Site<-"E?nunna"
data.onesite.df[data.onesite.df$Kish==1,]$Site<-"Kish"
data.onesite.df[data.onesite.df$Tutub==1,]$Site<-"Tutub"
#data.onesite.df[data.onesite.df$Assur==1,]$Site<-"Assur"
data.onesite.df[data.onesite.df$Gasur==1,]$Site<-"Gasur"
final.onesite.dt<-data.table(data.onesite.df, keep.rownames=TRUE)[,.(rn, Site)]
final.onesite.dt<-final.onesite.dt[order(Site)]
write.table(final.onesite.dt, file="hapax_signs.xls", quote=FALSE,
sep="\t", row.names=FALSE)

#table of signs that occur at all sites
data.allsites.df<-data.df[rowSums(data.df[, -9])==9, -9]
write.table(rownames(data.allsites.df), file="allsites_signs.xls",
quote=FALSE, sep="\t", row.names=FALSE)

#table of filtered data
write.table(rownames(data2.df),file="data_filtered.xls", quote=FALSE,
sep="\t", row.names=TRUE, col.names=TRUE)
write.table(data2.df,file="data_filtered.xls",sep="\t")

#hierarchical clustering
colnames(data2.df)<-gsub("Esznunna","Eshnunna",colnames(data2.df))
rclust<-hclust(dist(data2.df,method="manhattan"), method="ward.D2")

```

```

cclust<-hclust(dist(t(data2.df),method="manhattan"), method="ward.D2")
aheatmap(data2.df,color='grey:2', Rowv=rclust,breaks=c(-0.05,0.5,1.05),
labRow=NULL, legend=FALSE, fontsize=14, cexCol = 0.8)
result <- pvclust(data2.df, method.dist="manhattan",
method.hclust="ward.D2", nboot=10000)
plot(result)

```

```
#PCA
```

```

colnames(data2.df)<-gsub("E?nunna", "Eshnunna", colnames(data2.df))
forpca<-t(data2.df)
answer<-PCA(forpca,ncp=3,graph=FALSE)
pc.eig.df<-data.frame(answer$eig)
ggplot(data=pc.eig.df[c(1:8),], aes(x=gsub("comp", "Comp.",
rownames(pc.eig.df[c(1:8),])), y=percentage.of.variance)) +
geom_bar(stat="identity")+xlab("\nPrincipal Component")+
ylab("Percentage of Variance")+ggtitle("Variance distribution across
principal components \n derived from informative syllabic values \n")
coord.rs.df<-data.frame(answer$ind$coord)
#meta.pca.df<-meta.df[rownames(coord.rs.df),]

```

```
#PC1
```

```

gsub("Esznunna", "Eshnunna", row.names(coord.rs.df))
Geography<-factor(c("Syria", "Syria", "Syria", "Syria", "Southern
Mesopotamia", "Southern Mesopotamia", "Southern Mesopotamia",
"Southern Mesopotamia", "Northern Mesopotamia"),
levels=c("Southern Mesopotamia", "Northern Mesopotamia",
"Syria"))
Period<-factor(c("Old Akkadian\n(ca. 2350-2200 BC)", "\nUr III /
Shakkanakku \n(ca. 2100-2000 BC)", "Old Akkadian\n(ca.
2350-2200 BC)", "\nEarly Old Babylonian\n(ca. 2000-1900 BC)\n",
"\nOld Akkadian & Ur III \n(ca. 2350-2200, 2100-2000 BC)",
"Old Akkadian\n(ca. 2350-2200 BC)", "Old Akkadian \n(ca.
2350-2200 BC)", "Old Akkadian\n(ca. 2350-2200 BC)",
"Old Akkadian\n(ca. 2350-2200 BC)", levels=c("Old Akkadian
\n(ca. 2350-2200 BC)", "\nOld Akkadian & Ur III\n(ca. 2350-2200,
2100-2000 BC)", "\nUr III / Shakkanakku\n(ca. 2100-2000 BC)",
"\nEarly Old Babylonian \n(ca. 2000-1900 BC) \n"))
ggplot(data=coord.rs.df, aes(x=Dim.1, y=Dim.2))+geom_point(aes
(shape=Period, fill=Geography, color=Geography),size=4)
+scale_shape_manual(values=c(21,22,23,24))+xlab("Princ.
Comp. 1")+ylab("Princ. Comp. 2")+geom_text(label=gsub
("Esznunna", "Eshnunna", row.names(coord.rs.df)),nudge_y=0.5)
ggplot(data=coord.rs.df, aes(x=Dim.2, y=Dim.3))+geom_point(aes
(shape=Period, fill=Geography, color=Geography),size=4)
+scale_shape_manual(values=c(21,22,23,24))+ xlab("Princ.

```

```

Comp. 2")+ylab("Princ. Comp. 3+geom_text(label=gsub
("Esznunna", "Eshnunna", row.names(coord.rs.df)), nudge_y=0.5)
ggplot(data=coord.rs.df, aes(x=Dim.1, y=Dim.3))+geom_point(aes(shape=Period,
fill=Geography, color=Geography),size=4)+scale_shape_manual
(values=c(21,22,23,24))+ xlab("Princ. Comp. 1")+ylab("Princ. Comp.
3"+geom_text(label=gsub("Esznunna", "Eshnunna", row.names
(coord.rs.df)), nudge_y=0.5)

#Extract attestations that define principal components 1-3
signs<-data.table(answer$var$contrib, keep.rownames = TRUE)

#dim1 excel table and visualization
dim1<-signs[order(-abs(Dim.1))][,1:2,with=FALSE]
ggplot(data=dim1, aes(x=seq(from=1, to=188,by=1),y=Dim.1))
+geom_point(size=1, color="black")+xlab("\nSyllabic value index ordered
by loadings on the first principal component")+ylab("Loadings on the first
principal component\n")+ggtitle("The distribution of loadings for syllabic
values suggests that\nloadings greater than 1.2 should be further examined.")
+geom_hline(yintercept = 1.25)
dim1<-dim1[dim1$Dim.1>1.1,]
data2.dim1.df<-data2.df [dim1$rn,]
colnames(data2.dim1.df)<-gsub("Esznunna", "Eshnunna", colnames(data2.dim1.df))
rclust<-hclust(dist(data2.dim1.df,method="manhattan"), method="ward.D2")
cclust<-hclust(dist(t(data2.dim1.df),method="manhattan"), method="ward.D2")
anngeo<-list(Geography=Geography)
aheatmap(data2.dim1.df,color='grey:2', Rowv=rclust,breaks=c(-0.05,0.5,1.05),
annCol = anngeo, legend=FALSE,main="Hierarchical clustering of sites by
syllabic value attestations\nimportant in the first principal component",
fontsize=10,treeheight=10, cexCol = 1, cexRow=2)
write.table(dim1, file="dim1_signloadings.xls", quote=FALSE, sep="\t",
row.names=FALSE)

#dim2 excel table and visualization
dim2<-signs[order(-abs(Dim.2))][,c(1,3),with=FALSE]
ggplot(data=dim2, aes(x=seq(from=1, to=188,by=1),y=Dim.2))
+geom_point(size=1, color="black")+xlab("\nSyllabic value index ordered
by loadings on the second principal component")+ylab("Loadings on the
second principal component\n")+ggtitle("The distribution of loadings for
syllabic values suggests that\nloadings greater than 1.1 should be further
examined.")+geom_hline(yintercept = 1.1)
dim2<-dim2[dim2$Dim.2>1.1,]
data2.dim2.df<-data2.df [dim2$rn,]
colnames(data2.dim2.df)<-gsub("Esznunna", "Eshnunna", colnames(data2.dim2.df))
rclust<-hclust(dist(data2.dim2.df,method="manhattan"), method="ward.D2")
cclust<-hclust(dist(t(data2.dim2.df),method="manhattan"), method="ward.D2")

```

```

annperiod<-list(Period=gsub("^ ","",gsub("\n"," ", Period)))
aheatmap(data2.dim2.df,color='grey:2', Rowv=rclust,breaks=c(-0.05,0.5,1.05),
annCol=annperiod, legend=FALSE,main="Hierarchical clustering of sites by
syllabic value attestations\nimportant in the second principal component",
fontsize=10,treeheight=10, cexCol = 1, cexRow=3)
write.table(dim2, file="dim2_signloadings.xls", quote=FALSE, sep="\t",
row.names=FALSE)

#dim3 excel table and visualization
dim3<-signs[order(-abs(Dim.3))][,c(1,4),with=FALSE]
ggplot(data=dim3, aes(x=seq(from=1, to=188,by=1),y=Dim.3))
+geom_point(size=1, color="black")+xlab("\nSyllabic value index ordered
by loadings on the third principal component")+ylab("Loadings on the third
principal component\n")+ggtitle("The distribution of loadings for syllabic
values suggests that\nloadings greater than 1.3 should be further
examined."+geom_hline(yintercept = 1.3)
dim3<-dim3[dim3$Dim.3>1.3,]
data2.dim3.df<-data2.df [dim3$rn,]
colnames(data2.dim3.df)<-gsub("Esznunna", "Eshnunna", colnames(data2.dim3.df))
rclust<-hclust(dist(data2.dim3.df,method="manhattan"), method="ward.D2")
cclust<-hclust(dist(t(data2.dim3.df),method="manhattan"), method="ward.D2")
aheatmap(data2.dim3.df,color='grey:2', Rowv=rclust,breaks=c(-0.05,0.5,1.05),
legend=FALSE,main="Hierarchical clustering of sites by syllabic value
attestations \nimportant in the third principal component", fontsize=10,
treeheight=10, cexCol = 1, cexRow=2)
write.table(dim3, file="dim3_signloadings.xls", quote=FALSE, sep="\t",
row.names=FALSE)

```

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