Chapter 1

Akkadian and Amorite Phonology

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1.1. The graphemic base

1.1.1. The writing medium

Akkadian and Amorite are dead languages, in the specific sense that their speakers died out around 1600 B.C. (for Amorite) and 600 B.C. (for Akkadian). Our reconstruction of both languages is thus based exclusively on the written record, except for the inferences that may be drawn from the fact that they are related to other Semitic languages for which there are informants. The written medium, though rich in information, presents considerable limitations which must be taken into account. In addition, two other filters must be reckoned with, particularly in any discussion of phonology.

(A) The writing system was not originally developed for a Semitic language, but rather for Sumerian. The process of adaptation to Semitic was gradual and organic, and was not governed by a-priori linguistic considerations. Especially in the early periods, the scribes, who were conversant with Sumerian, maintained the basic graphemic oppositions which were best suited for Sumerian and subsumed under them a variety of Semitic oppositions. For instance, it has been suggested (Gelb 1961: 31–33) that Sumerian had an opposition between stops (without distinction of voice) and aspirates; this two-way graphemic opposition was used to render a three-way opposition, in Akkadian, between voiced, voiceless, and emphatics. (An interesting

AUTHOR'S NOTE: I wish to thank the editor of this volume, Alan S. Kaye, for his thoughtful comments on the first version of my manuscript, and for various substantive and bibliographical suggestions. ABBREVIATIONS: Am, Amorite; Ar, Arabic; OA, Old Assyrian; OAkk, Old Akkadian; OB, Old Babylonian; OB+, Old Babylonian and later dialects; PS or *, Proto-Semitic.—Standard symbols used in Assyriological literature: $'_1$ = ʾ; $'_2$ = *h*; $'_3$ = *ḫ*; $'_4$ = ʿ; $'_5$ = *ġ*; $'_6$ = *w*; $'_7$ = *y*. Note also: *ṯ* = *θ*. For *ś*, *ŝ*, and *š*, see § 1.3.5. Square brackets are occasionally used in Assyriological literature to indicate the graphemic transliteration. This however generates confusion with the more common linguistic use of square brackets for phonetic transcription. Accordingly, where an explicit graphemic notation is needed, I either render transliterated cuneiform signs in small capitals (DA), or else I enclose them in angle brackets (<da>). Small capitals are also used to render logograms (generally, in their Sumerian reading).

parallel with a modern situation is found in Polomé 1981, concerning the influence on the phonology of hitherto unwritten languages of "educated" transcriptions introduced by non-native speakers.)

(B) A second major filter affects Amorite. It seems certain that Amorite was never written down as such, i.e., there was no Amorite scribal tradition and accordingly, no Amorite texts. We only have Amorite personal names (plus a few technical terms), which were written down by Sumerian and Akkadian scribes, who developed their own conventions for rendering in writing the sounds of a language they did not normally speak, though presumably they did understand it (the existence of Amorite "interpreters" is presumably applicable only to the Sumerian south, at a time when Amorite was still something of a novelty).

1.1.2. The writing system

Inasmuch as we are dealing with a dead language, considerations about phonology are fundamentally affected by our understanding of the cuneiform writing system. Here are some of the most significant.

(A) There is a heavy reliance on various LOGOGRAPHIC subsystems, which apply especially to certain nouns and numerals, and exhibit considerable differences depending on time periods and text types (in modern transliterations, logograms are generally rendered in small capitals with their Sumerian value, e.g., URU for *ālum* 'city'). Logograms are of no value for phonological reconstruction—so much so that one might question whether they are graphemes at all (see § 1.1.4). This, however, does not seriously affect our overall understanding of phonology since there are sufficient syllabic correspondences of words as lexical items to compensate for the widespread use of logograms as textual items.

(B) The use of HISTORICAL WRITINGS is more problematic, and it affects especially our ability to determine the time period at which a certain phonological change first occurred. For instance, the loss of final short vowels begins to be attested towards the end of the second millennium, but vowels in this position continue to be marked in the writing all the way down to the end of the documentation. In such cases we may assume that the linguistic phenomenon (as distinct from its graphemic representation) became operative across the board when first attested—a conclusion which is confirmed, in the particular case mentioned, by the fact that a short vowel in word-final position, written to indicate a presumed case ending, is often incorrect by morphological standards (e.g. *ālu*, *āla*, or *āli* are used indiscriminately for

āl), which indicates that the proper vowel was no longer supplied by any active linguistic competence.

(C) ORTHOGRAPHIC CONVENTIONS correspond to certain phonological regularities which we must define inferentially. For instance, while there are cuneiform signs used to render the presence of glottal stop, they do not normally occur in word-initial position; thus the word for 'city' may be written with the two signs <a-lum>, but not with the signs *<'a-lum>. If we do nevertheless assume that Akkadian words did not begin with plain vowel (hence regularly /'ālum/, rather than */ālum/, see § 1.3.8) it is because (a) we recognize graphemic rules next to graphemic values (see § 1.1.4), (b) we have very few examples of sandhi across word boundary (e.g. *libbālim* for *libbi 'ālim* 'heart of the city'), and (c) we postulate a fundamental similarity with other Semitic languages.

1.1.3. Phonology and graphemics

The theory and application of GRAPHEMICS[1] is fundamental for an understanding of Akkadian phonology. This point needs to be stressed here in a special way because linguists who approach the Mesopotamian documentation without a proper understanding of the writing system can easily be misled into deriving false conclusions from what are presumed to be safe data. (Conversely, philologists are found sometimes to pay lip service to linguistic jargon, in that terms like "grapheme" or "phoneme" are used simply because they are perceived as more sophisticated than traditional terms like "sign" or "sound"; the consequent lack of proper definition makes for confusion rather than clarity.) I adhere to a narrower understanding of graphemics than usual. What phonemics is to meaning, graphemics is to sound. In other words, graphemics is the systemic correlation between graphic symbols and phonemes. Hence it is neither paleography (which deals with the shape of the symbols) nor orthography (which deals with the stylistic choice of alternative symbols from the same repertory). If every phoneme were represented by a single graphic symbol, the graphemic system would simply be a graphic overlay of the phonemic inventory. The alphabet (first invented in northeastern Syria towards the end of the second millennium—though some would push it back to the end of the third, Mendenhall 1985) comes close to this ideal, and it is, in this respect, a profoundly abstract linguistic accom-

1. What follows is based on my understanding of graphemic theory, as articulated in Buccellati 1979, 1982, 1984, 1990a. For an antithetic view, which calls into question the very notion of graphemics, see Daniels 1993.

plishment, besides serving as a very significant socioeconomic innovation. But unfortunately the cuneiform graphemic system is not quite as transparent. It is, in fact, a much more complex organism which includes multiple values and clustering laws.

Except for logograms, numerals written as digits, and semantic indicators (determinatives), all cuneiform signs are syllabic in nature. Each syllabic sign can render a variety of GRAPHEMIC VALUES, only some of which are made explicit in our modern system of sign-by-sign transliteration. For instance, in Old Babylonian any sign corresponding to a syllable with initial voiced stop may stand for a syllable with a homologous emphatic—i.e. the sign DA can stand for either /da/ or /ṭa/, though not for /ta/. GRAPHEMIC LAWS refer essentially to the clustering of values (hence they may be considered grapho-tactic in nature); for example, consonantal length may or may not be shown overtly, or else aleph may be marked by a simple vowel sign in word-initial position (e.g., <a-lum> for /'ālum/) or in medial position after a sign ending in a consonant (e.g., <iš-al> for /'iš'al/), but not necessarily after a sign ending in a vowel (e.g., <ba-a-bum> for /bābum/, not */ba'abum/, but <ša-a-lum> for /ša'ālum/).

In the American tradition of Assyriology (following I. J. Gelb), one uses the term "transliteration" to refer to the sign-by-sign rendering of graphemes (e.g., *i-il-la-ak*), and "transcription" to refer to the normalized rendering of their phonemic realization (e.g., *'illak*).

1.1.4. Graphemic analysis

It is important to stress that not all writing systems, or subsystems, are equally graphemic in their import. In other words, not every written sign is a grapheme, nor is every grapheme fully explicit in terms of its correlation to phonemics. Ideograms, for instance, are not graphemic, and logograms are only minimally graphemic. Thus Akkadian numerals are for the most part written as digits: were it not for the very few instances of syllabic writing and for comparative inferences, these digits would be pure ideograms which would only convey the notion, but not the word, of the pertinent numerals (e.g., the notion of 'one' but not the word *ištēn*); and it is only to the extent that we can make the correlation between the digit 1 and the word *ištēn* that the sign acquires the status of a logogram. The graphemic value of a logogram is minimal, however, as it does not indicate, for instance, morphological variations, which must be interpolated from the context, through rules which are not properly graphemic, but rather grammatical. This is the problem that affects much of third-millennium cuneiform, especially

Eblaite. The reason is that the texts are set, by virtue of their content, within the Sumerian scribal tradition, and so logographic writing (based on Sumerian) is prevalent. Text categories which are less formulaic in nature (such as letters), and thus more likely to depart from logography, are unfortunately not well represented for the third millennium (and they are of course altogether missing for Amorite). Accordingly, the area which preserves the most explicit graphemic record for Old Akkadian is that of onomastics.

The Assyriological tradition has dealt all along with graphemic issues and has resulted in what must be recognized as an exemplary control of the data—the major achievement being the build-up of a cumulative list of sign values, culminating in von Soden 1948a (and von Soden and Röllig 1967). Gelb 1952 (2nd ed., 1961) and Huehnergard 1988 provide a model implementation of graphemics to individual dialects. But the development of a specific theoretical model for graphemic analysis is in its initial stages (Buccellati 1979, 1982, 1984, 1990a; Gaebelein 1976; Gelb 1961, 1970a; Kobayashi 1975; Lieberman 1977: 96–117; Platt 1993; Prosecky 1986; Reiner 1973a).

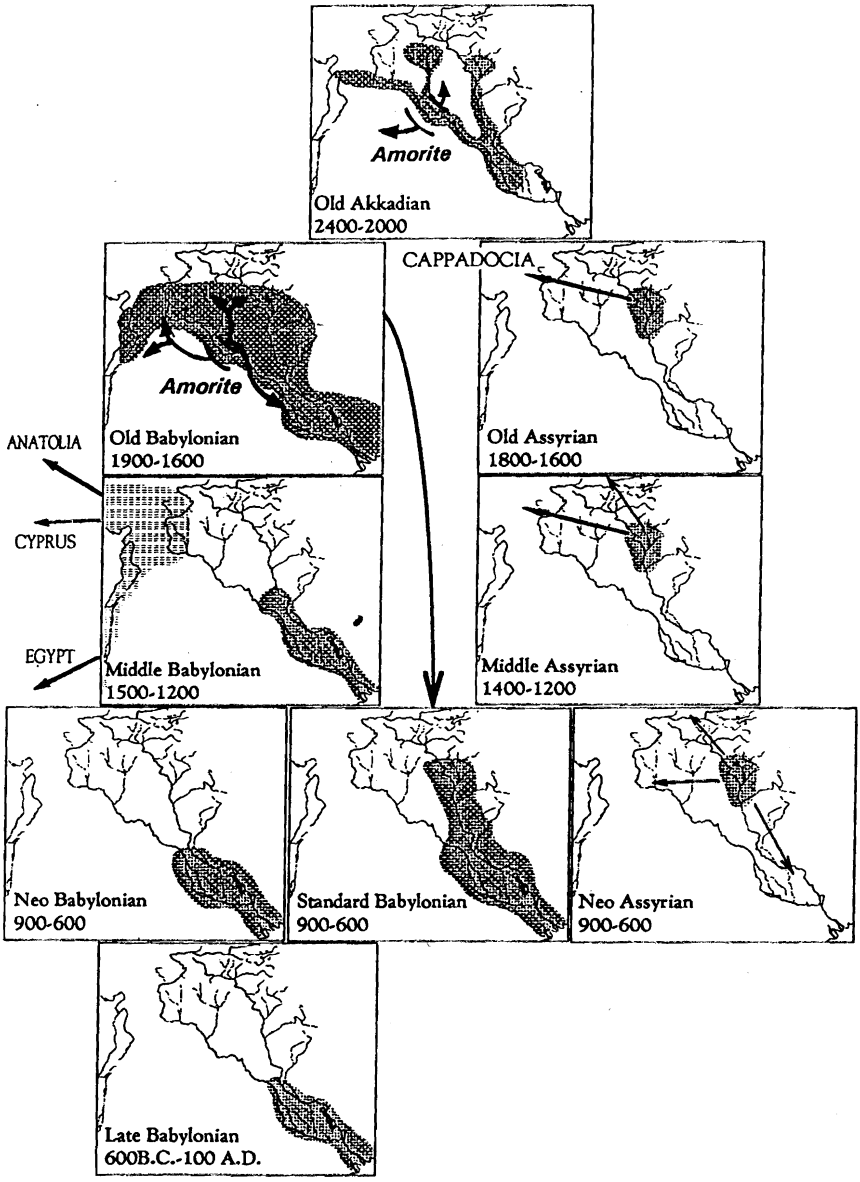
Two special considerations affect our understanding of Amorite graphemics. (1) Given our general assumption that there were no proper Amorite scribes (at least, no real Amorite scribal tradition, see § 1.2.3), the rendering of Amorite phonemes is to be understood through Akkadian graphemic practice. (2) Even though Amorite is typologically contemporary with Old Akkadian, for the most part it is preserved through the graphemic understanding of the later scribes; hence we must reckon with three different systems: third-millennium phonemes rendered by third-millennium graphemes (Old Akkadian); third-millennium phonemes surviving into the early second and rendered by second-millennium graphemes; second-millennium phonemes rendered by second-millennium graphemes.

1.2. Akkadian and Amorite

1.2.1. Geographical and chronological distribution

Akkadian is known from cuneiform texts dating from about 2500 B.C. to about the time of Christ, and Amorite from personal names (some 4000 text occurrences) preserved in cuneiform texts dating from about 2400 B.C. to about 1600 B.C.

In the third and early second millennium there is a substantial linguistic, and cultural, unity across the regions that correspond to modern-day Iraq and Syria: to this world we give the name Syro-Mesopotamia (see Map 1 for



Map 1. Geo-Chronological Distribution of Akkadian Dialects and of Amorite

a diagrammatic rendering of the dialects across this area). Akkadian (with Eblaite) is the language common to all city-states in this region; in other words, we are assuming the presence of native speakers of Akkadian from the Gulf to the Mediterranean. The term "Akkadian," which continues to be used for the language as a whole, is taken from the name of the political entity which controlled most of Syro-Mesopotamia in the third quarter of the third millennium. Amorite is originally the language of the rural classes of the Middle Euphrates (see § 1.2.2), which extended originally to the steppe and began towards the end of the third millennium to migrate towards southern Mesopotamia. The term "Amorite" is derived from the Hebrew rendering of an original Amorite term, which is rendered as *Mardu* in Sumerian and *Amurru* in Akkadian, by which these people identified themselves as an ethnic group.

In the early second millennium there begins a marked differentiation between Babylonian and Assyrian, an innovation which mirrors the political development which resulted in the establishment of vast macro-regional states. (Obviously, the names of the two languages are derived from those of the political capitals.) Babylonian covers the entire area of Syro-Mesopotamia, while Assyrian is limited to a small enclave in the northeast (at least in terms of native speakers, excluding merchant colonies which are established as far west as central Anatolia). Individuals bearing Amorite names are now found over the whole of Syro-Mesopotamia, and we may assume that they were becoming more and more assimilated in the urban (Akkadian) setting; we presume that their competence as native speakers decreased as they became assimilated, until we lose all trace of even their names by the middle of the second millennium. (The political entity known as the kingdom of Amurru in the later second millennium may in fact be an efflorescence of earlier Amorite migrations, but it has no direct linguistic connection with Amorite.)

In the latter part of the second millennium, the geographical domain where we can expect native speakers becomes progressively restricted to the core areas corresponding to present-day southern and northern Iraq, respectively; Babylonian and Assyrian spoken (or often just written) outside these areas are juxtaposed to distinct local languages. (Of these, the most important is Aramaic, which may be seen as analogous to Amorite in its development from a rural base, except that it was protected by independent political institutions and it acquired the status of scribal language—hence it was preserved through textual evidence and not only through onomastics.) The

peripheral dialects, especially western Akkadian as found in the letters written in the local Syro-Palestinian courts of the late second millennium, are more properly to be considered as "bastardized" scribal adaptations than as genuine linguistic developments. Akkadian (in its Middle Babylonian variety) is used as the lingua franca for diplomatic exchanges among the contemporary world powers, including Egyptians and Hittites, but there is no evidence that it was ever used as a native language there.

From circumstantial evidence, it would appear that beginning at least with the 7th century Akkadian was no longer spoken, even though it continued to flourish in its written form all the way down to Seleucid times. The dialects of the first millennium come to be more and more closely associated with the scribal setting of the school than with the competence of native speakers. The "dialect" known as Standard Babylonian is specifically a literary hybrid, which harks back with a certain degree of almost archaeological awareness to Old Babylonian perceived as a model. The "dialect" known as Late Babylonian refers to the language of the periods after the loss of political autonomy (i.e., after the fall of Babylon), when Aramaic had become the prevailing language, under the political tutelage of the Persians, the Greeks, and the Parthians.

Comparative Semitics tends to consider Akkadian as a monolith, and to ignore Amorite altogether. The discovery of the archives of Ebla has redirected attention to the third millennium, yet often within the wrong perspective. Eblaite is a third-millennium language, while Akkadian continues to be seen as a second-millennium one and Amorite continues to be ignored. I think that one should instead take bolder steps in redrawing our perceptual map of early Semitic. Old Akkadian–Eblaite (or urban third-millennium Semitic) and Amorite (or rural third-millennium Semitic) should be studied on their own as reflecting the earliest documented phase of Semitic. Geographically speaking, they overlap with each other over the entire Syro-Mesopotamian area. Later Akkadian (though partly overlapping, in terms of the scribal documentation, with Amorite) is essentially a second-millennium language, the native base of which becomes progressively restricted to Babylonia and Assyria. The Akkadian of the first millennium is much less significant in terms of genuine linguistic development, because it is questionable how closely identified it might have been with the competence of native speakers.

1.2.2. Sociolinguistic position of Amorite

Amorite is universally regarded as a WEST SEMITIC LANGUAGE, and this is understood in a specific geo-historical sense. It is assumed, in other words, that

the carriers of this language were nomads who came to Mesopotamia from the Syrian steppe. This is not the place to dwell on the socio-historical details as to the nature of this "nomadism," described in the literature through such categories as enclosed, full, or semi-nomadism. What matters, in our present context, is the overwhelming consensus that Amorite is West Semitic not just typologically, but also geographically and sociolinguistically. From this perspective, it would have to be treated as a separate chapter.

If I choose, instead, to present Amorite together with Akkadian[2] it is because I view Amorite and Akkadian as two closely related SOCIOLECTS, i.e., Amorite as the rural, and Akkadian as the urban, Semitic dialect of Syro-Mesopotamia in the third millennium (Buccellati 1992). This view is supported by socio-historical considerations which are not directly pertinent to our present discussion. But one should consider at least the following points. There is no indication of any movement from the West towards Mesopotamia, but only from the middle Euphrates, which is geographically at the very center of Syro-Mesopotamia. The typological similarity with later West Semitic may be explained by assuming a derivation of the latter, Aramaic in particular, from Amorite (Zadok 1993; but see Knudsen 1991: 883). The sequence would then be as follows. Amorite and Old Akkadian are the rural and urban counterparts of the same branch of Semitic in the third millennium, with Akkadian being, predictably, more innovative on account of the social context of its speakers. In second-millennium Mesopotamia, Akkadian continues its evolution independently. Amorite influence is practically nonexistent, since most probably all individuals with Amorite names spoke or at least understood Akkadian, and there were no new urban centers established by Amorites. In western Syria, on the other hand, Amorite speakers retained and developed their autonomous characteristics, especially following the fall of the kingdom of Khana (with its capitals Mari and Terqa, Buccellati 1990), which resulted in an urban vacuum on the Middle Euphrates and thus in the loss of a direct urban base for the Amorite speakers.

Regardless of how one may wish to view this overall reconstruction, the description of Amorite phonology given below stands on its own. The significance of Amorite in general has not been sufficiently appreciated for the study of early Semitic, and it is hoped that the treatment given here may help

2. The question has been posed by Garbini (1972: 151–54). His treatment is, however, different from the one proposed here.

to correct this situation. An important reason is the archaic nature of Amorite which places it, in my view, at an earlier stage of development than either Old Akkadian or Eblaite. Garbini (as early as 1960: 175–77) is one of the scholars who have emphasized the importance of Amorite, though he views it as being more innovative than I do.

The considerations I have adduced above are in support of my choice to consider Amorite together with Akkadian. If one objects to my understanding of linguistic correlations, one may simply wish to raise the discussion of Amorite to the status of a separate chapter. It should be noted in this connection that such distinctions are often heavily influenced by extra-linguistic considerations. Thus, Amorite is ignored because there is no literary tradition associated with it. On the other hand, an important reason why Eblaite is often considered a separate language (as in this volume), rather than an early dialect of Akkadian, is to be found in the geo-historical significance of the single archive which documents its existence; yet Eblaite and Old Akkadian are more closely linked to each other than, for example, Old Akkadian is to Neo-Babylonian.

1.2.3. Phonological studies of Akkadian

The year 1952 marked the beginning of a new era in the study of Akkadian grammar in general, and phonology in particular. It was then that both Gelb's *Grammar*[3] and von Soden's *Grundriss* were published in their first editions. The latter is a monumental achievement, as to comprehensiveness of coverage (it includes all Akkadian dialects) and degree of philological control; methodologically it remains within a generic Neogrammarian mold. The former brings a whole new degree of theoretical sophistication to a proper linguistic study of Akkadian; in particular, its treatment of graphemics as the foundation for a proper understanding of phonology remains unmatched. Von Soden's grammar was to have a profound influence in the field, so that every other grammar that followed (with the exception of Reiner 1966; Huehnergard 1988; Izre'el 1991) was written strictly within the framework he had established (Aro 1955; Finet 1956; De Meyer 1962;

3. A very sharp criticism of Gelb's phonological reconstruction, especially with regard to the Old Akkadian sibilants, is found in Garbini 1972: 147–51. His objections concern especially the nature of graphemic correspondences and of the pronominal system. While recognizing the merit of some of his criticism, particularly with regard to broader methodological issues, a fuller philological analysis than Garbini's seems to me to ultimately validate Gelb's position, which is the one I essentially follow here.

Salonen 1962; Jucquois 1966; Hecker 1968; Giakumakis 1970; Wilhelm 1970; Mayer 1971).

Of fundamental importance for phonology is the study of the cuneiform syllabary, of which von Soden and Röllig 1967 represents the culmination. But it almost looks as though the two fields (grammar and syllabary) are conceived apart from each other, so that the full implications for phonology are not adequately articulated. Note how the major work on Neo-Assyrian "Lautlehre" (Deller 1959) is in fact primarily concerned with orthography rather than with phonology. It is in this respect that Gelb's contribution stands out as a major methodological undertaking. In his work more than in any other scholar's the accurate study of the syllabary is merged with a sensitive understanding of phonology, resulting in the most exemplary treatment of this topic.

Several studies on Eblaite (see elsewhere in this volume) touch on questions pertaining to Old Akkadian, but an in-depth comprehensive new study of Old Akkadian phonology remains a desideratum, especially considering that for Old Akkadian itself the documentary database has increased since Gelb's groundbreaking work. Diakonoff 1985, 1991–92 and Faber 1985 represent a major step in this direction in terms of linguistic analysis, but they do not attempt to provide any systematic documentation.

In terms of a general treatment of phonology, a special place must be accorded Reiner 1966 and Diakonoff 1991–92. Reiner's remains to date the most sophisticated linguistic analysis of Akkadian phonology; in particular it should be noted that she presented the first, and so far only, generative treatment of Akkadian phonology. Diakonoff is far-reaching in his implications, though his very strength (the correlation of Akkadian with Afro-Asiatic) limits the range and effectiveness of his Assyriological documentation and often obscures his elaboration of Akkadian phenomena.

1.2.4. Phonological studies of Amorite

The first modern treatment of Amorite phonology is Gelb 1958. Ironically, this remains also the only major work to provide a systematic treatment of the subject. Garbini has dealt with problems of Amorite phonology (1960: 19–80, 175–77; 1965; 1972: 23–96, 141–54), but from the point of view of specific comparative concerns. Neither Buccellati 1966 nor Huffmon 1965 covers phonology in any systematic way. While the last work by Gelb on Amorite (1980) is based on a rigorous understanding of phonology and provides all the essential data for a full discussion of the topic, it does not

articulate any of the details, for which the reader is referred to a forthcoming volume on Amorite Grammar that unfortunately Gelb did not live to complete; still, the volume is extremely significant not only because of the exhaustive database it provides, but also because important phonemic decisions are presented, particularly with regard to the establishment of the phonemic inventory (especially pp. 8f., 538f.).

Knudsen (1991; see also 1982a: 4–7) is of great import in that it proposes explicit criteria for assessing the relative degree to which Amorite consonants may be attributed full phonemic status (pp. 874f.), and divides the consonantal phonemes into three classes ranked in descending order of probability; unfortunately, Knudsen's contribution is only a summary which, by virtue of its self-imposed limitations, can neither develop a full articulation of its own argument, nor provide an adequate documentation for its conclusions. .

1.3. Phonemics

1.3.1. Phonemic inventory

That we are able to reconstruct a plausible phonemic inventory for these languages is due to the essentially graphemic nature of the cuneiform writing system. For the most part, the scribal tradition was sensitive to the phonemic, rather than phonetic, dimension of Akkadian (Greenstein 1980; but see Diakonoff 1991–92: 3) and, though perhaps to a lesser extent, of Amorite. (It is due to this sensitivity that the invention of the alphabet was eventually possible.) The oppositions that are marked in the graphemic system correlate well to what we otherwise know, on the basis of living Semitic languages, about phonemic oppositions. It is for this reason that we can presume to draw up a phonemic inventory for dead languages on the basis of articulatory categories, a procedure which may appear at first bizarre considering that we have no record at all, acoustic(!) or descriptive, about the nature of such articulation. The exact articulatory nature of a group of consonants considered bilabial may well remain hypothetical, but its structural contrast with another category (which we will call, say, also hypothetically, dental) is beyond doubt. A simplistic way of expressing the net result of this procedure is to say that, were we to meet a living Akkadian-speaking informant and were we to try to speak Akkadian to him or her, we might be deemed to have an accent, but would not be incomprehensible, for the most part.

For Amorite, there is the additional filter of non-Amorite scribal transmission, which is especially critical in the rendering of phonological values. But just as Old Akkadian graphemics (though not paleography) was accurately preserved by Old Babylonian scribes, so it is to the credit of Mesopotamian scribes that they preserved many of the Amorite phonemic oppositions, even when they did not introduce any new graphic symbols.

One problem should be pointed out. In terms of their structural oppositions, the accuracy of the presumed articulatory identifications is not crucial. Such phonetic labels may serve just as such, i.e., as tags which approximate phonetic reality and are more convenient than non-descriptive labels (e.g., "labial" instead of "category A"). As with the reconstruction of proto-languages, emphasis tends to be on phonemic rather than specific phonetic identifications. Accordingly, we must be careful about raising articulatory terms, used as descriptive labels, to the status of real phonetic phenomena without the benefit of thorough critical analysis. To have done the latter is the merit of Diakonoff (1981; 1991–92: 1–4). A particular warning should be voiced against charting historical processes of change on the basis of definitions that have been introduced as labels. Change presupposes real sounds, not just labels. The case has been made recently for Proto-Semitic (Bomhard 1988), but it obtains of course for Akkadian and Amorite as well.

There are considerable difficulties in establishing a complete phonemic inventory for the third-millennium languages, and for second-millennium Amorite. This is due in part to the nature of the graphemic documentation, as mentioned above. But, considering the sizable amount of textual data available, the difficulty may also be attributed to the lack of in-depth studies on the subject. This is all the more remarkable in view of the widespread attention that has been lavished in recent years on the language evidenced by the texts of Ebla. It would seem that a proper understanding of Ebla phonology would be greatly enhanced by a detailed study of Amorite and Old Akkadian. This remains to be accomplished.

1.3.2. Consonants and semivowels

Besides giving an overall synopsis of the phonemic inventory (Table 1-1), I will deal with phonemic classes which present special problems and which have been the object of important recent contributions, especially the Old Akkadian sibilants.[4] For comparative purposes I will refer to proto-forms or

4. This term is retained here because of its widespread use even though it describes improperly the acoustic, rather than articulatory, nature of the phoneme.

Table 1-1. Synopsis of Consonants and Glides (semivowels) for Amorite, Old Akkadian, and Later Akkadian Dialects (OB+)

			Labial	Dental	Interdental	Denti-alveolar	Alveolar	Palato-a lveolar	Velar	Pharyngeal	Laryngeal
Stops	Unvoiced	Am	p	t					k	ʿ	ʾ
		OAkk	p	t					k	ʿ	ʾ
		OB+	p	t					k		ʾ
	Voiced	Am	b	d					g		
		OAkk	b	d					g		
		OB+	b	d					g		
	Emphatic	Am		ṭ					q		
		OAkk		ṭ					q		
		OB+		ṭ					q		
Fricatives	Unvoiced	Am		s		s̱	š	ḫ?		ḥ	h
		OAkk		s	t̲		š	ḫ			
		OB+		s			š	ḫ			
	Voiced	Am		z	d̲						
		OAkk		z			[ž]				
		OB+		z							
	Emphatic	Am		ṣ							
		OAkk		ṣ							
		OB+		ṣ							
Sonants	Nasal	Am	m	n							
		OAkk	m	n							
		OB+	m	n							
	Lateral	Am					l				
		OAkk					l				
		OB+					l				
	Trill	Am					r				
		OAkk					r				
		OB+					r				
	Glide	Am	w					y			
		OAkk	w					y			
		OB+	w					y			

to Proto-Semitic, but I use these terms cautiously. We must remember that the validity of these forms is only proportional to the comparative basis from which they are derived, and that the posited proto-forms from which a historical derivation is assumed are in the first place projected back through a logical process. A proto-form is actuarial, as it were, rather than actual; it is an index for a set of correspondences, and should strictly be considered as such.

The inventory given here is in the form of a synopsis that offers a complete list for the consonants from each of the three major language groups. The listing should not be understood as describing historical development; the superposition of phonemes within the same cell is rather to be viewed as some sort of three-dimensional array which simply describes the phonemic attestations for the same type of articulation.

1.3.3. Special problems concerning Amorite

In the consonantal inventory of Amorite given here I use the list found in Gelb 1980: 9, which corresponds to the first two classes of Knudsen 1991: 874 ("established positive consonants," i.e., consonants whose phonemic status is based on both unequivocal comparative and graphemic considerations, and "established neutral consonants," based only on unequivocal comparative considerations, without graphemic support).

A questionable phoneme in Amorite is the unvoiced fricative palato-alveolar *ḫ*. While it is attributed specific phonemic status in Gelb 1980: 8, 538, most of the entries given to support its existence are followed by a question mark. In Knudsen 1991: 874, *ḫ* is considered a "non-established neutral" phoneme (i.e., a phoneme for which neither comparative nor graphemic criteria can be applied in a unequivocal way). I include it here in the inventory, but with a question mark.

Three additional consonantal phonemes have been proposed for Amorite,[5] namely *ḍ*, *ẓ*,[6] and *ġ*.[7] They are best considered, however, as historical reconstructions since there is no real evidence for their independent phonemic status. Gelb 1980: 8, 538 does not include them in his inventory, and Knudsen 1991: 874 defines them correctly as "non-estabished neutral" consonants. Accordingly, they are omitted in the inventory.

5. Gelb 1958 § 2.7.2; Knudsen 1991: 874.

6. Knudsen 1991: 874 uses the symbol *ṯ* for this phoneme; but this must be a typographical error for *ṱ*, which is analogous to Gelb's *ẓ*. The example *ṱabū* 'gazelle' (written *ṱabū* in Knudsen 1991: 874) corresponds to graphemic *ṣa-bu-um*, see Knudsen 1982a: 15.

7. Knudsen uses the symbol *γ* to render this phoneme.

1.3.4. Laryngeals and pharyngeals

Laryngeals are distinguished graphemically in Amorite but not in Akkadian, where *h* is subsumed under ʾ. The pharyngeals are distinguished graphemically as a set, but it cannot be determined whether they are further distinguished from each other. In Amorite, they are rendered by signs with *ḫ*. In Akkadian there is no overt graphemic marker, but we can infer that they were still present in Old Akkadian, because of the way in which they affect the vocalism of the word in which they appear: in Old Akkadian the vowel in contact is *a*, except in closed syllables beginning with pharyngeal, where it becomes *e*,[8] while in the later dialects all *a* vowels in the core of the word become for the most part *e* (see § 1.4.2). Table 1-2 lists the correspondences for laryngeals and pharyngeals among the various dialects and their posited Proto-Semitic equivalent.

Table 1-2. Correspondences among Laryngeals and Pharyngeals

*	Am	OAkk	OB+	Am	OAkk	OB+	Gloss
ʾ	ʾ A	ʾ A	ʾ A	*ʾabu*	*ʾabu*	*ʾabu*	'father'
h	h ḪA	ʾ A	ʾ E	*haddu*	*ʾadad*	*ʾadad*	'storm god'
ʿ	ʿ ḪA	ʿ A	ʾ E	*ʿzb*	*ʾzb*	*ʾzb*[a]	'to leave'
ḥ	ḥ ḪA	ʿ A	ʾ E	*bḥr*	*bʾr*	*bʾr*[b]	'to choose'
ġ	? ḪA	ʿ A	ʾ E	?	*ʾrb*	*ʾrb*[c]	'to enter'

a. Babylonian *ezēbu*, Assyrian *ezābu*.

b. Babylonian *bēru*, Assyrian *beʾāru*.

c. Babylonian *erēbu*, Assyrian *erābu*. Knudsen 1991: 874 gives *purġušu* 'flea' as an Amorite example for *ġ*. See Diakonoff 1985: 20 for an Eblaite equivalent.

1.3.5. Sibilants

The treatment of the sibilants (see notes 4 and 5) presents us with severe problems. (A) The graphemic rendering, while relatively consistent within each dialect, appears to us confusing when comparing different dialects. (B) The phonetic realization of some of the phonemes is in part uncertain. (C) The notations used in the literature are often ambiguous.

It is regrettable that Gelb, while distinguishing clearly the various categories on the theoretical level, does not carry this over to either the text of his *Grammar* (1961) or the entries of his *Glossary* (1957); rather, he uses capital *Š* to subsume without differentiation *š*, *ś*, *ž*, and *ṯ*. In their edition of Old

8. For a fuller statement of the pertinent rules see Gelb 1961: 123–25.

Akkadian royal inscriptions, on the other hand, Gelb and Kienast (1990) use a hybrid system whereby the phoneme *ś* is marked in the transliteration (e.g., *u-śa-am-qí-it*), even though the value is not recognized in the standard syllabaries. Von Soden (1965–81) uses the same symbol *ś* to render both **ś* (he writes *śiāmu* s.v. *šiāmu* 'to set') and **ṯ* (*waśābu* s.v. *wašābu* 'to dwell').

Diakonoff 1985, 1991–92 and Faber 1985 present a divergent interpretation whereby they assume an affricate realization for the sibilants (see already Steiner 1977: 144–48, 159; 1982: 70–74). Their theory is of great interest and is all the more noteworthy since they arrived at it independently of each other (Diakonoff 1991–92: 55, n. 61) and from different points of departure. While it affects especially phonetic realization[9] rather than phonemic distribution, it is important in that it proposes new possibilities for historical derivation and for morphophonemic alternations, though not without difficulties (see § 1.4.3). I will not follow their theory here because I feel that more reflection is needed before their results may be accepted. As already noted in the case of Gelb, it is regrettable that Diakonoff himself does not carry through his notation consistently: generally he uses the traditional notation *š* (e.g., *šin-a* 'two', 1991–92: 17), and only occasionally the notation he proposes (e.g., *sawxat* for traditional *šamḫat*, 1991–92: 114; *'uč:ič* for traditional *uššiš*, 1991–92: 52).

Here I will attempt to clarify the situation by comparing various aspects of the problem. Table 1-3 summarizes the terms of the problem with regard to graphemic rendering and divergent modern notations. Graphemes are grouped in sets which share the same consonantal realization, and have a different vowel for each sign. (It should be noted that accent marks and subscripts have no phonemic implication, but simply serve as standard Assyriological indices for the identification of homophonous cuneiform signs.) For each graphemic set I show the variant modern notations used to render the phonemic value of the consonant in question for different dialects and periods. It must be stressed that this table establishes only a synopsis of graphemic correspondences; in other words, the chart should not be understood to say that Old Akkadian *š* corresponds to Old Babylonian *s*, but only that graphemes of the class SÁ are used to render *š* in Old Akkadian and *s* in Old Babylonian.

Table 1-4 singles out those phonemes which present divergent realizations in the different dialects and periods, and it shows their correspondence with

9. Diakonoff 1991–92: 39–41 goes into great detail as to the precise phonetic "pronunciation" of this series.

Table 1-3. Graphemic Sets and Modern Phonemic Notations for Sibilants with Divergent Realizations[a]

	AMORITE			OAKK					OB+	
GRAPHEMES	G	K	B	G	GK	D	F	B	c	D
SA SE_{11} SI SU	ś	ś	ŝ	{š, $š_1$ / ś, $ś_2$}	š	c	s	š	s	c
SÁ SU_4 ŠÈ	ž	ḏ	ḏ	ž, $š_4$	š	c	s	š	s	c
ŠA ŠI ŠU	š	š	š	ṯ, $š_3$	ś	č	ṯ	ṯ	š	{s / č}
ZA ZI ZU	s / ṣ / z	s / ṣ / z	s / ṣ / z	s / ṣ / z	s / ṣ / z	c / ç / ʒ	ts[b] / ts' / ds	s / ṣ / z	(s) / ṣ / z	c / ç / ʒ

a. B, Buccellati; c, common use; D, Diakonoff; F, Faber; G, Gelb; GK, Gelb–Kienast; K, Knudsen.

b. Digraphs of the type *ts* stand for single (affricate) phonemes; similarly, *ts'* stands for a single phoneme which Faber defines as a glottalic pressure affricate. Note that Faber 1985: 105 considers *ts*, *ts'*, and *ds* to be phonetic realizations of one and the same phoneme *z*.

Table 1-4. Phonemic and Graphemic Correspondences for Sibilants with Divergent Realizations

*	Am		OAkk		OB+		Ar	Am	OAkk	OB+	Ar	Gloss
š	ŝ	SA	š	SA	š	SA	s	*ŝumu*	*šumu*	*šumu*	*ʾism*	'name'
ś							š	*šym*	*šym*	*šym*	*(šym)*	'to place'
ṯ	š	ŠA	ṯ	ŠA			ṯ	*yšb*	*wṯb*	*wšb*	*(wṯb)*	'to dwell'
ḏ	ḏ	SÁ	z	ZA	z	ZA	ḏ	*ẖḏ*	*ẖz*	*ẖz*	*ẖḏ*	'to take'

regard to a posited proto-form, and, for ease of reference, with Arabic (or South Semitic) as well. I give here only the phonemic notation that I have chosen to use, plus the graphemic rendering with only one sign for each of the sets given in Table 1-3. I also add representative word examples.

Following are comments on each of the phonemes listed in Table 1-4. I relate in some detail the definitions given by various scholars, because they are often presented cryptically in the literature, and it is difficult to correlate opinions about what should be simple facts.

ś is the symbol for a lateral that is reconstructed for Proto-Semitic,[10] but is not preserved as such in either Amorite or Akkadian.[11] Even though it is used often in the Assyriological literature, this notation should be avoided when dealing with those two languages.

š is a symbol I am using to render what I assume to be a distinctive Amorite phoneme, at least in terms of its derivation. The Amorite phoneme corresponds to "Proto-Semitic" **š* and **ś*. Though it is often transliterated as *ś*, it does not appear to be a lateral,[12] because of the writing with signs of the class SA. It seems possible to postulate a phonetic development similar to Arabic, i.e., a change in the direction of *s*,[13] with place of articulation shifting toward the dental position. But that it could not simply have merged with *s* is also indicated by graphemic considerations.[14] Hence I am postulating, on a purely indicative basis, that this phoneme may have been realized as a denti-alveolar fricative. At any rate, the phoneme is distinct from any other in terms of its correspondences (i.e., it corresponds to **š* and **ś*, but not to **ṯ*), and this by itself is sufficient to justify the use of a different symbol.

ṯ is the symbol used for the voiceless interdental fricative (*θ*) in the posited proto-form. The Old Akkadian correspondence is generally transcribed as *ś* in the literature, but, since there is no reason to assume a lateral realization for this phoneme in Old Akkadian, I prefer to retain consistently the notation *ṯ* on the assumption that the original interdental realization was preserved.[15]

10. The autonomy of this phoneme for "Proto-Semitic" is controversial, but it can at least be safely postulated as an antecedent to Amorite and Old Akkadian (Gelb 1961: 34f.).

11. Except possibly in Old Akkadian, see Reiner 1966: 110; Greenstein 1980, with review of previous literature; also Diakonoff 1985: 22, where the notation *ḏ* is used. The strongest indication in its favor is based on the explanation of the assimilation *š+š* > *ss* as presupposing a second consonant *ś*, see § 1.4.3, where I also give reasons why it seems nevertheless better not to include it in the standard phonemic inventory.

12. As Greenfield 1969: 94 seems to suggest, on the assumption that **š* coalesced with **ś*, so that both came to pronounced *ś*.

13. Knudsen 1982a: 5 says that its phonetic realization is "similar to Old Babylonian *s*." Gelb does not address the issue of articulation for this phoneme.

14. To render *š*, signs of the SA class are used next to signs of the ŠA class, and only signs of the AŠ class are used. To render *s*, only signs of the SA and AS classes are used.

15. "Possible pronunciation in the direction of Arabic *ṯ*, perhaps not in Mesopotamia proper but in an outlying region" (Gelb 1961: 37). In the chart in ibid. p. 39, the "sound" of this phoneme is indicated as *ṯ'*, which, according to the discussion on p. 33, would seem to stand for an aspirated correlative of *ṯ*.

š is the standard symbol for the voiceless palatal or alveo-palatal fricative. It continues in OAkk and OB+ (where it comes to subsume other phonemes as well). Amorite *š*, on the other hand, corresponds to PS *ṯ*, and is presumed to be phonetically the same as Akkadian *š*,[16] because the graphemes used to render it are those used to render *š* in contemporary Old Babylonian.

z is the standard symbol for the voiced denti-alveolar fricative. It corresponds in OAkk and OB+ to PS *ð*. In addition, *z* is also the normal Am, OAkk, and OB+ correspondence for PS *z* (not shown in the chart above).

ð is the voiced interdental, which has a correspondence in Amorite.[17] Gelb also thinks that there may be an archaic *ž* in OAkk, derived from PS *ð*.[18] Since this is, however, uncertain, I omit it from the phonemic inventory given above.

1.3.6. Vowels

Both Old Akkadian and later Akkadian share the same inventory of four vowels (Table 1-5).[19]

Table 1-5. Akkadian Vowels

	Front	Back
High	i	u
Low	e	a

16. "Probabilmente una sibilante *š* piuttosto che una dentale fricativa *ṯ*" (Gelb 1958 § 2.7.9). "Similar to Old Babylonian s" (Knudsen 1982a: 5); "one of the two Amorite phonemes [*ś* and *š*] probably represented the palatal groove spirant *š*" (Knudsen 1982a: 6).

17. "Voiced interdental spirant" (Knudsen 1982a: 4; he uses the symbol *đ* to render this phoneme). "Support in favor of [a pronunciation as *ž*] is to be found in the phonemic analysis of Old Akkadian ..., Amorite and Ugaritic" (Gelb 1980: 8b).

18. "Signs of the $š_4$ class are to be considered as leftovers from a period in which Akkadian recognized a phoneme *ž* (=$š_4$) < *ḏ*" (Gelb 1961: 38). In the chart in ibid. p. 39 the "sound" of this phoneme is indicated as *ṯ*, i.e. the non-aspirated member of the pair discussed on p. 33. This phoneme is omitted from the list given on p. 119.

19. Diakonoff 1991–92: 68 has noted that in Akkadian primary nouns, the vocalic system essentially excludes *u*, and that *e* is used only in Sumerian loanwords, while conversely in verbal roots the vocalic system excludes *e* except as allophone of *a* (on the phonemic status of *e* see also p. 123). This interesting observation pertains more to the study of word formation than of phonology per se. On the phonemic status of *e* see Izre'el 1987.

Diakonoff (1991–92: 123–25), following a suggestion by Lieberman (1979), concludes that at least from OB on Akkadian had a phoneme *o* (and, with corresponding length, *ō*). He argues in part from the observation that the presence of a phoneme *e* causes the system to be asymmetrical, and therefore unstable. However, the phoneme *o* (and *ō*) is in fact understood by him as a phonetic realization of *u* (and *ū*), so that the asymmetry noted is simply shifted to another plane. Accordingly, I prefer to retain the traditional scheme as given above.

The situation in Amorite seems to be limited to three vowels (Table 1-6).

Table 1-6. Amorite Vowels

	Front		Back
High	i		u
Low		a	

The vowel *e* does appear in the writing of Amorite, but, given the absence of contrasting minimal pairs, it may more properly be understood as an allophone of *i* or *a* (Knudsen 1991: 870). Gelb 1958 § 2.1.1–4 assumes the existence of a phoneme *ē*, and Knudsen 1991 : 870 the existence of both *ē* and *ō*, i.e., long vowels without a corresponding short vowel. For neither vowel, however, can one adduce a convincing minimal pair. Thus *ē* and *ō* are considered here as special phonetic realizations deriving from the contraction of diphthongs.

1.3.7. Suprasegmentals

All consonants and vowels can be lengthened in Akkadian and Amorite. Considering certain practices which are current in standard Assyriological tradition, and which are misleading for a proper understanding of length, it bears mentioning that this phenomenon is to be understood as the holding of the articulation for a fraction of time. (1) One speaks of "doubling" of consonants (so much so that the derived verbal stem with lengthening of the middle radical is labeled with D for doubling): but there is obviously no reason to suppose that the articulation was repeated twice, only that it was held longer. (2) One uses a two-tiered notation for long vowels, e.g., *ā* and *â*, but there is no conclusive evidence that this corresponds to a phonemic distinction; in other words, there are no minimal pairs to show that there were two contrasting degrees of length. The distinction made in standard Assyriological notation between *ā* and *â* is etymological rather than

phonemic (circumflex is used to mark derivation from contraction). It also leads to confusing and contradictory applications, so that it should best be ignored.

It is possible that the phenomenon behind the dual notation of length envisaged by our modern grammatical tradition may, instead, have something to do with stress (on this see Sarauw 1939; Knudsen 1980; Greenstein 1984: 24–27; Diakonoff 1991–92: 104–15). Consider the following: *'panū* 'face' vs. *pa'nū* 'first'. If there is in fact a contrast based on stress (thus also Diakonoff 1991–92: 111), it is because the second word derives by contraction from *pan-ī-u*. The traditional view about Akkadian stress is that it falls on the first long syllable from the end of the word, except that morphemic length in final position is disregarded (as with *'panū*). A possible case for an alternative theory has been made by Reiner (1966: 38, following a suggestion of Poebel 1939: 60): she thinks it probable that in Assyrian, at least, primary (non-phonemic) stress would fall on the first syllable of the word. Diakonoff (1991–92: 104–15) has argued convincingly in favor of the traditional view, which is retained here.

1.3.8. Phonotactics

A number of distributional limitations affect the actual cooccurrence of phonemes in a variety of ways. I will describe them here as functions of word boundaries, clustering, and syllabic structure.

1.3.8.1. Word-initial position

Any simple consonant may occur in word-initial position in both Amorite and Akkadian; of the semivowels, only *y* may occur in Amorite, and only *w*[20] in Old Akkadian and Old Babylonian/Old Assyrian (in the later Akkadian dialects initial *w* is also excluded). The exclusion of initial long consonant or consonantal cluster is no surprise, since it is a common Semitic feature. Only two additional comments are in order. (1) We assume that vowels are not allowed in word-initial position on account of comparative and (to some extent) graphemic considerations. The alternation in the writing of forms like <i-il-la-ak> and <il-la-ak> 'he goes' suggests that in the first instance ' was overtly indicated (one could transliterate <'i-il-la-ak>), while in the second the notation was omitted because its presence was assumed as automatic. In modern transcription, ' is regularly omitted, for the same reason (hence our writing *illak* really means *'illak*); see also § 1.1.2. (2) The con-

20. For the exclusion of initial *y* in Akkadian see Reiner 1964; Gelb 1970a: 536–43.

trast between *ʿy* in Amorite and *ʿw* in Akkadian is particularly significant because the Amorite situation is universally assumed to be an innovation that closely links it with West Semitic.

1.3.8.2. Word-final position

Any simple vowel (short or long), and any simple consonant, may occur in word-final position. Specifically, no semivowel, long consonant, or consonantal cluster may occur in this position. These rules apply equally to Amorite and Akkadian.

1.3.8.3. Clusters

Consonantal clusters of two, but not more, consonants occur in word-medial position. Vocalic clusters occur in Amorite, Old Akkadian, and Old Babylonian/Assyrian when a morphemic boundary intervenes between them, e.g., *rabī+at* 'she is great' (with but few exceptions, e.g., *ʾiqīaš* 'he donates', without morphemic boundary). It is likely that in these cases a glide was present (*rabīyat*, *ʾiqīyaš*). In some cases, both graphemics and word structure suggest the presence of a long glide, e.g., *dayyānum* 'judge'. Vocalic clusters do not occur in later Akkadian.

1.3.8.4. Syllabic structure

(See especially Greenstein 1984 with the reviews Edzard 1986; Knudsen 1986.) The following distributional rules apply: the components of a cluster are always separated by syllabic boundary; long consonants are treated like a cluster, as if we had reduplicated consonants with syllable boundary between them, even though there is no reason to assume double articulation (see § 1.3.7); no syllable begins with a vowel, except as second element of a vocalic cluster; no long vowel occurs in front of either a consonantal cluster or long consonant. These rules apply equally to Amorite and Akkadian.

Vowel harmony is a very distinctive Assyrian phenomenon: *a* in a short medial syllable which follows a stressed syllable assumes the quality of the following vowel, e.g., OB *ʾiṣbatū* ~ OA *ʾiṣbutū*. (One may consider the possibility that in OB short *a* may have been used in writing to render *ə*, see § 1.3.9; if so, *iṣbatū* and *iṣbutū* may be understood as graphemic equivalents rendering one and the same form *iṣbətū*. In other words, vowel harmony would be a graphemic rather than a specifically phonemic feature, in the sense that both Babylonian signs with *a* and Assyrian signs with *a/e/i/u* would stand for a purely phonetic *ə*.)

Reiner's suggestion (1966 § 4.1.2.5) of an equivalence between V:C and VC: is applicable only in prosodic terms, and should not be taken to mean (as seems to be the case in Diakonoff 1991–92: 116) that no phonological opposition exists. An opposition is clearly apparent in such morphemically diverse minimal pairs as *šūma* 'he himself' vs. *šumma* 'if'; *dānum* 'judge' vs. *dannum* 'powerful'; *'ikūnū* 'they stood firm' vs. *'ikunnū* 'they stand firm'.

1.3.9. Phonetic realizations

While the cuneiform writing is essentially phonemic in nature, there are clues to abnormal phonetic realizations which, as far as we can tell, fall outside the phonemic range. Some of the more interesting pertain to vocalic quality (*ö, ü*, von Soden 1948b; *ə*, Buccellati forthcoming §§ 14.1, 55; see also § 1.3.6, and § 1.4.2 herein); nonemphatic realization of velar emphatic (*k* for *q*, Knudsen 1961); spirantization of stops (*p, b, t, d, k, g*, von Soden 1968); realization of *m* as *w* from OB on (Diakonoff 1991–92: 125); stress (Aro 1953). All these phenomena have been observed for the dialects later than Old Akkadian. For an affricate realization of the sibilants see § 1.3.5.

1.4. Phonological change

1.4.1. Historical changes affecting individual phonemes

The correspondences which have been noted above for laryngeals and pharyngeals (§ 1.3.4), sibilants (§ 1.3.5), and vowels (§ 1.3.6) are the most significant in terms of a presumed derivation from a common proto-form. Amorite and Old Akkadian are, in different ways, relatively close to the posited proto-forms.

Amorite appears to be the most archaic. It preserves (1) the laryngeals and pharyngeals, presumably in their differentiated form; (2) *ð*; and (3) a restricted vocalism with only *i, a, u*. The major innovations in terms of the inventory are the change of **ṯ* to *š*, and of *š* and *ś* to *s*. The former is in common with later Akkadian and with other Semitic languages, while the latter seems to be peculiar to Amorite.

Old Akkadian occupies an intermediate position. It is more archaic than Amorite only in its preservation of *ṯ*, while the other sibilants appear already in the same form as in later Akkadian. Both laryngeals appear as *'*, as in later Akkadian. The pharyngeals appear to have merged in a common consonant, for the quality of which we have no indication in the writing, but which we assume to be *ʿ*.

By the beginning of the second millennium, Akkadian has undergone radical changes, in particular the reduction of Old Akkadian *'* and *ʿ* to *'*, and

the reduction of Old Akkadian *š* and *ṯ* to *š*. As a result, the later phonemic inventory of Akkadian, though still quite ancient in terms of chronology (about 1900 B.C.!), is to be considered very recent in terms of typology.

1.4.2. Historical changes affecting phonotactics

A great variety of phonotactic phenomena can be identified over the long history of Akkadian. Here I will only mention a few that seem particularly characteristic of each major period.

The alternation between Akkadian *ʿw* and Amorite *ʿy* is generally explained as Akkadian conservatism and Amorite innovation, respectively, vis-à-vis a presumed proto-form *ʿw*.

Diphthongs (understood as vowel+semivowel in closed syllable) have been posited for proto-forms such as **mawtum* from which Akkadian *mūtum* would have derived. Such proto-forms, however, may reflect an undue emphasis on consonantal triradicalism; if we assume that length may function as a radical (Buccellati forthcoming § 39.1), then forms like *mūtum* may in fact be archaic, and those with *w* recent (introduced to fit a triconsonantal scheme).

The reduction of Old Akkadian *ʿ* (corresponding to *ʿ*, *ḥ*, and *ġ*) to *ʾ* was compensated for by a change in vocalic quality from *a* to *e*. This change is partly morphophonemic (see § 1.4.4), because the change occurs only within the core of a word that is not affected by external inflection; e.g., OB *ʾezēb-am* (not **ʾezēb-em*) 'to abandon' with accusative ending (contrast *ʾalāk-am* 'to go', also with accusative ending). In Assyrian, only the vowel in contact with *ʾ* shifts to *e*, i.e., *ʾezāb-am*, *ʾiltanaqqē* 'he repeatedly took' (contrast OB *ʾilteneqqē*).

In Middle Babylonian the consonantal clusters formed by *š* plus a dental stop or an alveolar fricative, *š* shifts to *l*; e.g., OB *ʾištakan* ~ MB *ʾiltakan* 'he then placed'.[21]

The loss of short vowel in final position is a phenomenon which is found in the major Northwest Semitic languages of the first millennium, with important consequences for morphology (case endings) and syntax (determina-

21. No phonetic explanation has been offered for this shift. Very tentatively, one may entertain the following conjecture: dental lateral *ś* may have been preserved in early Aramaic dialects (for Akkadian, see Diakonoff 1985: 22), and the shift to a liquid lateral *l* may have started with clusters of the type *śt* and then spread to *št* and others. The evidence for *ś* in Ancient Aramaic is controversial (Degen 1969 § 13; Segert 1975 §§ 3.2.3.5.3, 3.2.8.3–6), but note for instance how the Masoretic rendering *Kaśdîm* (Hebrew) / *Kaśdāy* (Aramaic) corresponds to later Babylonian *Kaldu*. For suggestions of *ś* in Akkadian see § 1.3.5.

tion). It is interesting to note how Northwest Semitic syntax compensates through the introduction of the article, which was never introduced in Akkadian: this is one of the important indications that first-millennium changes within Akkadian, minimal as they are, no longer take place within the context of a living language.

1.4.3. A note on morphophonemic alternations

Many of the phonological changes which are discussed in standard treatments of Akkadian and Amorite phonology are in fact alternations conditioned by morphemic factors (Reiner 1966: 104–12). Since they presuppose an understanding of morphology, they cannot be taken up here, particularly because a fully coherent statement along those lines entails that the entire system of the so-called weak verbs be presented as part of morphophonemics, and this is clearly beyond our present scope (an extensive section is devoted to this topic in Buccellati forthcoming). I will only mention here four rules which are of particular interest because they apply only in Akkadian, and not in Amorite. (1) It is generally (but improperly) stated that in a sequence of three short vowels the middle vowel is dropped. The full conditions may be stated instead as follows: a word resulting, through internal inflection, in a sequence of three syllables of which the first two are short[22] is realized with the elision of the vowel in the middle syllable; e.g., Akk. {damiq-um} /damqum/ 'good', contrast Am. *malak-a* 'he has ruled' (see Huffmon 1965: 89).[23] (2) The pattern MAPRAS is realized in Akkadian with initial *n* if any of the radicals is a labial, whereas initial *m* is retained in Amorite, e.g., Akk. *našparum* 'envoy', contrast Am. *maš'parum*. (3) Two emphatic radicals are found to cooccur in Amorite, whereas in the Akkadian correspondence one of the radicals is realized as unvoiced (Geers 1965); e.g., Am.

22. This formulation implies that at least the consonant of the third syllable be part of internal inflection, as in {damiq+um}. The rule so stated excludes (1) a case like {iṣbat+u+šu} (/iṣbatušu/, not /iṣbassu/) 'that he seized him', where only the sequence /bat/ properly belongs to internal inflection; (2) primary nouns, e.g., *išar+um* (not **išrum*) 'normal' (see Goetze 1946, 1947); (3) loanwords, e.g., *Uruk+ī+u* (not **Urkūm*) 'Urukean', *gabadibb+u* (not **gabdibbu*) 'parapet'; sequences derived (4) through external inflection, e.g., *šarra+šunū* (not **šarrašnū*) 'their king' or (5) through onomastic name composition, e.g., *Abu-ṭāb* (not **Aṭāb*) 'Father-is-good'.

23. A related case is seen in the formation of certain feminines where Akk. opts for a plain *-t-* marker, whereas Am. uses *-at-*, e.g. , Akk. *watar-t-um* 'exceeding', contrast Am. *yatar-at-um*. Occasional exceptions in Amorite, which are explained as orthographic in nature, are quoted by Knudsen 1991: 872f.

qṣr, Akk. *kṣr* 'to bind'. All these statements are applicable in Old Akkadian as well as in late Akkadian.

(4) A case of particular interest is the Akkadian realization of {š+š} as /ss/ where the first *š* is part of a nominal or verbal base[24] and the second *š* stands for the first consonant of the pronominal suffixes of the third person. The dental realization is baffling, because it seems to imply a different phonetic status for suffixal *š*. It has in fact been suggested that suffixal *š* may have been a distinct phoneme *ś*, which would continue the *ś* of the PS pronominal suffix.[25] If so, the dental realization as /ss/ may be explained on the basis of an original cluster *š+ś*, e.g., *ēpuš-śunūšim* /epussunūšim/ 'do it to them!'. However, this would be the only evidence for a phoneme *ś* in later Akkadian. Hence, rather than positing *ś* as a distinct phoneme, it is generally preferred, e.g., Reiner 1966: 110, to posit instead a special morphophonemic rule. This particular phenomenon is all the more remarkable since suffixation is very productive even with neologisms in later periods, e.g., Neo-Babylonian *išaggiš+šu* /išaggissu/ 'he will kill him' (von Soden 1965–81: 1126b).

It should be noted here that the affricate interpretation of the sibilants (see § 1.3.5) seems at first to account well for some analogous instances where a similar assimilation occurs. Thus, if, e.g., *māt+šu* 'his land' is interpreted as *māt+su*, the resulting phonetic realization would indeed be /mācu/. But all is not as simple as it seems at first. For instance, the affricate realization /mācu/ yields a short consonant, whereas graphemic considerations suggest that the consonant in question was long; how then would we explain the realization /maccu/ from /mat+su/, since [ts] is /c/ and not /cc/? More importantly, how does a cluster of two identical dental sibilants (e.g., *epus+sunūsim* in Diakonoff's transcription for *epuš+šunūšim* in the standard transcription) yield a long affricate (/epuccunūsim/, again in Diakonoff's transcription)?

24. This formulation excludes, for instance, *'ašar-iš+šu* 'to his place', since the affix *-iš* is not a nominal or verbal base. The affix *-iš* may in fact go back to *-iś* (Rabin 1969: 192). Such exclusion, too, casts doubt on an interpretation of suffixal *š* as *ś*, but see Reiner 1966: 110. Reiner reports as an additional exception the realization /šš/ when the final radical *š* derives from PS *š*, as with the root *q:š* 'to donate'. However, forms with such a realization (e.g., {iqīš+ši} /iqiššu/ 'he donated her') are late; OB forms generally show a realization /ss/ (e.g., {lūqīš+šim} /lūqissim/ 'let me donate to her'). Note that long *š* is otherwise well attested in a variety of other environments, e.g., *kaš-kašš-u* 'very powerful' from the root *kšš*.

25. See above, n. 12. Note that no such environment may occur in Amorite given the lack of suffixes beginning with *š*.

1.4.4. Free variation

Alternations which cannot be explained with any degree of plausibility are best considered simply as free variants. Two examples may be mentioned here. (1) Vocalic alternations, e.g., Akkadian *'ušakniš* ~ *'ušekniš* 'he subdued'. (2) Contraction across word boundary (sandhi), e.g., Akkadian *libbālim* ~ *libbi 'ālim* 'within the city', or Amorite *yarkibaddu* ~ *yarkib Haddu* 'Adad rides' (Knudsen 1980: 7f.).

1.4.5. Historical development

From the descriptive presentation of inventories and changes, two important points emerge. (A) Akkadian, already at the stage of Old Akkadian, presents more innovations than Amorite. Two concurrent explanations may account for this. On the one hand, Akkadian was subject to the direct influence of Sumerian—something which has long since been recognized. On the other hand, if I am correct in viewing Amorite as the rural counterpart of Akkadian (see § 1.2.3), we can easily accept the conservative nature of its documentation, even if chronologically later in terms of scribal attestation.

(B) Within Akkadian itself, the major changes occur at the level of phonotactics, whereas the inventory as such undergoes only relatively minor changes after Old Akkadian (and fewer changes yet if one accepts the reconstruction of the sibilants by Diakonoff 1985, see § 1.3.2). In particular, no substantial change can be identified within the first millennium. Again, two concurrent explanations may be given. The first is that, within the second millennium, the scribal tradition acted both as a filter in the transmission of the evidence and, to a more limited extent, as a brake to change. Phonotactic changes are the ones that are more difficult to hide with standard scribal mechanisms. The second explanation is more complex. Within the first millennium, the influence of Aramaic was so pervasive that, in effect, it hardly showed at all. By this I mean that it was a social rather than a linguistic influence: somewhere in the early centuries of the millennium, speakers were at best bilingual, and soon afterwards (probably by the eighth/seventh century) Aramaic took over as the only spoken language, while Akkadian continued merely as a literary medium. Hence it is that the linguistic influence on Akkadian is essentially limited to the lexical and syntactic spheres.

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