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Hurrian and Ugaritic sibilants: Essay of phonetic interpretation

The phonetic values of the sibilant phonemes in Hurrian and Ugaritic must be revisited in the light of the evolving interpretation of sibilants in neighbouring languages, which is partly due to the evolution of the Affricate Hypothesis. We are arguing that the syllabic cuneiform orthography of Mitanni and Boğazkōy Hurrian uses the Š-series to reflect the alveolar fricative phonemes /s/ and /z/, while the Z and S-series are deployed for the rendering of affricate phonemes. Furthermore, we are suggesting that the Ugaritic alphabetic grapheme ⟨t̲⟩ renders not the interdental /θ/, as was traditionally assumed, but the alveolar /s/. The revised sound values of the Hurrian simplify the scenario of how the Mesopotamian cuneiform script was adapted to writing Hittite.

Keywords: Hurrian language; Ugaritic language; sibilant phonemes; Affricate Hypothesis.

1. Sibilants in Egyptian, Hittite, and Akkadian

The phonetic interpretation of extinct languages recorded in ancient scripts requires a conjoined application of several research methods.[1] First, if a particular grapheme was used in a variety of languages, one can assess the mutual compatibility of its assumed phonetic values. Second, if a language family is associated with a variety of writing systems, one can investigate how historically related sounds are represented across various scripts. Third, one can study borrowings among languages recorded in different scripts with the aim of assessing matches among individual phonemes of loanwords and their sources. Although the correct phonetic interpretation is likely to maximize the number of exact correspondences in all the three cases, it is obvious that differences will persist. The graphemes sometimes alter their values across languages, historical sound changes do occur, while the adaptation of loanwords frequently implies phonetic changes of their own. In such cases, one strives for a solution that enhances the naturalness of the proposed correspondences. In addition to using the comparative method, one must assess the typological plausibility of a sound system (or its fragment) that is reconstructed for a particular extinct language.

[1] This paper combines the ideas in the presentation "Phonetic Interpretation of Hurrian Sibilants in the Light of Indo-European Evidence" offered by Ilya Yakubovich at the conference *The Sound of Indo-European: Phonetics, Phonemics, and Morphophonemics* (Copenhagen, April 2009) and the guest lecture "The evolution of the Semitic sibilants in Ugaritic and Phoenician" presented by Vera Tsukanova at the University of Naples *L'Orientale* in March 2024. We are grateful to the participants of both events for their constructive feedback. We are also much obliged to Sebastian Fischer (Berlin), who provided detailed comments on the preliminary version of this article and shared with us the relevant parts of his Habilitation thesis ahead of its publication. The substantial comments by Mauro Giorgieri (Pavia), Leonid Kogan (Moscow), and Roey Schneider (Jena) are also sincerely acknowledged, while Stepen Durnford (Brighton) and H. Craig Melchert (Carrboro, NC) helped to improve the style of this paper. Ilya Yakubovich contributed to the joint effort under the auspices of the project *Tive: Studies in the Hurrian Language and Texts* (YA 472/4-1), which is funded by the *Deutsche Forschungsgemeinschaft*. The final part of the work on the article was accomplished during the co-authors' research visit to the University of Naples *L'Orientale* in October–November 2025, which was kindly organized by Michele Cammarosano.

These theoretical and somewhat abstract observations can be fleshed out with a look at the phonetic interpretation of some fricative and affricate coronal sounds ("sibilants") in the most well-studied Ancient Near Eastern languages of the second millennium BCE.[2] Thus, it is widely believed that Ancient Egyptian of the Middle and New Kingdoms possessed two contrastive coronal fricative phonemes /s/ and /ʃ/, whose alveolar and palato-alveolar articulations were initially projected back from their Coptic reflexes (Peust 1999: 116, 125–126, Loprieno 2004: 171).[3] In the Egyptian hieroglyphic script of the second millennium BCE, the phoneme /s/ could be written with two phonograms, conventionally transcribed ⟨s⟩ and ⟨ś⟩, or sometimes ⟨z⟩ and ⟨s⟩. These two phonograms had been contrastive in the third millennium BCE but came to function as allographs from the Middle Kingdom on (Peust 1999: 126). The phonogram used for the rendering of /ʃ/ is conventionally transcribed as ⟨š⟩. The distinction between /s/ and /ʃ/ in Egyptian appears to be fairly stable, and the analysis of loanwords in New Kingdom Egyptian is used as a logical starting point for studying the articulation of sibilants in the contemporary Ancient Near Eastern languages. In addition to the fricatives, Ancient Egyptian also featured sibilant affricates, which will not be addressed in this paper, since they are irrelevant to its main purpose.

In contrast, the Hittite coronal fricatives presumably had the same place of articulation but were distinguished through the opposition tense vs. lax.[4] The syllabic signs ⟨ša⟩, ⟨še⟩, ⟨ši⟩, ⟨šu⟩, ⟨aš⟩, ⟨eš⟩, ⟨iš⟩, and ⟨uš⟩, hereafter the Š-series, were used for rendering the Hittite sibilant fricatives in the Anatolian cuneiform script, ultimately borrowed from Mesopotamian cuneiform. Accordingly, they are recorded as *š*, *šš* in the so-called bound transcription of Hittite cuneiform texts, which in turn prompted their conventional pronunciation as /ʃ/ in certain Hittitological circles. Yet, there are several arguments that plead for their alveolar character. First, the Hittite proper nouns in Egyptian transmission render them as ⟨s⟩ or ⟨ś⟩, with few exceptions, which all concern the tense fricative (Breyer 2010: 351, cf. Patri 2009: 95). Second, there is a consensus that the Hittite sibilants go back to the Proto-Indo-European phoneme */s/, whose reflexes are still rendered as /s/ in most Indo-European languages in use nowadays (Kimball 2017: 254). Third, if a language has just one place of articulation for coronal fricatives, it is most likely dental or alveolar (Maddieson 1984: 44). This is why a near-consensus about the pronunciation of the Hittite fricative sibilants as /s/ and /ss/ emerged among linguists in the recent years (Patri 2019: 218–221; Yakubovich 2020: 226; Rieken 2021: 110; Hoffner and Melchert 2024: 60). The only other Hittite sibilant phoneme is the affricate /ts/, which was rendered with the help of the Z-series of syllabograms, including ⟨za⟩, ⟨zi⟩, ⟨zu⟩, ⟨az⟩, ⟨iz⟩, and ⟨uz⟩ (Hoffner and Melchert 2024: 57–59).[5]

[2] The proposed definition of the sibilants admittedly represents one of several possible options. Some scholars assume that the sibilants constitute a subgroup of the fricative but not affricate sounds, while others exclude the interdental sounds from their definition. The way the sibilants are defined in the present paper is congruent with the approach of Schneider 2024, the latest monograph devoted to the interpretation and reconstruction of these phonemes in Near Eastern languages.

[3] Even though this article is devoted to phonetic interpretation, all the segments addressed here typically function as contrastive phonemes. Therefore, we take license to use the markers of phonological transcription (/…/) throughout the article, typically reserving the square brackets for the philological notation of the restored parts of the text. The main exception are direct citations, where we retain the original formalism of the authors cited.

[4] An alternative interpretation of Hittite phonology assumes just one coronal fricative, which was frequently geminated.

[5] For the purposes of this paper, we ignore the additional Ṣ-series, which was underdeveloped in syllabic cuneiform (e.g. ⟨ṣa⟩ = ⟨za⟩) and appears to be more relevant for the study of vocalic than consonantal system, at least in Anatolia (⟨ṣi⟩ = ⟨zé⟩).

Nevertheless, the selection of the cuneiform Š-series for rendering the Hittite alveolar fricatives requires explanation. Mesopotamian cuneiform features a systematic contrast among the syllabic signs of the Š-series, Z-series, and S-series. The signs of the latter group, whose use in Hittite texts is limited to heterograms, were traditionally interpreted as rendering combinations with the voiceless alveolar fricative. Yet, the readings of the signs under discussion must have varied in dialects of Akkadian and followed the sound changes affecting the respective sibilants, which contrasts with the stability of the opposition between /s/ and /ʃ/ in the history of Ancient Egyptian. More clarity in this issue has been reached within the framework of the Affricate Hypothesis, which slowly but surely acquires mainstream status in the field of Comparative Semitics (Kogan 2011: 61–71; Huehnergard 2019: 50; Schneider 2024: 51–52). While the full presentation of the Affricate Hypothesis goes beyond the scope of this paper, one of its results is the reinterpretation of Proto-Semitic *ś and *š as */ts/ and */s/ respectively, and the same conclusion is true for the early stages of Akkadian, including Sargonic Akkadian and Old Assyrian (Hasselbach 2005: 96, 135; Kouwenberg 2017: 48).[6] No phoneme /ʃ/ is reconstructed for either of these dialects. The interrelated sound shifts */ts/ > /s/ and */s/ > /ʃ/ were postulated for the Babylonian branch of Akkadian (Hasselbach-Andee 2021: 142) and can be demonstrated particularly well for its Late Babylonian stage (Kassian and Popova 2023).

The initial decipherment of Akkadian was accomplished with the help of the Bisitun trilingual inscription of the 6th century BCE, which features a Late Babylonian version. It is therefore historically logical that the signs hidden behind the S and Š-series of the Mesopotamian cuneiform syllabary were initially interpreted as the alveolar and postalveolar fricatives respectively, as befits their Late Babylonian pronunciation. It is also understandable that the same formal convention was secondarily extended to the Anatolian cuneiform syllabary after the discovery of Hittite cuneiform texts. Yet, a mechanical expansion of cuneiform conventions across time and space frequently obfuscates linguistic reality. According to the current consensus, the rulers of Hattusa have availed themselves of the early-second-millennium scribal tradition of north-western Syria for their cuneiform literacy. While the sound system of the relevant Akkadian dialect(s) has not been systematically investigated, the hypothesis that it resembled Old Akkadian and Old Assyrian in being not affected by the shifts */ts/ > /s/ and */s/ > /ʃ/ and therefore had no /ʃ/ in its phonological inventory would not be a priori surprising.[7] This scenario could explain the use of the Z-series and Š-series for phonetic sequences containing /ts/ and /s/ in the relevant cuneiform texts from Syria, which would in turn motivate the retention of the same values in Hittite Anatolia.[8]

The results and hypotheses outlined above suggest that there is still room for refining the phonetic interpretation of the Ancient Near Eastern languages. With this consideration in mind, we shall approach the sibilants of Hurrian and Ugaritic, the neighbour languages of Egyptian, Hittite, and Akkadian in the second millennium BCE, whose phonetic interpretations continue to raise controversy and are mutually interdependent. In Sections 2 and 3 we are going to survey the research history pertaining to the analysis of the relevant phonemes. We shall see that the solutions anticipating some of the results of this paper had been ad-

[6] Here and below, the representation of Proto-Semitic sibilants follows the middle version of the Affricate Hypothesis, the definition of which is provided in Kogan 2011: 61.

[7] It is appropriate to observe at this point that the preservation of Proto-Semitic */s/ is postulated not only for the Old Assyrian but also for the Neo-Assyrian (Schneider 2024: 126), which would imply that its most likely pronunciation in Middle Assyrian was also /s/. For the preservation of Proto-Semitic */s/ throughout the history of Assyrian, see Kogan 2011: 88–89.

[8] Such a formulation obviously obviates the question of the native language(s) of Syrian cuneiform scribes: this issue will be addressed in Section 6 of the present paper.

vanced at the dawn of Hurrian and Ugaritic studies but were then forgotten without being refuted. Sections 4 and 5 will be devoted to the presentation of our own views regarding the pronunciation of the Hurrian and Ugaritic sibilants, respectively. The concluding Section 6 strives to demonstrate that the revised interpretation of the Hurrian sibilants simplifies the account of how Mesopotamian cuneiform was adapted for writing Hittite.

2. Previous research on Hurrian sibilants

The Hurrian language was widespread in northern Mesopotamia, Syria, and probably southeastern Anatolia in the second millennium BCE. It does not belong to either the Indo-European or the Semitic family, while its only attested close relative is the Urartian language, which was used in writing around Lake Van in the early first millennium BCE and mostly preserved through monumental cuneiform inscriptions. In the 16th century BCE, the Hurrian tribes united by a royal dynasty of Indo-Aryan origin founded the Kingdom of Mitanni, which acted as one of the major Near Eastern powers until its defeat by Hattusa in the mid-14th century BCE. The Hurrian texts are attested in both syllabic and alphabetic cuneiform systems; the latter developed in Ugarit in the 13th century BCE. A Hurrian composition featuring a unique and particularly elaborate syllabic orthography is the so-called Mitanni Letter, sent by Tushratta, king of Mitanni, to the Egyptian court and found in the diplomatic archive of El Amarna (Giorgieri 2000: 177–188, 181–182). The majority of the Hurrian syllabic texts available to us come from the archives of Boğazköy-Hattusa and are characterized by less rigid orthographic standards (Giorgieri 2000: 177, 181–182).[9]

Judging by the Mitanni orthography, the Hurrian phonetic system distinguished among at least three types of sibilants, corresponding to the Š, S, and Z-series, respectively (Diakonoff 1971: 48, Giorgieri 2000: 186, fn. 44). In contrast, the Hurrian texts from Boğazköy reflect only the contrast between the Š and Z-series, which is consistent with the general absence of a phonologically contrastive S-series in Anatolian cuneiform. For reasons stated in Section 4, it is likely that the Z-series were generalized at the expense of the S-series in Boğazköy orthography. In the intervocalic position, there is a contrast between the tense and lax fricatives of the Š and Z-series, which is reflected in the spellings *aš-ša* vs. *a-ša*, *az-za* vs. *a-za* etc. (Wegner 2007: 45–46). No such contrast is observed in the case of the S-series (see Table 3).

The phonematic character of the opposition tense vs. lax in Hurrian derives support from Ugaritic orthography, where the tense and lax sibilants marked by the signs of the Š series in syllabic cuneiform are recorded as ⟨t̲⟩ and ⟨d̲⟩, respectively. For example, the name of the Hurrian Storm-god can be spelled *te-eš-šu-up* in syllabic cuneiform and *tt̲b* in Ugaritic script, while the name of the Hurrian Moon-god can be spelled *ku-šu-uḫ* in in syllabic cuneiform and *kd̲(ġ)* in Ugaritic orthography (Giorgieri 2000: 184). In the inherited Ugaritic lexicon, the signs ⟨t̲⟩ and ⟨d̲⟩ are deployed for the reflexes of Proto-Semitic interdental fricatives */θ/ and */ð/ respectively. In addition, there is limited evidence that the Ugaritic graphemes ⟨s⟩ and ⟨z⟩ were used for rendering the Hurrian sibilants that were expressed by the S and Z-series in Mitanni orthography (see section 5). The distribution between ⟨s⟩ and ⟨z⟩ was, however, not identical to that of the S and Z-series: presumably it had again to do with a tense/lax distinction. In most positions, the phonemic opposition between the tense and lax consonants is neutralized: the

[9] Hattusa and its vicinity, or, for that matter, central Anatolia in general, never represented areas of compact settlement of Hurrian native speakers. For the sociolinguistic reasons that prompted the proliferation of Hurrian literacy at the court of Hattusa, see Yakubovich 2022a: 24–28.

tense consonants occur word-initially and in clusters with obstruents, while the lax consonants occur in word-final position and in clusters with sonorants (Giorgieri 2000: 184).[10]

Thus, one must postulate at least five sibilants for Hurrian: two corresponding to the Š-series, two corresponding to the Z-series, and one corresponding to the S-series (Wegner 2007: 46). There is, however, no agreement about the phonetic values of the phonemes under discussion. According to Giorgieri 2000, arguably the most authoritative introduction to the Hurrian language available to date, the tense and lax sounds corresponding to the Š-series had palato-alveolar fricative articulation, similar to the pronunciation of *sci* in Italian *sciocco* 'foolish'. In the notation of the International Phonetic Alphabet, this would suggest their transcription as /ʃ/ and /ʒ/, respectively. The Hurrian sounds corresponding to the Z-series represented dental (=alveolar?) fricatives /s/ and /z/, while the S-series in the Mitanni orthography contained sequences with the affricate *c* ~ /ts/ (Giorgieri 2000: 185–186 with fn. 43, 44). The suggestions outlined above are generally based on the earlier proposal by Wilhelm (1988: 64, fn. 34). The interpretation of the Š-series by both scholars appears to derive inspiration from its traditional value in Akkadian cuneiform syllabaries.

The ideas of Wilhelm and Giorgieri underly the conventions of the analytical transcription that has been adopted by many scholars in the field of Hurrian studies. The following forms from the Mitanni Letter, cited after Giorgieri 2000: 268–273, would suffice to illustrate this convention: iii 90 *še-e-ni-íw-wu-tan ~ šēn(a)=iffu=dan* 'from my brother', iii 67 *ir-nu-u-ḫu-ši-a-a-ma ~ irn=ōġ=ož=i=ā=ma* 'he did not reciprocate', iii 97 *za-la-am-ši ~ salamži* 'statue', iii 105 ^{KUR}*M*[*i*]*-zi-ir-re-e-we-né-e-wa ~ Mizir(i)=rē=ve=nē=va* 'to Egyptian', iii 72 *su-bi-a-a-maš-ti-en ~ cubi=am=ašt=i=en* 'may he glorify', iii 85 *ḫi-su-ú-ḫi-wa-a-en ~ ḫic=ūġ=i=vā=en* 'may he not upset'. The same phonetic treatment of Hurrian sibilants is retained in the most recent survey of the Hurrian grammar available to date (Hazenbos 2021: 168). At the same time, neither Wilhelm nor Giorgieri have ever regarded the proposed interpretation as cast in stone. Thus, the insistence of its conventional character is found in Giorgieri 2000: 186, fn. 43, while Wilhelm's cautious stance toward his own hypothesis is clear from the following statement: "The affricate /ts/ (transcribed as *c*) is uncertain… The phonetic realization of /S/ and /Š/ is unknown" (Wilhelm 2004: 99).

A different interpretation of the Š-series in Hurrian was entertained in Bush 1964: 61–71, where the forms in Ugaritic alphabetic transmission were actively used for the study of Hurrian phonology. The signs of the Š-series are interpreted in this dissertation as standing for the phonetic sequences containing /θ/. Later on, the same view was upheld in (Diakonoff 1971: 46). In addition, Diakonoff (1971: 48) tentatively suggested that both the S and Z-series render combinations with voiceless and voiced affricate sounds in Hurrian respectively (the distinc-

[10] Several additional orthographic conventions applicable to Hurrian deserve to be mentioned at this point. The earliest Hurrian composition published to date is known as the Tish-Atal inscription (see Wilhelm 1998 for the edition). The orthography of this text does not distinguish between the tense and lax consonants and probably shows confusion between different series of sibilants, a trait that is also typical of other syllabic texts from the UR III period. More interesting for our purposes is the rendering of Hurrian personal names in Old Babylonian orthography (cf. also Section 6). A number of Akkadian texts from Mari and Northern Mesopotamia use the Š and Z-series for the matching tense and lax sibilants of Hurrian, both of which were rendered with the Š-series in Mitanni and Boğazköy orthographies (Richter 1998: 131–133). This is obviously a point of convergence with the rendering of the same Hurrian sounds as ⟨t̲⟩ and ⟨d̲⟩ in Ugaritic script. A large number of Hurrian personal names and foreign words is attested in the Akkadian texts from Nuzi, while the distribution of the sibilant series in the Hurrian forms from Nuzi shows correlations with other Hurrian orthographies (see already Speiser 1938: 189–192). The systematic study of these data is contingent on the success of the project "Digital glossary of Nuzi Hurrian" (https://cordis.europa.eu/project/id/101204566), which starts on September 1, 2026.

tion between the tense and lax sibilants is not addressed in this book). A more agnostic stance on the value of the Š-series is found in Khachikian 1985: 38: the sibilant hidden behind the relevant signs is merely assumed to be phonetically distinct from /ʃ/, and probably also from /s/, again based on the Ugaritic evidence. Khachikian (1985: 38–39) concurs with Diakonoff on the affricate pronunciation of the sibilants marked by the S and Z-series in the Mitanni orthography. Both Diakonoff and Khachikian were among the early adepts of the Affricate Hypothesis for Akkadian and use the Akkadian loanwords in Hurrian in order to justify the existence of the Hurrian affricates (cf. Section 4). A compromise position is reflected in Campbell 2020: 209: the reconstructed pair of fricatives *š(š), ž* represents a point of convergence with the views of Wilhelm and Giorgieri, while the assumption that the remaining sibilants consist of a pair of affricates *c*, *cc* comes closer to the ideas of Diakonoff and Khachikian. The interpretation of the Hurrian Š-series as reflecting combinations with /θ/ obtained a recent endorsement in Schneider 2024: 111.[11]

It is easy to see from the discussion above that the phonetic interpretation of Hurrian sibilants has not yet been settled. The table below summarizes the present state of our knowledge about the representation of sibilants in the most important Hurrian orthographies and the degree of disagreement on their interpretation in recent scholarly literature.[12]

Mitanni orthography	Boğazköy orthography	Ugaritic orthography	Interpretation by Wilhelm	Interpretation by Diakonoff
aš-ša, a-ša	aš-ša, a-ša	⟨t̲⟩, ⟨d̲⟩	ʃ, ʒ	θ
az-za, a-za	az-za, a-za (?)	⟨s⟩(?), ⟨z⟩(?)	s, z	dz
a-sa	a-za (?)	⟨s⟩(?), ⟨z⟩	ts	ts

Table 1: The sibilant phonemes of the Hurrian language and their interpretation

At the same time, the divide between scholars who advocate the interpretation of the Hurrian Š-series as sequences with /ʃ/ and /θ/ does not date back to the beginning of Hurrian Studies. According to the observation of Speiser 1938: 175, there was a "long-standing" view in the field that "in the Hurrian syllabary *š* represent *s*". Such a view is advocated, for example in Ungnad 1924: 134, fn. 2, where Hurrian syllabaries are counted among the "western" cuneiform syllabaries, where the fricative series must reflect /s/ and not /ʃ/ based on the treatment of Ancient Egyptian loanwords. The turning point in this discussion appears to have been the decipherment of the Ugaritic script, which provided arguments for the existence of interdental fricatives in Hurrian. The apparent contradiction between cuneiform and Ugaritic orthographies was perceived as a puzzle that had not found a satisfactory solution. The first grammar of Hurrian used an abstract transcription *s̄* and *z̄* for the problematic sibilants. The author made an inconclusive comment on their pronunciation: "it is best to regard *s̄* as a sound patterned between [t̲] and [š] and *z̄* as the corresponding voiced sound. It is highly suggestive in this connection that Semitic [t̲] became [š] in Canaanite just as in Akkadian. A phonetic explanation for this type of change requires an intermediate [s], for which there is no evidence whatever in contemporary Semitic" (Speiser 1941: 35). We shall argue in this paper that Ephraim Speiser was just one step away from solving the issue.

[11] Cf. also the tentative interpretation of /θ/ as the dominant value of the Š-series in Northern Mesopotamia and Syria in the second millennium BCE, which is advanced in Weeden 2019: 138.

[12] Some of the conclusions in Table 1 anticipate the new descriptive evidence summarized in Sections 4 and 5. The selection of Igor Diakonoff and Gernot Wilhelm as scholars whose contrastive stances are reflected in Table 1 reflects the outstanding impact of both researchers on the linguistic study of Hurrian in the recent past.

The only explicit attempt to argue for the alveolar sibilant hidden behind the Hurrian Š-series that we are aware of is found in footnote 26 embedded in Tropper and Vita 2003. More specifically, the co-authors observe with regard to the traditional Hurrian transcription: "Die Verwendung der *š*-Symbols ist dabei konventionell und wahrscheinlich nicht korrekt. In Wirklichkeit dürften syllabische Š-Zeichen ebenso wie alphabetisches *t̲* … für hurritisches (stimmloses) [s] stehen". It is remarkable that one of the authors of the paper discussion under is also a staunch supporter of the phonetic realization of Ugartitic ⟨t̲⟩ as an interdental fricative (cf. the following section). The discrepancy between the implied realizations of the same grapheme in Hurrian and Ugaritic texts constitutes a possible reason why this suggestion has not been widely followed thus far. The joint treatment of the Hurrian and Ugaritic data in our paper is conceived as a step toward removing this obstacle.

3. Previous research on Ugaritic sibilants

The town of Ugarit, whose ruins constitute the archaeological site of Ras Shamra, was situated on the Mediterranean coast of Syria. The Ugaritic language belongs to the Northwest-Semitic group, and it was claimed on the grounds of lexical comparison that it is a Canaanite language, particularly closely related to Phoenician (Kogan 2015: 343–349). A unique feature of Ugaritic civilization is the use of alphabetic cuneiform, an innovative and visually distinct script that must have taken inspiration from one of the early Semitic alphabets. The Ugaritic alphabetic texts date back to the 13th and early 12th centuries BCE, when Ugarit constituted a client state of the Empire of Hattusa. Before the mid-14th century BCE, Ugarit maintained close ties with the Kingdom of Mitanni, even though its actual integration within the Hurrian state remains a matter of controversy (Singer 1999: 619–620 with ref.). What is beyond doubt is the profound influence of Hurrian culture on Ugarit, which manifests itself, among other things, through a high proportion of Hurrian personal names in Ugaritic onomastics (van Soldt 2003), the presence of Hurrian insertions in Ugaritic texts (Andrason and Vita 2016: 302–308) and the ancillary use of the Ugaritic cuneiform alphabet for writing Hurrian. Many local personal names are attested in both alphabetic and syllabic transliterations (Huehnergard 2012: 8–9, Watson 2016: 353–354). The sociolinguistic facts adduced in this paragraph correlate with the presence of both Hittite-Luwian and Hurrian loanwords in Ugaritic, although the latter are more numerous.

The sibilants of the Ugaritic language are conventionally transliterated as ⟨t̲⟩, ⟨d̲⟩, ⟨ẓ⟩, ⟨s⟩, ⟨z⟩, ⟨ṣ⟩, and ⟨š⟩. In is commonly assumed that the triplets ⟨s⟩, ⟨z⟩, ⟨ṣ⟩ and ⟨t̲⟩, ⟨d̲⟩, ⟨ẓ⟩ comprise consonants that share the place of articulation and primarily differ through their laryngeal features. Each triplet consists of the voiceless, voiced and "emphatic" consonants, the last feature being usually understood as pharyngealization or ejective articulation. The traditional phonetic values ⟨s⟩ = /s/, ⟨z⟩ = /z/, and ⟨ṣ⟩ = /sˁ/ were presumably extrapolated from the pronunciation of their correspondences in other Central Semitic languages. The phonemes transliterated as ⟨t̲⟩, ⟨d̲⟩, and ⟨ẓ⟩ lack exclusive counterparts in Hebrew, where the system of sibilants has been simplified. Yet, they find historical correspondences in Standard Arabic, where they are pronounced as interdental fricatives. This brought into being the traditional phonetic values ⟨t̲⟩ = /θ/, ⟨d̲⟩ = /ð/, ⟨ẓ⟩ = /θˁ/. The pronunciation of ⟨š⟩ as /ʃ/ is based on its typical Hebrew correspondence. The traditional phonetic interpretation of the Ugaritic sibilant graphemes is summarized, for example, in Segert 1984: 21, 30, while the Semitic historical correspondences that prompted such conclusions can be found in Segert 1984: 34.[13] The Proto-Semitic lateral conso-

[13] The discussion of the conventional phonetic values of Ugaritic sibilants can also be found in Huehnergard 2012: 23, where it is stated that their actual pronunciations are unknown.

nants were not preserved in Ugaritic, having merged with ⟨š⟩ and ⟨ṣ⟩. The historical correspondences between Ugaritic and its Northwest Semitic neighbours, Hebrew and Syriac, are offered in Table 2. The Proto-Semitic reconstruction is provided in two variants: the traditional one, found in the older Ugaritic handbooks, and its counterpart reflecting the middle version of the Affricate Hypothesis.

Proto-Semitic (traditional)	Proto-Semitic (Affr. Hyp.)	Ugaritic (alphabetic)	Biblical Hebrew	Syriac Aramaic
*s (s$_3$)	*ts	⟨s⟩	⟨s⟩ (samek̲)	⟨s⟩ (semkaṯ)
*z	*dz	⟨z⟩	⟨z⟩ (zayin)	⟨z⟩ (zayn)
*sˁ	*ts’	⟨ṣ⟩	⟨ṣ⟩ (tsade)	⟨ṣ⟩ (ṣāḏe)
*θ	*θ	⟨ṯ⟩	⟨ʃ⟩ (šin)	⟨t⟩ (taw)
*ð	*ð	⟨ḏ⟩	⟨z⟩ (zayin)	⟨d⟩ (dālaḏ)
*θˁ	*θ’	⟨ẓ⟩	⟨ṣ⟩ (tsade)	⟨ṭ⟩ (teṯ)
*ʃ (s$_1$)	*s	⟨š⟩	⟨š⟩ (šin)	⟨š⟩ (šīn)
*ɬ (s$_2$)	*ɬ	⟨š⟩	⟨ɬ⟩ (śin)	⟨s⟩ (semkaṯ)
*ɬˁ	*ɬ’	⟨ṣ⟩	⟨ṣ⟩ (tsade)	⟨ṣ⟩ (ṣāḏe)

Table 2. Historical correspondences between Ugaritic and its neighbour languages

While the analysis of genetic correspondences between the Semitic sibilant phonemes is obviously important for their phonetic interpretation, a direct projection of phonetic values from randomly chosen related languages has its limitations. This was shown in Tropper 2012, a monograph that displays awareness of the Affricate Hypothesis and strives to draw consequences from the contacts between Ugaritic and the neighbouring languages, primarily Hittite and Akkadian.[14] The important result of this investigation is the reinterpretation of the triplet ⟨s⟩, ⟨z⟩, ⟨ṣ⟩ as affricates /ts/, /dz/ and /ts’/ (Tropper 2012: 102–107). On the one hand, Josef Tropper observes that the inherited lexemes feature these phonemes as reflexes of Proto-Semitic sounds that are now reconstructed as */ts/, */dz/ and */ts’/. On the other hand, he points out that Ugar. ⟨s⟩ corresponds to the Hittite affricate /ts/ in the regional *Wanderwörter*, e.g., Ugar. *ḫswn* vs. Hitt. *ḫazzuwani-* ‘(a garden plant)’ or Ugar *spsg*, *sbsg* vs. Hitt. *zapzagi-* ‘glaze (vel sim.)’.[15] In syllabic cuneiform, Ugar. ⟨s⟩ was rendered with the Z-series or, more rarely, with the S-series (Tropper 2012: 104).

Tropper’s treatment of the remaining sibilants is equally thorough but less revolutionary. Thus, he endorses the postalveolar articulation of ⟨š⟩ in Ugaritic with the observation that the Canaanite borrowings in second-millennium Egyptian show ⟨š⟩, not ⟨s⟩ or ⟨ś⟩, as the Canaanite reflex of the same Proto-Semitic sibilants that yielded ⟨š⟩ in Ugaritic (Tropper 2012: 108). He also affirms the preservation of interdental fricatives in Ugaritic. Although he does not fail to

[14] The first edition of Tropper’s monograph was published in the year 2000 and already contains essentially the same stances on the topics that are relevant to the present paper. The phoneme /θ/ is frequently misprinted as /m/ in Tropper 2012.

[15] At the same time, he mentions a possibility that the Ugaritic phoneme /ts/ underwent deaffrication at least in some positions in the 13th century BCE. His argument for this claim is the innovative grapheme ⟨ṣ̀⟩, which takes over the value /ts/ in some Ugaritic texts and is particularly common in borrowed lexemes (Tropper 2012: 40–50). For example, Ugar. *ḫswn* ‘(a garden plant)’ and *spsg*, *sbsg* ‘glaze’ have variants *ḫṣ̀wn* and [s̀]*pṣ̀g*, respectively (DUL: 406, 758). According to Wikander 2022: 439–440 with fn. 37, the result of the deaffrication of /ts/ may have been the laminal fricative /s̻/.

notice that ⟨ṯ⟩ frequently renders alveolar sounds in borrowed words (cf. Section 5), he provides the following explanation for this phenomenon: "Assuming that in Ugaritic the series of sibilants /s-z-ṣ/ was affricated, only /š/ and /ṯ/ were available for the representation of apical voiceless sibilants. Since Ugaritic /š/ was apparently articulated as palatal [š], it was unsuitable for this purpose. Thus, the Ugaritic phoneme /ṯ/ remained the only candidate" (Tropper 2012: 113, translation ours).

Turning to the articulation of Ugar. ⟨ḏ⟩, Tropper (2012: 101) stresses the instances of synchronic variation between this grapheme and the stop ⟨d⟩, as well as those instances where Ugar. ⟨d⟩ represents an etymological interdental fricative. For example, *ḏrʕ* 'seed, seed-grain' alternates with *drʕ* (see also DUL: 278), while *dbḥ* 'sacrifice' cannot be separated from *zbḥ*, attested with the same meaning in Hebrew, Phoenician, and Punic, as well as Arabic *ḏabḥ* 'sacrifice' (DUL: 259). Furthermore, as argued in Tropper 2012:113, there are instances of synchronic variation between the graphemes ⟨ẓ⟩ and ⟨ṭ⟩ in Ugaritic texts as well as lexemes where ⟨ẓ⟩ goes back to the Proto-Semitic "emphatic" stop. Thus, Ugar. *ṭhrm* 'pure (pl.)' has the variant *ẓhrm* (see also DUL: 875), while Ugar. *ḫlmẓ*, if indeed meaning 'snake' or 'dragon', is cognate with Akkadian *ḫulmiṭṭu* 'dragon vel sim.' and Syriac. *ḫūlmaṭā* 'large lizard, chameleon' (see also DUL: 387). The facts mentioned in this paragraph support the preservation of the interdental articulation of ⟨ḏ⟩ and ⟨ẓ⟩. No parallel alternations are cited, however, in the instance of /ṯ/, if we exclude the Ugaritic Short Alphabet, where the number of signs is generally reduced.

Josef Tropper's views on the Ugaritic affricates found a broad following in modern scholarship, see, e.g., Kogan 2009: 208, Hawley 2020: 264, Schneider 2024: 128. At the same time, some scholars went further in the application of the Affricate Hypothesis and assumed that not only the deaffrication */ts/ > /s/ but also the shift */s/ > /ʃ/ failed to be implemented in Ugaritic. This claim is advanced in Hutton 2006: 78–81 in connection with the derivation of *mḫšt* 'I smote' from the root *mḫṣ* 'to smite'. It is indeed logical to account for the morphophonemic alternation between ⟨ṣ⟩ and ⟨š⟩ in this case by assuming the conditioned sound change */ts/ > /s/ before the stops. At the same time, there is no compelling reason to believe that this sound change happened during the attested stage of Ugaritic, as opposed to occurring in its prehistory and feeding the subsequent shift */s/ > /š/. Nevertheless, Hutton's suggestion was followed in Kogan 2009: 208 and Hawley 2020: 264, perhaps because these scholars were reluctant to reconstruct a rich system of Ugaritic sibilants without a phoneme /s/ for typological reasons.

At this point, it behoves us to turn to another suggestion regarding the graphic rendering of /s/ in Ugaritic, which predate the rise of the Affricate Hypothesis. As stated in Cross 1962: 250: "It has long been recognized that etymological *ṯ* at Ugarit […] actually has already shifted in pronunciation, probably to something like /s/ by the time of our texts […] The change from the sound *ṯ* to *s* or the like can be shown by transcriptional materials, Hittite, Egyptian and Ugaritic". The paper under discussion fails to provide references to earlier scholars that shared the same view or to explicate what constitutes the Ugaritic evidence. But the Egyptian and Hittite evidence are illustrated in Cross 1962: 250, fn. 115. On the one hand, the name of Suppiluliuma, king of Hattusa, whose initial syllable is rendered with ⟨šu⟩ in Hittite texts, is transliterated in Ugaritic as *ṯpllm* (DUL: 911–912). On the other hand, the island of Alasiya/Cyprus, recorded as *ʾa₂-ra-sa* in Egyptian group writing, is transliterated in Ugaritic as *ảlṯy* (see also DUL: 65). These observations paraphrase parts of the argumentation that was advanced in Friedrich 1943: 7–9 in order to demonstrate that the phonetic realisation of Ugaritic ⟨ṯ⟩ was /s/ or /ʃ/, but not /θ/.[16] The hypothesis that Ugaritic ⟨ṯ⟩ was phonetically close to the pronunciation

[16] For the earlier papers, which advocated the same view in the wake of the decipherment of Ugaritic, see Friedrich 1943: 7, fn. 2. Naturally, the transcription signs used in these early publications differ from the modern phonological conventions adopted in the present paper.

of /s/ in the languages of Asia Minor was later endorsed in Degen 1967: 50 on the basis of similar contact-linguistic evidence.[17]

Yet, for whatever reason, the claims by Friedrich, Cross, and Degen made little impact on the subsequent development of Semitic historical phonology. It is remarkable that even the scholars addressing contacts between the Semitic languages and their neighbours frequently failed to cite these claims. This may be primarily due to the understandable background limitations of individual researchers. Thus, Hoch (1994: 403) assumes that the evidence for the alveolar pronunciation of Ugaritic ⟨t̲⟩ is based primarily on Levantine forms in Egyptian transmission, leaving out of consideration the Anatolian part of the argument. Conversely, no mention of Semitic borrowings in Egyptian is made in the discussion of rendering Hittite /s/ with Ugaritic ⟨t̲⟩ in Yakubovich 2010: 152b or Hoffner and Melchert 2024: 60, where the interpretation of Ugaritic data is entirely based on Tropper's views. At the same time, scholars focusing on the Semitic languages sometimes have a limited command of contact-linguistic issues involving their non-Semitic neighbours. Indicative of this state of affairs is the assertion: "The renderings of Hittite sibilants in Ugaritic texts have not yet been thoroughly studied" (Schneider 2024: 111, contrast, e.g., Patri 2009).

Given this history of research fragmentation, it is perhaps unfair to expect that impulses from Hurritology could affect the interpretation of Ugaritic sibilants to any significant extent. For the majority of Semiticists, drawing upon the Hurrian data in an attempt to elucidate Semitic historical phonology would probably represent a paragon example of *clarum per obscurius*. Objectively speaking, however, the intensity of contacts between the Hurrian and Ugaritic languages allots Hurrian a special place in the phonetic interpretation of Ugaritic, provided that the values of Hurrian phonemes can be assessed on independent grounds.

4. Phonetic interpretation of Hurrian sibilants.

The goal of this section is integrating various kinds of the available evidence in order to propose the most plausible phonetic values for the Hurrian sibilant phonemes. An exception is made for the Hurrian forms in Ugaritic transmission, whose treatment is relegated to the next section in order to avoid circular reasoning.

It seems appropriate to begin with the discussion of the Hurrian phoneme hidden behind the S-series, whose affricate interpretation represents one point on which modern scholars seem to agree. As mentioned in Section 2, its presence is limited to the Mitanni orthography. While the list of Mitanni Hurrian forms featuring the signs ⟨sa⟩, ⟨si⟩, or ⟨su⟩ may be extended with the definitive edition of the Mitanni Letter, at present we are aware of the following attestations:[18]

[17] The most recent attempt to defend the phonetic realization of Ugaritic ⟨t̲⟩ as "something like /s/" is found in the papers by Ola Wikander (see in particular Wikander 2015: 388). One finds there a brief critical discussion of Tropper's views on the phonetic realization of ⟨t̲⟩, which resonates with the argumentation advanced in the handout "Phonetic Interpretation of Hurrian Sibilants in the Light of Indo-European Evidence" by Ilya Yakubovich (2009, see further fn.1). Without doubting the originality of Wikander's ideas, it is appropriate to treat his contribution as part of the intellectual dialogue that facilitated the gestation of the present paper.

[18] Here and below, we continue to use the traditional analytical transcription of Hurrian forms, where the convention of rendering sibilants is based on the views of Wilhelm and Giorgieri (see Section 2). We differ, however, from the earlier practice of marking all the morpheme boundaries as ⟨=⟩ in the analytical transcription. In our transcription, the signs ⟨+⟩ and ⟨-⟩ mark the attachment of the derivational and inflectional morphemes, respectively, while ⟨=⟩ is reserved for clitic boundaries.

Transliteration	Conventional Transcription	Translation	Attestation
ap-su-u-ša	apc-ōž-a	'he X-ed'	iv 63
ap-su-ša-a-ul-la	apc-ož-aw=lla	'I X-ed them'	iv 63
^{I}A-sa-a-li-	Acali	(PN)	iv 36, 37
ḫi-su-ú-hi-wa-ʿaʾ-en	ḫic+ūġ-i-vā-en	'may he not upset'	iii 85
ḫi-su-ú-hi-wa-a-en			iii 89
ḫi-su-ú-h[i-wa]-a-en			III 95
ḫi-su-ú-hul-li-e-et-ta-	ḫic+ūġ-o(l)l-ē=tta	'I would be upset'	iv 10
ḫi-su-ú-hu-lu-ú-en	ḫic+ūġ-ol-o-v(a)-en	'may he not be upset'	i 110
ḫi-su-ú-hu-uš-x[	ḫic+ūġ-uš[tʾ…]	(unclear)	ii 52
ḫi-su-ú-hu-ši-úw-wu	ḫic+ūġ-ož-i-uffu	'I did not upset'	iv 33
bi-su-un-ni-	pic+o+n(i)-ne-n	'in a joyful way'	i 79
bi-su-u-u-ni-i-			iii 4
bi-su-uš-te-e-wa	pic-ošt(-i)-ēva	'(I) would rejoice'	ii 55
bi-sa-an-ti-iš-ti(n)-	pic+and-išt-i	'(one)ʾ will rejoice'	iv 44
bi-sa-an-du-ši-i-it-ta	pic+and-ož-ī=tta	'I rejoiced'	iv 9
bi-su-uš-ta	pic-ošt-a	'(I) rejoice'	ii 62
b[i-s]u-uš-ta-iš	pic-ost(-i)-ai-ž	'that (we) may rejoice'	i 80
su-bi-a-a-maš-ti-en	cubi+ām-ašt-i-en	'may he glorify'	iii 72
su-bi-a-a-maš-ti-e-ʿniʾ-			iii 88

Table 3. S-series in the Mitanni Letter

One can infer from the above examples that the attestation of the S-series is limited to one personal name and four verbal roots, *apc-* '?', *ḫic-* 'to upset', *pic-* 'to rejoice', and *cubi-* 'to glorify'. There are no instances of consonant replication involving the signs of this series. If we exclude the factor of chance (which is not so easy to do given the small number of the roots involved) this distribution speaks for the S-series corresponding to only one sibilant phoneme. The main etymological argument for its affricate realization is the comparison between Hurrian *pis-* 'to rejoice' and Urartian *piṣuše* 'joy' (Diakonoff 1971: 76; Harouthiounian 2001: 458a). The affricate realization of the "emphatic" sibilant in Urartian finds direct support in the Urartian toponym ^{KUR}*Ṣu-pa-ni* corresponding to Armenian Ծոփք/*Coph-kh* 'Sophene' (Diakonoff 1971: 48; Harouthiounian 2001: 522).[19]

Luckily, the root *pis-* 'to rejoice' is also attested in Akkadian texts from Ugarit in the personal name *bi-zu-ni* and the forms [*b*]*i-zu-ni-la-an* and *bi-za-an-ti-* (van Soldt 1991: 357, fn. 224). As mentioned in Section 3, the cuneiform Z-series is otherwise used for sequences with Ugaritic /ts/. The confusion between the S and Z-series in Hurrian lexemes attested in syllabic cuneiform transmission in texts from Ugarit could find explanation in the phonetic similarities of the respective Hurrian sibilants. This brings us to the more general question of the distribution between the S and Z-series in Hurrian texts. The Boğazköy orthography does not use the S-series at all in Hurrian forms, but the Mitanni Letter features both groups of signs with lexi-

[19] It is also probable that the Ṣ-series was used for rendering combinations with affricates in Neo-Assyrian cuneiform, whence the Urartian cuneiform conventions were ultimately borrowed. A structural argument for the affricate realization of the sibilant associated with the Ṣ-series in the Assyrian dialect of Akkadian, up to the Neo-Assyrian Period, is laid down in Kouwenberg 2003, see also Kogan 2011: 65 for evidence from the Neo-Assyrian loanwords in Egyptian.

cal distribution, as can be infer from the comparison between Table 3 and Table 4.[20] The principal distinction between the S and Z-series is that the latter one displays an opposition between spellings with and without consonant replication (contrast *ku-zu-u-šu* vs. *še-e-ni-íw-wu-ú-uz-zi*) and thus reflects a cluster of two phonemes, recorded as /s(s)/ and /z/ in the traditional analytical transcription.

Transliteration	Conv. Transcription	Translation	Attestation
an-za-a-an-nu-u-hu-ši	anz+ān+ōġ-ož-i	'he honoured?'	i 18
an-za-a-an-nu-u-[hi-e-n(i)-	anz+ān+ō[ġ-i-ēn]	'may? he honour?'	iii 87
an-za-an-nu-u-hu-ša-a-ú	anz+ān+ōġ-ož-āw	'I honoured?'	iii 50, 51
ku-zu-u-ši-úw-wu-	koz-ōž-i-uffu	'I did not detain'	iv 46
ku-zu-u-šu	koz-ōž-o	'you (sg.) detained'	iv 45
ku-zu$^{!}$-uš-ti-wa-a-en (written ⟨su⟩)	koz-ošt-i-vā-en	'may he not detain'	iv 40
$^{K\ [UR]}$mi-zi-ir-ri-e-we	mizri-nē-ve	'of Egypt'	i 62
^{KUR}m[i]-zi-ir-ri-e-we-ni-e-we	mizri-nē-ve-nē-va	'to Egyptian'	iii 105
^{KUR}mi-zi-ir-ri-e-we-ni-eš	mizri-nē-ve-nē-ž	'of Egypt'	i 85
še-e-ni-íw-wu-ú-uz-zi	šēn-iffū-ssi	'suitable for my brother'	iii 43
za-lam-ši	salm(i)+ži	'statue'	iii 77, 90, 97, 99, 102
za$^{!}$-lam-ši (written ⟨ḫa⟩)			iii 106
za-ar-ra-	sarr-a	'booty'	i 89
za-a-zu-lu-u-ša[-a-ú]	sāz+ol-ōž-ā[w]	'[I] nourished'	ii 117
za-a-zu-lu-u-š[a-a-ú]	sāz+ol-ōž-ā[w]	'[I] nourished'	ii 124
zu-kán	sugan	(particle)	ii 11, iii 67, 68, 72
zu$^{!}$-kán (written ⟨su⟩)			iii 16

Table 4. Z-series in the Mitanni Letter

The same lexemes that were written with the Z-series in the Mitanni Letter were also recorded with the Z-series in Boğazköy Hurrian. Thus, the form *za-a-zu-lu-u-ša*[*-a-ú*] 'I nourished' can be compared with KBo 32.15 vs. 27a′ *za-a-zu-li-li-ta* 'he will be nourishing',[21] while *za-lam-ši* 'statue' is cognate with KUB 27.1 i 54 ^{D}*za-al-mi* 'divine statue', occurring in a Hittite context. Although the specific morphemes that are recorded with the S-series in the Mitanni Letter do not seem to occur in Boğazköy texts, it is impossible to attribute the lack of the S-series in Boğazköy orthography to a lexical gap. The corpus of Boğazköy Hurrian texts is far larger than that of Mitanni Hurrian, and statistical considerations would militate against an accidental absence of one of the Hurrian affricates in this corpus. One could rather assume that the confusion between the S and Z-series for rendering the Hurrian sounds, typical of Hurro-Akkadian, culminated in the generalization of the Z-series at the expense of the S-series typical

[20] Table 4 excludes fragmentary forms and lexemes of unknown meaning. The two instances of ⟨su⟩ written instead of ⟨zu⟩ in the forms collected in this table must be explained through the graphic similarity of both cuneiform signs, and in IV 40 one may even doubt which of the two signs was intended by the scribe.

[21] The forms with the dissimilation of sibilants are also attested, e.g., KBo 32.19 vs. 6a, 8a *za-a-šu-lu-u-ša* 'he nourished'. Compare also the alternating spelling *ka-a-šu-uš* and *ka-a-zu-u-uš* 'like a cup' in the same Hurrian manuscript of the Song of Release KUB 32.19. In the last case we are probably dealing with different strategies of adapting a loanword.

of peripheral Akkadian. Once again, this graphic explanation would only make sense if the sibilants hidden behind the S and Z-series had a certain phonetic feature in common, which was not shared by the Š-series. As mentioned in Section 1, the Z-series is used for sequences with the affricate /ts/ in Hittite orthography, while the affricate pronunciation of the sibilant associated with the S-series was argued on independent grounds for Mitanni Hurrian earlier in this section (cf. also Section 5 for additional evidence from Ugarit). These facts are compatible with the conclusion that the shared phonetic feature of the Hurrian sibilants that were rendered with the help of the S and Z-series consisted in their affricate pronunciation.[22]

Yet another argument for the affricate interpretation of the Z-series comes from the Mitanni Letter. The Hurrian stems for 'statue' and 'Egypt' listed in Table 4 represent transparent loanwords from Akkadian going back to *ṣalmu-* 'statue' and *miṣru-* 'frontier, Egypt', respectively. The pronunciation of Proto-Semitic "emphatic" **ṣ* as */ts'/ and its affricate reflexes in ancient Semitic languages constitute the most secure part of the Affricate Hypothesis (Kogan 2011: 62–65). There is no obvious rationale why this "emphatic" sound could be borrowed as /s/ in Hurrian, especially given independent evidence for the Hurrian affricate rendered by the S-series. In contrast, the borrowing of /ts'/ as /ts/, with the loss of "emphatic" ejective articulation, would be phonologically natural, while the association of the Z-series with the affricate /ts/ would find a direct counterpart in Hittite orthography. [23] Admittedly, spellings such as *mi-zi-ir-ri-e-* suggest the presence of a voiced/lax sibilant in the Hurrian word for 'Egypt', but this is no doubt a result of the voicing assimilation */mitsri/ > /midzri/. Such a process fully conforms to the rules of Hurrian phonology (Giorgieri 2000: 184) and must accordingly postdate the borrowing episode.[24]

A further argument for the affricate articulation associated with the Z-series in Boğazköy Hurrian comes from a morphophonemic change. In Hurrian texts from Hattusa, the Z-series can be used in the morphemes that are otherwise spelled with the Š-series if the sibilant appears immediately after /n/ or /l/. For example, the standard plural marker of the Hurrian nouns and adjectives is *-ž-*, contrast the directive forms KBo 27.219+ rev. 5′ *we$_e$-e-šu-ta ~ fē-ž-uda* 'toward you (pl.)' vs. KUB 47.2:12′ *wi$_i$-ú-ta ~ fē-uda* 'toward you (sg.)'. The plural marker, however, appears as *-z-* in the inflected forms of the third person plural pronoun after the nasal, e.g., DAAM 1.14 obv. 11′ *ma-an-zu-u-uš ~ man-z-ōž* 'they (ergative)', KUB 31.3 obv. 6 *ma-an-zu-u-ra ~ man-z-ōra* 'with them' *ma-an-zu-u-ra ~ man-z-ōra* 'with them'. The same phonological rule

[22] The hypothesis outlined above does not go beyond positing a graphic merger between two sibilant series in Anatolia, which is sufficient for the essential claims of this paper. At the same time, if one reconstructs a community of Hurrian scribes whose native language was Hittite or Luwian, for example, in Kizzuwadna, such scribes may have easily lost phonetic distinctions between the affricates corresponding to the S and Z-series under the influence of their vernaculars.

[23] Cf. also the case of *za-ar-ra-* 'booty' in Table 4, which is sometimes compared with Classical Armenian *caṙay* 'slave'. The correspondence between the initial affricates in both languages would be consistent with the interpretation offered in this section, but the suffix of Arm. *caṙay* rather points to the Aramaic origin of this noun (Nielsen 2023: 25–26). Perhaps we are dealing with a loanword from Hurrian or Urartian that passed through several languages on its way to Armenian.

[24] Additional lexical items borrowed from Akkadian can enhance our knowledge of the pronunciation of sibilants in those dialects of Akkadian that were in contact with Hurrian. Thus, Hurr. *a-(az)-zi-i-ri* 'prisoner', *ḫa-az-zi-zi-* 'wisdom', *ka-a-(az)-zi* 'cup, goblet', and *pa-ri-iz-za-ḫe* 'a measure of capacity', all attested in Boğazköy texts, are usually assumed to have been borrowed from Akkadian *asīru-* 'prisoner of war', *ḫasīsu-* 'understanding', *kāsu-* 'cup, goblet', and *parīsu* '(a measure of capacity)' (BGH: 54, 141, 192, 301). If one accepts that the signs of the Z-series rendered combinations with affricates in Boğazköy Hurrian, the simplest solution would be to assume the affricate realization of the matching Akkadian sibilants in the contact zone. Such a conclusion fits well with the reinterpretation of Proto-Semitic **s* as */ts/ within the framework of the Affricate Hypothesis (cf. Section 1).

underlies the allomorphic distribution of the Hurrian abstract suffix +*ze*/+*že*: contrast KUB 29.8+ iii 18 *it-kal-za-a-e ~ itk+al+z(e)-ae* 'with purification', KUB 32.15 rev. 2a *ki-ri-en-zi ~ kir+en+ze* 'liberation' vs. KUB 47.93:4 *ú-pu-kar-še-ni ~ ub+ugar+že-ne* 'from the battle'.[25] This rule can be accounted for in terms of phonological naturalness through the assumption of a *t*-epenthesis between the nasal or lateral and the following sibilant driven by articulatory constraints, to be compared with the changes /ns/ > /nts/ and /ls/ > /lts/ in the geographically adjacent Luwian language (Yakubovich 2015, § 5.2.2, cf. Melchert 2020: 249).[26] The original place of articulation associated with the Š-series was presumably extended to the affricate resulting from the *t*-epenthesis.

One must now approach the phonetic realization of the Š-series, which is better represented in Hurrian texts than either the S or Z-series. There are two independent arguments that support the alveolar articulation /s(s)/, /z/, as opposed to the postalveolar articulation, (/ʃ(ʃ)/, /ʒ/), for the phonemes under discussion. On the one hand, the few Hurrian names attested in Ancient Egyptian transmission, namely Agi-Tessob, Ini-Tessob, Tili-Tessob, and Tulbi-Sarri consistently use phonograms featuring ⟨ś⟩ in their transliteration for rendering the Hurrian sibilant in the morphemes *teššob* 'Storm-god' and *šarri* 'divine king' (Schneider 1992, ## 39, 79, 503, 510). As mentioned in Section 1, ⟨s⟩ and ⟨ś⟩, as opposed to ⟨š⟩, were used to transmit the alveolar fricative sounds in the second millennium BCE Egyptian. On the other hand, the Hurrian fricatives find a regular correspondence in the Urartian sibilant that was recorded with the help of the Š-series, e.g. Hurr. *ša-ú-ri* 'weapon' vs. Urart. *šú-ri* 'id.', Hurr. ^{D}*te-eš-šu-up* 'Storm-god' vs. Urart. ^{D}*te-i-še-e-ba* 'id.', Hurr. *tar-šu-wa-an-ni* 'human' vs. Urart. ^{LÚ}*ta-ar-šú-a-ni* 'id.' (Harouthiounian 2001: 465b, 467b, 490a). Since Urartian cuneiform was derived from its Neo-Assyrian counterpart, it is reasonable to expect that the Š-series was used for sequences with the Urartian alveolar sibilant /s/, as was also the case in Neo-Assyrian. Independent evidence for the alveolar articulation of the Urartian fricative hidden behind the Š-series comes from the Urartian borrowings in Classical Armenian, e.g., Urart. *šá-ni* 'vessel' vs. Arm. *san* 'cauldron', Urart. ^{URU}*ṭu-uš-pa* '(town name)' vs. Arm. *Tosp* '(town name)' (Harouthiounian 2001: 462b, 526a).[27] Since both Neo-Assyrian and Classical Armenian feature the phonemic distinction between /s/ and /ʃ/, the proposed phonetic interpretation of the Urartian Š-series appears to be reasonably certain. The converging evidence of names in Egyptian transmission and Urartian cognates lends in turn considerable support to the association between the alveolar fricatives and the Hurrian Š-series. The fact that the fricative sibilants associated with this series occur more frequently than the affricates in Hurrian texts, of course, squares well with the general typological expectations.

[25] For the data that support the proposed distribution of the suffix allomorphs, see Giorgieri 2000: 2003, although the formulation of the phonological rule is our own. The same alternation pattern is attested in the collective suffix +*šari*/+*zari*: contrast, e.g., KBo 32.14 obv. 20a vs. *ti-ip-ša-a-ri* 'matter(s)' vs. KBo 32.14 obv. 36a *e-en-za-a-ri* 'gods'. Sometimes one observes an optional application of the rule under discussion, e.g., KBo 32.214 i 8′ *al-zi-ia-al-li* vs. KUB 47.5+ iv 13 *a-al-ši-ia-al-li* 'opponent (vel sim.)'.

[26] The same change is attested in the history of Hittite, as., e.g., in the oblique pronominal stem *anz-* < **ans-* < **ns̥-* 'us' (Melchert 1994: 97). Unlike Luwian, however, Hittite does not appear to feature this process as a synchronic morphophonemic rule.

[27] For the synchronic phonological system of Classical Armenian, rich in fricative and affricate sounds, see Schmitt 2007: 35–36. The scope of lexical contacts between Urartian and Classical Armenian continues to represent a debatable issue: one can contrast the liberal approach of Greppin 2011, a paper that specifically focuses on sibilants, with the more balanced treatment of Nielsen 2023: 2–37 and the skeptical attitude of Simon 2022. Yet, whichever approach one follows, there are enough data for establishing the basic correspondence between the Urartian Š-series and classical Armenian /s/.

If one interprets the Hurrian fricatives as the tense alveolar fricative /(s)s/ and the matching lax alveolar fricative /z/, this is conducive to a hypothesis that the pair of tense and lax affricates rendered by the Hurrian Z-series had the same alveolar place of articulation. Indeed, we have seen earlier in this section that the Z-series is used in Akkadian loanwords, where it corresponds to the alveolar affricates interpreted as /ts/ and /ts'/ in the source language. Both sounds were presumably transmitted as the tense affricate /ts/ in Hurrian. A likely source for the matching lax affricate /dz/, which must have been additionally cued by voicing, was the epenthesis after /n/ or /l/, as in *kir+en+ze* ~ /kirendze/ 'liberation' or *itk+al+ze* ~ /itkaldze/ 'purification'. The interpretation of the affricate in these clusters as lax follows from the general rule, according to which clusters with sonorants contain lax consonants, e.g., *mizri* ~ /midzri/ 'Egypt' or *ub+ugar+že* ~ /ubugarze/ 'battle'.

The affricate corresponding to the S-series in Mitanni Hurrian must have contrasted with /ts/ and /dz/. Pinpointing its precise phonetic realization appears to be impossible at the present state of our knowledge, but one can attempt to point out more and less probable interpretations. An assumption that the affricates differed from all the other Hurrian consonants in featuring additional oppositions expressed by larynx gestures, or reflecting them in writing, would hardly be a parsimonious solution. In addition, an affricate marked by a special laryngeal feature, such as aspiration or glottalization, would probably be written with consonant replication in the intervocalic position to mark the delayed release. The orthography reflected in Table 3 shows the opposite state of affairs: the signs of the S-series appear to be incompatible with consonant replication in Mitanni Hurrian. Against such a background, more credence accrues to a hypothesis that the S-series contrasted with the Z-series through the place of primary articulation of the relevant affricates. The use of the S-series for sequences with the postalveolar fricative /ʃ/ in Neo-Assyrian would provide an approximate typological parallel for its potential use in sequences with the postalveolar affricate in Hurrian. In this connection, it is also worth pointing out the presence of postalveolar affricates in Old Indo-Aryan, even though none of the Hurrian lexemes reflected in Table 3 have a transparent Indo-Aryan etymology.

The revised interpretation of the Hurrian sibilants is reflected in Table 5 below, with the caveat that the proposed realization of the S-series merely represents one of several possibilities.

Mitanni orthography	Boğazköy orthography	Ugaritic orthography	Interpretation by Wilhelm	Interpretation by Diakonoff	New suggestion
aš-ša, a-ša	aš-ša, a-ša	⟨t̲⟩, ⟨d̲⟩	ʃ, ʒ	θ	s(s), z
az-za, a-za	az-za, a-za (?)	⟨s⟩(?), ⟨z⟩(?)	s, z	dz	ts, dz
a-sa	a-za (?)	⟨s⟩(?), ⟨z⟩	ts	ts	tʃ/dʒ (?)[28]

Table 5. The Hurrian sibilants and their revised interpretation

It is, however, to be noted that none of the considerations adduced in this chapter offers decisive arguments against the interpretation of the Hurrian fricatives as /θ(θ)/ and /ð/. Neither the second millennium Egyptian nor Classical Armenian feature interdental fricatives as phonologically contrastive segments. Therefore, a devil's advocate could argue that the Hurrian and Urartian interdental fricatives were systematically adapted as alveolar fricatives in these both languages. To be sure, it is possible to object to such an argumentation that the sys-

[28] It is tentatively assumed that the Hurrian phoneme corresponding to the S-series had tense and lax allophones. For the justification of this suggestion, see the discussion of the possible Ugaritic reflexes of this phoneme at the beginning of the next section.

tem featuring a pair of fricatives /θ(θ)/ and /ð/, the affricates /ts/ and /dz/, but no phoneme /s/, is typologically unusual. Yet, as far as phonetic interpretation goes, typological observations rarely outweigh direct evidence from the treatment of loanwords. The necessity to reconcile the conclusions made thus far with the extensive use of ⟨t̲⟩ in Hurrian forms attested in Ugaritic transmission prompts the renewed examination of Ugaritic sibilants.

5. Phonetic interpretation of Ugaritic sibilants

The Hurrian forms in Ugaritic alphabetic transmission are consistent with the affricate realization of the sibilants that are associated with the S-series in Mitanni orthography. The crucial match involves the Hurrian adverb *bi-su-un-ni-* 'in a joyful way', (see Table 3). This adverb shares the root and probably the suffix with the second component of the compound personal name *ỉwr-pzn*, to be understood as "(Divine) lord is joy" or "(Divine) lord is joyful" (DUL: 129, Burlingame 2020: 201–202). Furthermore, the personal name *pzny* (DUL: 678) must represent a hypocoristic shortening of a compound personal name with an element *pzn* 'joy(ful)'. The presence of the Hurrian female personal names ^{f}*bi-zu-ni*, ^{f}*bi-zu-ni-e*, and ^{f}*te-ḫu-ub-bi-zu-ni* in Nuzi onomastics yields further support to the proposed interpretation (Gelb et al. 1943: 246). If one accepts Tropper's analysis of the Ugaritic ⟨z⟩, this means that the intervocalic sibilant rendered by the cuneiform signs of the S-series in Mitanni Hurrian was adapted as the affricate /dz/ in Ugaritic transmission.

In addition, there are some Hurrian lexemes featuring affricates in Ugaritic transmission, the counterparts of which do not occur in the Mitanni Letter. Thus, Ugaritic *ảlz* cannot be separated from the West Hurrian goddess Allanzu, which is attested as both *al-la-zi* and *a-la-an-zu* in syllabic cuneiform transmission in Ugarit (BGH: 13, DUL: 66). The first morpheme of the Hurrian theophoric personal name *sl-t̲mg* (DUL: 751) must be considered together with the onomastic element *zil-*, which occurs with high frequency in Nuzi personal names, including theophoric names (Richter 2016: 506). Beyond these two examples, the matches become more controversial.[29] In any event, the affricates involved cannot be specifically equated with either S or Z-series.[30] The only thing one can affirm is that they do not contradict the affricate articulation associated with the Z-series, whose primary support comes from cuneiform evidence.[31]

The data become more explicit once we turn to the Ugaritic counterpart of the syllabic Š-series in Hurrian. Table 6 below features theophoric personal names with recurrent elements *ḏn*/*t̲n* 'brother', *ḏr*/*t̲r* 'king', *ḏrm*/*t̲rm* 'Sarruma', *ḫḏm* 'is shining', *kḏ*(*ġ*)/*kz* 'Moon-god', *šmg*/*t̲mg* 'Sun-god', and *tt̲b* 'Storm-god'. No attempt was made to collect all the names with the relevant

[29] For a tentative list of Hurrian forms in Ugaritic transmission with parallels in syllabic orthography, see BGH: 554–556, and many of the forms in this list feature ⟨s⟩ or ⟨z⟩. Unfortunately, some relevant lexemes were assigned meanings based on speculative etymologies in previous scholarship, while others may have been borrowed into both Ugaritic and Hurrian from a third source.

[30] It is possible to make tentative suggestions regarding the distribution of ⟨s⟩ and ⟨z⟩. In rendering the Hurrian affricates corresponding to the Z-series, it presumably reflected the phonological contrast between the tense and lax consonants, with the same neutralization positions as in the instance of the fricatives, for which see Giorgieri 2000: 184. In rendering the Hurrian affricate corresponding to the S-series, it was presumably automatic, with only ⟨z⟩ occurring intervocalically. This hypothesis admittedly reflects an extrapolation of the available Ugaritic evidence in an attempt at harmonizing it with the cuneiform orthography of the Mitanni Letter.

[31] Cf. also the spelling of the Anatolian town Lawazzantiya as *lwsnd* and the Luwian personal name *Pirwa-ziti* as *prwsdy* in Ugaritic transmission (DUL: 503, 674). An irregular reflex of a Hurrian affricate is found in Ugar. *ḫndr̲t* 'a fruit tree' vs. Hurr. *ḫinzuri* 'apple' (DUL: 393, Kilani 2023: 38).

morphemes, but each of them occurs at least twice in Table 6, to ensure the reliability of the segmentation. All these elements are also attested in cuneiform transmission, where they are recorded with the signs of the Š-series: *šena* 'brother', *šarri* 'king', *šarruma* 'Sarruma', *ḫešmi* 'is shining', *kušuḫ* 'Moon-god', *šimiga* 'Sun-god', and *teššob* 'Storm-god'.

Transliteration	Simplified transcription	Translation	Reference to DUL
ỉb/wrḏr	Evri-sarri	"(Divine) lord is king"	p. 12
ågb/pṯr	Agip-sarri	"(Divine) king raised'	p. 25
åg/kd/tṯb	Agi-Tessob	"Storm-god raised"	p. 25
ågpṯn	Agip-sena	"(Divine) brother raised"	p. 26
åġlḏrm	Ehli-Sarruma	"Sarruma saved"	p. 29
iġlkḏ / **aġlkz** / **ġlkz**	Ehli-Kuzuh	"Moon-god saved"	pp. 29, 314
åġltṯb	Ehli-Tessob	"Storm-god saved"	p. 29
å/ỉrpṯr	Arip-sarri	"The (divine) king gave"	p. 101
ỉrrṯrm	Evri-Sarruma	"The lord is Sarruma"	p. 102
aršmg	Ari-Simiga	"Sun-god gave"	p. 105
årtṯb	Ari-Tessob	"Storm-god gave"	p. 107
ḫḏmḏr	Hizmi-sarri	"(Divine) king is shining"	p. 383
ḫḏmtṯb	Hizmi-Tessob	"Storm-god is shining"	p. 383
ḫḏmyn, **ḫzmyn**	Hizmi-Ani	"Sky-god is shining"	p. 383
kḏġdl	Kuzuh-adal	"Moon-god is strong"	p. 428
pnddn	Fandi-sena	"(Divine) brother is right"	p. 664
ṯmgdl	Simiga-adal	"Sun-god (is) strong"	p. 901
ṯrtṯb	Sarri-Tessob	"King is the Storm-god"	p. 920

Table 6. Hurrian theophoric names in Ugaritic transmission

The distribution between the Hurrian tense consonant ⟨ṯ⟩ and its lax counterpart ⟨ḏ⟩ in the table above does not offer a challenge. In agreement with the rules formulated in Giorgieri 2000: 184, the lax sound occurs in intervocalic position and in clusters with sonorants. The only problematic position is the consonant after a morpheme boundary, where the analogy with the free-standing form of the same morpheme can block the lenition. This happens, for example, in all the forms featuring *tṯb* 'Storm-god' as the second component, while in other compounds the lenition of the morpheme boundary appears to be sporadic: *åġl-ḏrm* vs. *ỉrr-ṯrm* (presumably, a scribal error for *ỉwr-ṯrm*). What represents a major challenge for the interpretation of Hurrian sibilants proposed thus far is the use of the signs for the etymological interdentals where one expects alveolar fricatives. In only a few instances, all marked in bold script in Table 6, do we find different conventions, which will be addressed at the end of this section.

According to a widely followed explanation in Tropper 2012, this convention was introduced *faute de mieux*. The Ugaritic speakers allegedly processed foreign alveolar fricatives as interdentals since they allegedly lacked alveolar fricatives in their phonological inventory (see Section 2). It is, however, to be noted that Tropper 2012 predicts a phonological system featuring /ts/ = ⟨s⟩, /θ/ = ⟨ṯ⟩, /ʃ/ = ⟨š⟩, but no phoneme /s/. To our best knowledge, there is no living language with such a phonological configuration. In fact, the database Moran and McCloy

2019 lists only five languages featuring /θ/ and /ʃ/ but no /s/, namely Turkmen (Turkic), Shawnee (Algonquian), Mbukushu and Gweno (Bantu), and Burun (Nilotic). None of these five languages, however, has the voiceless alveolar affricate /ts/ in its phonological inventory.

An obvious alternative to Tropper's solution is to take Hurrian evidence at face value, at least in part. The Hurrian voiceless alveolar fricative /s/ was rendered as ⟨ṯ⟩ in the Ugaritic alphabetic script because Ugaritic ⟨ṯ⟩ was pronounced as /s/. The implied sound change */θ/ > /s/ is typologically common, occurring, for example, in Ethio-Semitic languages (Kogan 2011: 55). In the history of Ugaritic, this change was presumably realized as a pull shift, following the equally trivial change */s/ > /ʃ/. What remains to be seen is whether the new interpretation complicates the account of contacts between Ugaritic and its neighbour languages or certain aspects of Ugaritic grammar.

In fact, the opposite is true: the interpretation ⟨ṯ⟩ = /s/ simplifies the description of Ugaritic phonology.[32] Dwelling on the topic of language contact, the spelling of the Hittite king Suppiluliuma as *ṯpllm* no longer requires any additional assumptions: Hittite /s/ was adapted in Ugaritic as /s/. A recently emerged parallel involving a Luwian loanword in Ugaritic is *mlġṯm* 'offerings', matching *malḫašše* in Akkadian texts from Ugarit (Melchert 2024: 140 with reference to Pardee, forthcoming). The Luwian word is attested itself as *malḫašša-* and LIBARE-*hasa-* in cuneiform and hieroglyphic transmissions, respectively.[33] The geographic name *kṯky* 'Kaskaean' (DUL: 466) was presumably borrowed via Hittite or Luwian, since the Kaskaeans constituted a northern Anatolian population group. In this case, we must also be dealing with an adaptation of /s/ in Ugaritic, whatever the original self-designation of the Kaskaeans was. The geographic name *åṯry* 'Assyrian' (DUL: 125) can likewise be explained via the adaptation of Assyrian /s/ (see Section 1 for the preservation of /s/ in the Assyrian dialect of Akkadian). The list of geographic names featuring ⟨ṯ⟩ in Ugaritic transmission, despite the lack of independent evidence for the presence of /θ/ in these toponyms, can easily be extended (cf. the presentation of a similar argument in Friedrich 1943: 8–9).

A different argument for the interpretation of Ugar. ⟨ṯ⟩ as /s/ is the high overall frequency of this phoneme, which distinguishes it from the reflexes of */θ/ in the other Semitic languages (Tropper 2012: 102). This suggests that, in addition to its primary origin, this phoneme must have had additional sources. According to Tropper (2012: 109–110) these are the irregular reflexes of Proto-Semitic *s_1 and, more rarely, *s_2, but most of the relevant etymologies are doubted in Kogan 2011: 94–95 on valid grounds. An alternative explanation would be a large number of loanwords with ⟨ṯ⟩ absorbed by Ugaritic. Some of the relevant non-Semitic loanwords have Hurrian counterparts, e.g. *ủṯpt* 'quiver' vs. Hurr. *išpa(n)ti* 'id.' (DUL: 123), *ṯdr* 'waitress, girl' (?) vs. Hurr. *šiduri* 'maiden, girl' (DUL: 886), *ṯryn* '(suit of) armour, protective padding' vs. Hurr. *šar*(*i*)*yanni* 'cuirass' (DUL: 921). Given the demonstrably close contacts be-

[32] In what follows, we forgo a detailed discussion of the data that can be easily reconciled with the phonetic interpretation of ⟨ṯ⟩ as /s/ as well as /θ/. For example, the fact that the Canaanite reflexes of */θ/ were rendered with the phonograph ⟨s⟩ in Egyptian (Hoch 1994: 402) is of limited value for our purposes, since /s/ was the closest sound to /θ/ available in the Egyptian phonetic inventory. *Mutatis mutandis*, the same goes for the rendering of the Ugaritic reflexes of */θ/ by the Š-series in cuneiform orthography (Tropper 2012: 112) or for the possible borrowings of Babylonian /ɬ/ as Ugaritic ⟨ṯ⟩.

[33] A potential piece of counter-evidence against the adaptation of Luwian /s/ as ⟨ṯ⟩ is the Luwian theophoric personal name attested in Ugaritic transmission as *trġ(n)ds* (Patri 2009: 97; del Olmo Lete and Sanmartín 2015: 865). While the connection of this name with the Luwian Storm-god Tarhunt is undeniable, its final consonant need not reflect an etymological fricative. The abbreviated form of the Luwian name *Tarhunta-ziti*, lit. "man of the Storm-god", namely *Tarhunta-zi*, attested as such in Anatolian hieroglyphic transmission, provides a regular counterpart to the Ugaritic form, with the expected rendering of Luwian /ts/ as ⟨s⟩ (Yakubovich 2022b: 240).

tween the two languages, the Hurrian origin of these Ugaritic lexemes ranges from certain to probable. A different case is that of the Ugaritic nouns with Hittite matches, e.g., *mṯyn* 'a garment' vs. Hitt. ^{TÚG}*maššiya-* 'id.' (DUL: 598), *iṯl* 'saliva, spittle' vs. Hitt. *iššalli-* 'id.' (DUL: 122), or *ḫṭṯ* 'silver', which evokes the variant Hittite spellings ^{URU}*ḫattuša* and ^{URU}KÙ.BABBAR-*ša* 'Hattusa', where KÙ.BABBAR is the Sumerogram for 'silver' (DUL: 372). Since direct loanwords from Hittite to Ugaritic are few and far between, such cases may bear witness to a common borrowing from a third source. Since /s/ is the most common sibilant cross-linguistically, it is indeed probable that the loanwords containing this phoneme, many of which have not yet been identified as such, increased its overall frequency. Such an account would, however, be impossible under the traditional interpretation of ⟨ṯ⟩ as /θ/.

Further support for the shift */θ/ > /s/ in the pre-history of Ugaritic comes from a morphophonemic change. To quote Schneider (2024: 87): "A truly remarkable case of sibilant grammatical rule in Semitic is the sibilant-interdental harmony rule found in Ugaritic. On the surface, the rule is a shift of the causative prefix */ʃ/ → /θ/ if the root has */θ/ as one of its radicals". One must share the author's surprise: the only other instances of sibilant harmony involving interdental fricatives that are familiar to us were described in the Tahtlan language and the Doig River dialect of the Beaver language, both belonging to the Athapascan group. In these cases, however, the rule has a historical explanation: the opposition between /θ/ and /s/ in Tahltan and Beaver goes back to the opposition between */s/ and */ʃ/ in Proto-Athapascan. (Hansson 2001: 69). In contrast, the harmony involving the alveolar vs. postalveolar distinction, that is /s, z, ts, dz/ vs. /ʃ, ʒ, tʃ, dʒ/, represents the most common type of sibilant harmony (Hansson 2001: 56). It is attested in the better-known Athapaskan languages, such as Navajo and Apache, but also occurs in many other languages across the globe, including Coptic dialects and Moroccan Arabic. The assumption of the anticipatory assimilation */ʃ/ → /s/ in the Ugaritic causative prefix, triggered by the presence of /s/ in the verbal root, immediately brings Ugaritic in line with this typologically common pattern.

Thus, there is convergent evidence for the interpretation of Ugaritic ⟨ṯ⟩ as a voiceless alveolar fricative. At the same time, there is no need to extend the alveolar interpretation to the other etymological interdental sounds. As shown in Tropper 2012, Ugaritic ⟨ḏ⟩ and ⟨ẓ⟩ show variation with ⟨d⟩ and ⟨ṭ⟩, respectively, in certain lexemes, while others bear witness to the historical changes */ð/ > ⟨d⟩ and */tʼ/ > ⟨ẓ⟩ (see Section 3). This pattern is consistent with the vestigial preservation of voiced and "emphatic" interdental fricatives in Ugaritic, despite their occasional confusion with coronal stops. The fact that no such confusion is attested in the instance of ⟨ṯ⟩ underscores once again that it no longer belonged to the interdental series. The phonetic reality behind the change */ð/ > ⟨d⟩ is confirmed by syllabic cuneiform: sequences with the reflexes of */θ/ are always rendered by the Š-series, whereas both Z and D-series are used for the reflexes of */ð/ in Ugaritic (Tropper 2012: 112, 118).

The discrepancy between the development of */θ/ and the other interdental fricatives finds a motivation in the structure of the Ugaritic phonological system. Assuming that */θ/ > /s/ was indeed a pull shift triggered by */s/ > /ʃ/, there was nothing to "pull" */ð/ and */θʼ/ in the direction of the alveolar fricatives, given the absence of */z/ and */sʼ/ in the Proto-Semitic phonemic inventory. Nor is the differential treatment of */θ/ and */ð/ unparalleled in Semitic. Schneider (2024: 92) provides the following information about two North-Eastern Neo-Aramaic dialects: "In the Jewish dialect of Challa, */θ/ merged with [s] but */ð/ merged with [d]. In the Jewish dialect of Amediya, /θ/ remained distinct, but /ð/ merged with [d], a situation reminiscent of that in Ugaritic". Under our interpretation, the state of affairs in Ugaritic appears closer to that of the Challa dialect.

The preservation of */ð/ in at least some attested varieties of Ugaritic prompts the question why this phoneme was chosen to render /z/ in Hurrian personal names (see Table 6).[34] In this case one can legitimately argue that /ð/ was the closest phonetic approximation to Hurrian /z/, since there were no other voiced fricatives in Ugaritic for as long as /dz/ remained an affricate. Yet, this convention was not altogether stable. The spellings such as *ảġlkz* and *ġlkz* alongside *ỉglkḏ* or *ḫḏmyn* alongside *ḫzmyn* suggest that, in some cases, the Ugaritic scribes opted for the faithful rendering of the place of articulation (alveolar) rather than the mode of articulation (fricative).[35] It is more difficult to account for the name *aršmg* instead of the expected ***arθmg* = Ari-Simiga. In the absence of a plausible orthographic explanation, one is tempted to treat this example as reflecting the palatalization of /s/ between two front vowels. Mauro Giorgieri turns our attention to the variation between *ảṯṯ* and *ảṯš*, both rendering Hurrian *aššišša* 'wash it!' in parallel incantations in Ugaritic transmission (Giorgieri 2013: 174). In this case, too, the secondary *š* occurs in a position after the front vowel.[36]

In view of the available converging evidence for the Ugaritic realization of Proto-Semitic */θ/ as /s/, it is worth asking what arguments could be advanced for the preservation of */θ/ in Ugaritic. The claim that the absence of a sound change vis-à-vis Proto-Semitic represents a more parsimonious solution would not qualify as a valid argument: the majority of the known Semitic languages did not preserve the interdental articulation of */θ/ (Schneider 2024: 28–29), as has been acknowledged in the field of Comparative Semitics since its early days. What arguably had the potential to sway the *consensus majorum* is the presumed parallelism in the treatment of */θ/ and */ð/. The seminal source that pleads against interpreting Ugaritic ⟨ṯ⟩ as /θ/ is Friedrich 1943; the same paper claims that Ugaritic ⟨ḏ⟩ represents the voiced counterpart of ⟨ṯ⟩, based on the analysis of the Hurrian names in Ugaritic transmission. The demonstration that Proto-Semitic */ð/ is frequently reflected as ⟨d⟩ in Ugaritic is found in Tropper 2012; the same monograph advocates the interpretation of Ugaritic ⟨ṯ⟩ as /θ/.[37] Yet, formal similarities need not overshadow the differences in the evolution of the two interdental fricatives. On the one hand, ⟨ḏ⟩ was not used in the transmission of the Hittite and Luwian loanwords; on the other hand, Proto-Semitic */θ/ was not reflected in Ugaritic as ⟨t⟩. Furthermore. Hurrian /s/ was never reflected in Ugaritic as ⟨s⟩, contrast the occasional renderings of Hurrian /z/ as ⟨z⟩. The divergent phonetic development of */θ/ and */ð/ assumed in the present paper reflects a compromise position between the views of Friedrich 1943 and Tropper 2012. While such a solution may seem counter-intuitive at first glance, we have argued that it becomes a necessity once all the relevant data are taken into consideration.

[34] Cf. the following comment: "The fact that ⟨ð⟩, rather than ⟨z⟩, is the letter used for transcription of certain foreign phonemes represented by ⟨Z⟩ and ⟨Š⟩ in syllabic cuneiform, is perplexing" (Schneider 2024: 34).

[35] A difficult case is the loanword *brḏl* 'iron' (DUL: 234). Although this noun is ultimately borrowed from Luwian via Akkadian (Valério and Yakubovich 2010), one would expect Akkadian *parzillu* 'iron' to be reflected in Ugaritic as ***przl*. Perhaps both the voicing of the initial consonant and the lenition */dz/ > /z/ reflect further mediation of an (unknown) Northwest Semitic dialect.

[36] The palatalization /s/ > /ʃ/ in a variety of environments, including the position after /i/, was proposed for Late Luwian in Rieken 2010. A similar conditioned change is attested in a variety of ancient Indo-European languages, including the famous *ruki*-rule in Old Indic. If Ugar. *ḫšt* 'sepulchre, mausoleum' is borrowed from Hitt. ^{É}*ḫešta-*/*ḫešti-*, the name of an installation in Hattusa that was related to the ancestor cult, this is a faint argument for Hittite being not immune to a conditioned palatalization of /s/. This is, however, not the only and perhaps not the most likely etymology of Ugar. *ḫšt* (cf. DUL: 407–408 and Schneider 2024: 217).

[37] The main argument advanced for the preservation of */θ/ in Ugaritic in Tropper 2012: 113 is the alleged parallelism of phonetic environments favouring the change *s_1 > ⟨ṯ⟩ and the preservation of ⟨ḏ⟩ in Ugaritic. Yet, the fact the bulk of examples adduced for s_1 > ⟨ṯ⟩ is doubted in Kogan 2011: 94–95 undermines the formulation of specific licensing conditions for the sound change under discussion.

The conclusions of the present section are summarized from the historical perspective in Table 7, where the Proto-Semitic forms are reconstructed according to the middle version of the Affricate Hypothesis. It is easy to observe that the development of Ugaritic sibilants shares traits with the evolution of their counterparts in both Hebrew and Aramaic (Syriac) under the proposed analysis. The pull shift */θ/ > /s/ is assumed to represent a common Canaanite innovation in the second millennium BCE, which appears to be consistent with the evidence from Canaanite data in Egyptian transmission (Hoch 1994: 403–404). The positive reason for reconstructing this intermediate realization for the ancestor dialect of Hebrew is the same as for postulating it in the case of Ugaritic: a language featuring /ts/, /θ/ and /ʃ/ but no /s/ would be typologically unique.[38]

Proto-Semitic	Hebrew	Syriac	Ugaritic (syllabic series)	Ugaritic (alphabetic)	Ugaritic (phonetic)
*ṯs	/s/	/s/	Z, more rarely S	⟨s⟩	/ts/, /s̪/
*ɬ	/ɬ/	/s/	Š	⟨s⟩	/ʃ/
*s	/ʃ/	/ʃ/	Š	⟨s⟩	/ʃ/
*θ	*s > /ʃ/	/t/	Š	⟨ṯ⟩, rarely ⟨z⟩	/s/
*ð	/z/	/d/	D, Z	⟨ḏ⟩ > ⟨d⟩	/ð/ > /d/

Table 7. Evolution of sibilants in Northwest Semitic

6. Sibilants in peripheral Akkadian

We have seen that the phonetic interpretation of Hurrian sibilants undertaken in Section 4 is compatible with the phonetic interpretation of Ugaritic sibilants undertaken in section 5, and indeed plays the crucial role in elucidating the Ugaritic data. The purpose of this section is to argue that this interpretation of the Hurrian data also facilitates the account of the values of the Š and Z-series that are assumed for Anatolian cuneiform.

According to a widely accepted hypothesis, the first cuneiform scribes at the service of the kingdom of Hattusa were deported or recruited from Alalakh after Hattusili I conquered this Syrian town (van den Hout 2020: 50).[39] Although Akkadian was the only attested written language in Alalakh in the relevant period, the individuals with Akkadian names demonstrably constituted a tiny minority of the local population. According to the statistics collected in Draffkorn 1959: 118, both the Amorite and the Hurrian names are attested about five times more frequently than the Akkadian names in the texts from the archaeological layer Alalakh VII, which reflect the ethnolinguistic composition of this town immediately before the expedition of Hattusili I**.** Significantly, some Alalakh VII scribes also had Hurrian names (Oliva 1999: 30), which opens the possibility that others were native speakers of Hurrian who assumed Akkadian names for reasons of prestige. Although the core of grammar of Alalakh VII texts fol-

[38] The preservation of Canaanite /ts/ in the second millennium BCE is borne out by Canaanite forms in Egyptian transmission (Hoch 1994: 407–408). For the possible development of the affricate /ts/ into the laminal fricative /s̪/ in the history of Ugaritic, see fn. 15.

[39] The Anatolian cuneiform did not inaugurate literacy in Asia Minor, since the Akkadian texts in Old Assyrian Script circulated there in the Karum period (20th-18th centuries BCE). Neither the ductus nor the sign inventories lend support to the continuity between the Old Assyrian and Anatolian cuneiform, even though there is a possibility that certain Anatolian cuneiform scribes were passively familiar with Old Assyrian (Rieken and Yakubovich 2023: 206–207).

lows the Akkadian norm (Weeden 2019: 132), they feature technical terms borrowed from Hurrian (Oliva 1999: 29). The Hurrian presence in Alalakh continues to mount after the expedition of Hattusili I, and by fifteenth century BCE the local tablets from the layer Alalakh IV are written in an imperfectly learned variety of Akkadian showing interference with Hurrian and commonly labelled Hurro-Akkadian. The use of Hurro-Akkadian in Late Bronze Age Syria must be distinguished from the contemporary use of Canaano-Akkadian in southern Levant, where an advanced degree of interference between Akkadian and West Semitic contrasts with the lack of significant Hurrian influence (Andrason and Vita 2016).

A potential rationale for the distinction between cuneiform writing practices in the northern and southern Levant is that the latter never belonged to the Mitanni kingdom. Yet such a generalization would be deceptive. On the one hand, it is worth pointing out arguments for the Hurrian presence in the Levant south of the Mitanni borders. These include the Hurrian and Indo-Aryan ruler names associated with Canaan in mid-second-millennium BCE (Kilani 2020: 76) as well as some Hurrian loanwords in Biblical Hebrew (Noonan 2019: 309). On the other hand, the Hurrian influence on Akkadian predates the formation of Mitanni, as we have seen at the example of Alalakh VII. These considerations prompt a more restrictive and, in a sense, more obvious hypothesis: the Hurrian influence on peripheral Akkadian grew hand in hand with the presence of Hurrians in the respective epigraphic communities.[40]

A prediction of this hypothesis is the presence of phonetic interference in contact-induced varieties of Akkadian reflecting the impact of Hurrian. Indeed, while the grammatical rules of Akkadian could in principle be learned based on the study of texts available in the school curriculum, the pronunciation of Akkadian forms was likely to be affected by the scribe's native language. It is reasonable to assume that the scribe of Hurrian origin spoke and read Akkadian with a Hurrian accent: after all, their job was to write good Akkadian and not to speak good Akkadian. Since the Hurrian phonological system features certain constraints that are absent in Akkadian phonology, it is worth investigating whether the choice of syllabic signs in Alalakh VII texts may have anything to do with following such constraints. If so, we would obtain an empirical confirmation of phonetic interference between Akkadian and Hurrian in the chanceries of Alalakh VII.

The conventions for rendering Akkadian stops in Alalakh VII, as described in Popova 2016, supply the requisite evidence. Contrary to the previous claims, this paper provides a rigorous statistical proof of the contention that the use of the syllabic signs in Alalakh VII correlated with the phonetic opposition between voiceless and voiced stops (and, to some extent, also emphatic stops). This is the innovation vis-à-vis the state of affairs in Old Akkadian and Old Assyrian, where the same signs can indiscriminately be used for the syllables beginning with voiceless, voiced, and emphatic plosives. Yet, in comparison with the contemporary Mari orthography, the texts of Alalakh VII render the laryngeal oppositions in a fairly inconsistent fashion, frequently confusing the signs of T and D, P and B, K and G-series, as had also been noticed in previous scholarship (see, e.g., Giacumakis 1970: 26).

Now, assuming that the graphic conventions for distinguishing voiceless, voiced and emphatic stops were known to the scribes, their haphazard implementation appears to be rather unlikely unless one assumes that the scribes experienced difficulties with identifying the re-

[40] This brief discussion is not meant to gloss over a complicated question of why Hurrians rather than Amorites played the key role in the spread of Akkadian literacy to northwestern Syria. The full answer to this question lies beyond the scope of the present paper and may even be impossible given the current state of our knowledge. It is worth, however, pointing out that the Tish-Atal inscription bears witness not only to the early exposure of the Hurrians to cuneiform literacy but also to their willingness to adopt other aspects of the Mesopotamian culture, which manifests itself through the use of Sumerograms for Hurrian gods.

spective sounds. At this point it is important to keep in mind that the Hurrian language features a different opposition between the tense and lax consonants, which are furthermore neutralized in many positions, in particular, word-initially and after another consonant (Giorgieri 2000: 184). This implies that the difference between the Akkadian voiced and voiceless consonants, not to mention their "emphatic" counterparts, must have been suppressed in Hurrian pronunciation in many cases. Therefore, its consistent implementation in writing would have represented a remarkable challenge for scribal education in Alalakh, which is consistent with the available evidence.

Thus, one can adopt a working hypothesis that the orthography of Alalakh VII Akkadian may reflect phonetic interference with Hurrian.[41] This brings us to the graphic conventions for recording the Akkadian sibilants, which are likewise fuzzier in the Alalakh VII texts than in Old Babylonian. For example, the Old Babylonian orthography, as reflected in the texts emanating from Hammurapi's chancery, systematically distinguishes between the Z, S, and Š-series. The signs of Z-series are reserved for sequences with the synchronic affricates, while the use of the S-series reflects secondary conditional deaffrication to /s/, whose phonetic outcome was, however, different from the reflexes of Proto-Semitic */s/ rendered by the Š-series (Streck 2006). In contrast, the Hurrian system of sibilants, as reconstructed in Section 4, did not feature secondary deaffrication. Accordingly, the S-series stays marginalized in the texts from Alalakh VII, while the contrast between the Z and Š-series in the local orthography correlates with the etymological distinction between the Semitic affricates and */s/ (Giacumakis 1970: 26–27).[42] In this respect, it represents a logical starting point for the development of the Hittite orthography, where the S-series is marooned among the heterograms and no longer has a phonological application.

Yet, the similarities between Hittite orthography and the conventions governing the use of signs in the Alalakh VII corpus appear to go beyond the destiny of the S-series. If one follows the hypothesis that the pronunciation of Alalakh Akkadian was approximated to the phonological system of Hurrian, this implies the alveolar pronunciation of Akkadian fricatives. This finds, of course, a parallel in the alveolar pronunciation of the fricative sounds in Hittite (cf. Section 1). At the same time, many scholars assume that the Old Babylonian fricative hidden behind the Š-series had a different phonetic realization; according to Schneider 2024: 30, this was the lateral sound /ɬ/, later evolving into /ʃ/.[43] As for the adaptation of the Akkadian affricates, the conclusions of Section 4 are compatible with the assumption that they

[41] An attempt to argue against the role of the Hurrians in the transmission of cuneiform from Syria to Anatolia is found in Giusfredi et al. 2023: 164–167. It seems, however, that the authors primarily target a substantially different claim from the one advocated here, namely that "Hurrian played a role in the diffusion of cuneiform to Anatolia". There is certainly no evidence that Hurrian was used in writing in Alalakh VII, or for that matter in Hattusa before the 15th century BCE. There is, however, sufficient evidence that Hurrian was spoken in Alalakh VII.

[42] The marginalization of the S-series finds a close parallel in Old Assyrian orthography and was probably ubiquitous in the history of cuneiform after the collapse of the Old Akkadian writing system. One must mention for fairness' sake that the S-series found a new functional application in certain Syrian cuneiform systems of the second millennium BCE. Thus, the S and Z-series stay in a complementary distribution n the bulk of Hurrian texts found in Emar (Fischer 2025: 172–178); according to the phonetic interpretation of the present paper, they denote combinations with the tense and lax affricates, respectively. Such a convention is typical of the so-called "Middle Euphratic" orthography (cf. also the discussion below regarding the parallel "Middle Euphratic" convention for rendering fricatives). For the use of the "Middle Euphratic" orthography in Mari, see fn. 10.

[43] It is, of course, also possible to argue that the Hattusa scribes approximated the Š-series for rendering the Hittite alveolar fricatives merely because it was the only series associated with the fricatives in peripheral Akkadian, regarding of their specific place of articulation. Be it as it may, the match between Hittite and Alalakh Akkadian addressed immediately above simplifies the scenario of script adaptation.

came to be pronounced in Alalakh as either /ts/ or /dz/, the contrast between the two phonemes being restricted to the intervocalic position. This is a simplification vis-à-vis the phonology of the natively transmitted Akkadian, which maintained a distinction between the voiceless, voiced and emphatic affricates in the relevant time period (Schneider 2024: 30). It stands to reason that the reconstructed adaptation of peripheral Akkadian phonology simplifies the account of how Anatolian cuneiform came into being.[44]

Another reason to entertain the hypothesis that the Hurrian speakers were among the scribes brought to Hattusa by Hattusili I is the similarity of conventions for rendering the contrast between the tense and lax stops in Hittite orthography on the one hand and in the normalized Hurrian orthography of the Mitanni Letter on the other hand. In both instances the use of VC signs (consonant replication), e.g., *ša-aš-ša* as opposed to *ša-ša*, marks the tense stops in intervocalic position (Hoffner and Melchert 2024: 53, Wegner 2007: 43).[45] Now, at least some Alalakh VII texts appear to share this convention with the Mitanni Letter and Boğazköy texts with regard to the spelling of Hurrian proper nouns.[46] Therefore, one may hypothesize that marking tense consonants as geminates originally arose in the context of rendering Hurrian proper nouns and lexical code-switches embedded in Akkadian texts before being extended to the orthographies of the Hurrian and Hittite texts proper. Such a hypothesis, however, would make more sense if the task of applying cuneiform to writing Hittite was entrusted to Hurrian and Hittite bilinguals, who appreciated the similarities between the phonological systems of the two languages.

The tentative comparison between the rendering of Hurrian forms in Alalakh VII texts and in the normalized orthography of the Mitanni Letter does not, of course, imply that the writing conventions were identical in both cases. For a list of graphic innovations of the Mitanni Letter, some of which generalize the earlier tendencies, one can consult Giorgieri 2000: 181. Of primary interest for our purposes is the innovative use of the S-series for sequences with a Hurrian affricate that can be rendered with the Z-series elsewhere (cf. Section 4). In our opinion, this innovation can be compared with the equally innovative use of the S-series in Old Babylonian cuneiform, where it came to denote sequences with de-affricated sounds (Streck 2006). In Mitanni as well as in Babylon, we are presumably dealing with creative efforts by well-established scribal schools, which strove to refine the inherited writing systems in the hope of gaining more phonological transparency for the Hurrian and Akkadian lan-

[44] It must be stressed that although the Alalakh VII corpus provides a logical starting point for our discussion of peripheral Akkadian, other contemporary peripheral Akkadian texts may have shared the same distribution and pronunciation of signs. This observation is important for purposes of the present paper, because there is a possibility that the first Hattusa scribes were imported not from Alalakh but from Aleppo (Halab), as Mirko Novák (Bern) is pointing out to us in a personal communication. Such a possibility is rarely discussed mainly because it is an *argumentum ex silentio*: the relevant layers of Bronze Age Aleppo largely remain unexcavated. Note also the objections of Popova 2016: 89 against the direct continuity between the orthographies of Alalakh VII and Hattusa.

[45] This convention is not so trivial as it may seem, because there was a competing "Middle Euphratic" strategy of rendering the intervocalic /(s)s/, /z/ in Hurrian forms by Š and Z series, respectively, which is attested, for example, in the Mari documents (see further Richter 1998: 131–133 and cf. fn. 10). The two competing strategies of rendering the same opposition, namely the contrast between the Š and Z series and consonant replication, are found distributed across Hurrian texts in Late Bronze Age Emar (Fischer 2025: 135). The second strategy is, however, limited to a handful of Emar tablets, all sharing additional epigraphic features that point out to their intrusive character.

[46] Contrast, e.g., the theophoric personal names *Ku-ša-aḫ-e-ri* (*40 rev. 1) and *A-ri-ip-te-eš-šu-pi* (*40 rev. 3) found on the same Alalakh VII tablet and featuring the names of the Moon-god Kuzuh and the Storm-god Tessob as their components (Wiseman 1953: 44).

guages respectively. The same S-series, which had been rendered redundant by the preceding evolution of the syllabic cuneiform script, was secondarily deployed to accomplish the stated goals in both cases.[47] Against the background of these reforms, the adaptation of the sibilant sign values to Hittite cuneiform emerges as fairly trivial.

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[47] For the use of the S-series in correlation with a set of phonemes (Proto-Semitic */s/ and */ɬ/) in Old Akkadian orthography, see Hasselbach 2005: 135–137.

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В. Л. Цуканова, И. С. Якубович. К фонетической интерпретации хурритских и угаритских сибилянтов

Фонетическая интерпретация свистящих и шипящих фонем в хурритском и угаритском языках должна быть переосмыслена в свете новых интерпретаций сибилянтов в ряде соседних языков, которые, в свою очередь, отражают развитие аффрикативной гипотезы. Мы утверждаем, что слоговая клинописная орфография митаннийского и богазкёйского хурритского использует серию Š для передачи альвеолярных фрикативных фонем /s/ и /z/, тогда как серии Z и S зарезервированы для передачи аффрикат. Кроме того, по нашему мнению, угаритская графема ⟨t̲⟩ используется не для передачи межзубного /θ/, как это предполагалось в традиционной угаритологии, а для альвеолярного /s/. Предлагаемые фонетические значения хурритских сибилянтов способствуют упрощению сценария адаптации месопотамской клинописи для письма по-хеттски.

Ключевые слова: хурритский язык; угаритский язык; сибилянты; аффрикативная гипотеза.