

A SEQUENCE OF VOWEL SHIFTS IN PHOENICIAN AND OTHER LANGUAGES*

JOSHUA FOX, *Harvard University*

I. INTRODUCTION

A number of vowel shifts in the history of Phoenician¹ may be understood as part of a sequence of shifts, part of which forms a drag-chain. Seeing the history of the Phoenician vowels in the context of this cross-linguistically common sequence of vowels brings order to the limited and sometimes unclear data.

Given this sequence, vowel shifts in many other languages from the Ancient Near East fall into place—they are following a typologically common direction of change. Among the many languages in which some or all of these shifts occur are Hebrew, dialects of Aramaic, North Mehri, Egyptian-Coptic, as well as many other languages world-wide, including Phoenician's cultural neighbor, Greek.

The shifts in question in Phoenician are $\acute{a} > o^2$ (the Phoenician Shift), $o > u$, $u > \ddot{u}$ (u from proto-* u/\ddot{u}), and possibly $\ddot{u} > i$. The earlier shift $\bar{a} > o$ (the Canaanite Shift) may also be taken into account as an element of this pattern of shifts. These shifts all move in a definite direction: they may be depicted as a circular movement on a vowel chart (table 1).

Many earlier studies of vowel shifts in Phoenician and Hebrew deal with shifts in this sequence, even though they do not mention the sequence explicitly. The evidence for the shifts, which has already been gathered, does not need to be repeated in full, but the sequence that unites the shifts needs to be examined in greater depth. We can better understand these studies of the shifts if we realize that where attested or reconstructed vowel shifts skip one or more steps of the sequence, scholars implicitly assume the necessity of the sequence as the course of development of the vowels and so provide the missing links.

* Research for this paper was conducted with the help of the Harvard University Frederick Sheldon Fellowship and the Interuniversity Fellowship for Judaic Studies. I thank Leo Depuydt, Steven Fassberg, Hans H. Hock, Edward Greenstein, Jo Ann Hackett, John Huehnergard, Avi Hurvitz, Shlomo Izre'el, and P. Oktor Skjaervo for their helpful comments on this paper. The comments of the late Jonas Greenfield also helped clarify this paper. The responsibility for all flaws, however, remains with me.

The following abbreviations are used:

GAG: Wolfram von Soden, *Grundriß der akkadischen Grammatik, samt Ergänzungsheft zum Grundriß*, *Analecta Orientalia* 33 and 47 (Rome, 1969).
KAI: Herbert Donner and W. Röllig, *Kanaanäische und aramäische Inschriften*, 2 vols. (Wiesbaden, 1968).

[JNES 55 no. 1 (1996)]

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0022-2968/96/5501-0003\$1.00.

¹ In the terminology used here, "Punic" is the Phoenician of North Africa ("Neo-Punic" should be used only to specify that the text in question is later than the fall of Carthage), and "Phoenician" is a cover term for all the dialects, including the littoral (Lebanon) dialects and Punic, throughout the long history of these dialects. Cf. Maurice Szyner, "L'emploi des termes 'Phénicien', 'Punique', 'Néo-Punique': Problèmes de méthodologie," in Pelio Fronzaroli, ed., *Atti del secondo congresso internazionale di linguistica camito-semitica, Firenze, 16-19 aprile 1974*, *Quaderni di Semitistica* 5 (Florence, 1978), pp. 261-68.

² Because length is not indicated in most of the scripts used, the phonemes, ε , o , u , \ddot{u} , and i , which form part of the sequence, are not marked for length in this study. It is quite possible that Phoenician developed a qualitative vowel system from a quantitative one, as Tiberian Massoretic Hebrew did. The vowels discussed as part of the sequence here, however, other than \acute{a} , are historically long.

TABLE 1

	Front	←	→	Back
	unrounded/rounded			rounded
High	<i>i/ü</i>			<i>u</i>
↑	<i>e/ö</i>			<i>o</i>
↓	<i>ε</i>	<i>ə</i>	<i>ɔ</i>	
Low		<i>a</i>		

While there is no way of confirming the existence of these missing links, most steps of the sequence under consideration *are* known from shifts that are attested or reconstructed by comparative methods. Other steps, discussed below, are interpolated as phonologically intermediate steps.

II. REVIEW OF THE SHIFTS

Let us review the shifts in our sequence in the Canaanite languages, and especially Phoenician, following the order of the sequence (*á* > [*ā* >] *ɔ* > *o* > *u* > *ü* > *i*) from left to right.

1. *á* > *ɔ*

In the Tiberian vocalization **á* in nouns becomes Massoretic *qaməš*, pronounced *ɔ*.³ Long *ā* falls between *á* and *ɔ* in the sequence, and, in fact, the modern transcription for *qaməš* used by the quantitative school is *ā*. Even some who treat the Massoretic system as qualitative describe *ā* as the synchronically or diachronically underlying phoneme for *qaməš*.⁴ Those who use *ā* as the transliteration of *qaməš* describe the shift of *á* to *qaməš* as stress-lengthening rather than stress-backing, following an understanding of length as a natural result of stress.

2. *á* > *o*

The Phoenician Shift *á* > *o* is attested from as early as the beginning of the seventh century B.C.E.⁵ If this shift is to be seen as a continued operation of the Canaanite Shift (*ā* > *ō*), then stress-lengthening of *á* to *ā* must be postulated as an intermediate step of the Phoenician Shift.⁶ Some also suggest that the Phoenician Shift of *á* to *o* had *a* > *ɔ* as an intermediate step. According to Friedrich and Röllig,⁷ for example, the Phoenician Shift was composed of the intermediate steps *á* > *ā*, *ā* > *ɔ*, and *ɔ* > *o*. This suggestion is based largely on the implicit belief that shifts in the sequence must have followed the sequence step-by-step. We cannot hope for evidence for the intermediate shifts because

³ Sometimes pretonic *a* also participates in this shift.

⁴ W. Randall Garr, *Dialect Geography of Syria-Palestine, 1000–586 B.C.E.* (Philadelphia, 1985), p. 34; John J. McCarthy, *Formal Problems in Semitic Phonology and Morphology* (New York, 1985), p. 15.

⁵ Zellig S. Harris, *A Grammar of the Phoenician Language*, American Oriental Series, vol. 8 (New Ha-

ven, 1936), §11; and Stanislav Segert, *A Grammar of Phoenician and Punic* (Munich, 1976), §36.472.

⁶ Harris, *Grammar*, §11; Garr, *Dialect Geography*, p. 33; and Johannes Friedrich and W. Röllig, *Phönizisch-Punische Grammatik*, 2d ed., *Analecta Orientalia* 46 (Rome, 1970), §78.

⁷ Friedrich and Röllig, *Grammatik*, §78.

of the lack of distinct graphemes in the orthographies,⁸ although I support a reconstruction of *ɔ* as an intermediate step on structural grounds. Were there such a step, the shift of *á* to *ɔ* would have formed an isogloss for the geographically proximate Tiberian Hebrew⁹ and Phoenician,¹⁰ although the chronological separation makes a causal connection unlikely.

The Phoenician Shift does not operate in double closed syllables, as seen in *qatl* nouns, including those from geminate roots.¹¹ For example, Χουσαρτ for *kušart*, in which the *á* does not shift to *o*, stands in contrast with the masculine equivalent, Χουσωρ for *kušor*, in which the Phoenician Shift does occur.¹² This can be explained by a ban on long vowels in doubly closed syllables only if we posit stress-lengthening as an intermediate step for the Phoenician Shift.¹³

Aron Dotan presents an idiosyncratic view of the transcriptional evidence of Phoenician which denies the existence of the Phoenician Shift.¹⁴ He addresses the evidence for the shift piecemeal, explaining why each particular type of evidence for *á* > *o* instead represents some other phenomenon. Some of the evidence for the Phoenician Shift on which Dotan casts doubt is indeed difficult. Thus, for example, Phoenician *labon*, transcribed λαβον, may well belong to a *qatol* < *qatul(l)* pattern.¹⁵ Some of Dotan's examples are reconstructed incorrectly, as for example *tošəḅ*, which should be reconstructed to **tawšab* rather than **-āb* as he suggests.¹⁶ Other examples are attributed to the wrong language. For example, the Hebrew *dəḡon*, Δαγων in Greek, is adduced by Dotan as a biform of Hebrew *dəḡon* to show that the second vowel in Phoenician is the result of the Canaanite Shift rather than the Phoenician Shift.¹⁷ In fact, the difference between the two is between a Phoenician word that underwent the Phoenician Shift, *dagon*—a name of a god probably hypostasized from the word for the grain—and a Hebrew word that did not undergo the Phoenician Shift, *dəḡon*, “grain.” Other cases must be understood in the light of the particular morphology of Phoenician, since, as Dotan points out, the morphemes of Phoenician do not necessarily correspond to those of Hebrew.¹⁸ Dotan brings up the apparent third person masculine plural suffix on SYLLOHOM and MYSYRTHOHO[M] and dismisses the possibility that the *o* before the suffix could be the result of the Phoenician Shift because Hebrew does not have *qəməš* (the usual cognate of the product of the Phoenician Shift) in this position.¹⁹ Indeed, Charles Krahmalkov has pointed out that in Phoenician, unlike Hebrew, the connecting vowel before pronominal possessive suffixes

⁸ Ibid.

⁹ Chaim Rabin (“Semitic Languages,” *Encyclopaedia Judaica*, vol. 14 [Jerusalem, 1971], p. 1154) connects the Phoenician Shift with the Ashkenazic and Yemenite *ɔ-qəməš* as well.

¹⁰ Because of the complicated stress histories of these languages, Hebrew *qəməš* is not always cognate to the product of the Phoenician Shift.

¹¹ Just as the first syllable of Hebrew *qətel* < *qatl* is not lengthened under stress.

¹² E. Y. Kutscher, “*kənaʿanīt, ʿiḅrit, pīnīqīt, ʿārāmīt, ləšōn hāzāʿl, pūnīt*” (“Canaanite, Hebrew, Phoenician, Aramaic, Mishnaic Hebrew, Punic” [Hebrew]), *Ləšōnenu* 33 (1968–69): 96. See sec. II, 4 below.

¹³ The *a* vowel in a doubly closed syllable remains *a* even when anaptyxis later opens up the syllable, as, for example, ALEM which represents Punic (ʿ)*alem* <

ʿalm (*Poenulus*, I. 948; For the text of the *Poenulus* with discussion, see Maurice Szyner, *Les passages puniques en transcription latine dans le “Poenulus” de Plaute* [Paris, 1967]).

¹⁴ Aron Dotan, “Vowel Shift in Phoenician and Punic,” *Abr Nahrain* 12 (1971–72): 1–5; idem, “The Phoenician A > O Shift in Some Greek Transcriptions,” *Ugarit-Forschungen* 3 (1972): 293–97 (reprint of “Vowel Shift in Phoenician and Punic”); and idem, “Phoenician/Punic—Hebrew Linguistic Relationship Re-Examined,” *Israel Oriental Studies* 6 (1976): 71–121.

¹⁵ Idem, “Phoenician/Punic—Hebrew,” p. 75.

¹⁶ Ibid., p. 76.

¹⁷ Ibid., p. 80.

¹⁸ Ibid., p. 111.

¹⁹ Ibid., pp. 102–3; *Poenulus*, I. 933.

following the noun stem was *o*, which he derived from the old nominative case vowel **u*,²⁰ although it may come from the old accusative case vowel **a*. Dotan's arguments against individual cases cannot refute the mass of the evidence, and so the different types of evidence for Phoenician vowels add up to a clear picture of the Phoenician Shift.

3. $\bar{a} > o$

The shift of proto-* \bar{a} to o ²¹ is the Canaanite Shift, which is at least as early as the Amarna texts, in the fourteenth century B.C.E.—probably from the early fifteenth century B.C.E.²² It occurs in all Canaanite languages, including Phoenician and Hebrew. Besides Proto-Semitic * \bar{a} , any \bar{a} that arose before the operation of the Canaanite Shift was subject to its effect. The loss of syllable-final * \bar{a} in Proto-Canaanite, before the Canaanite Shift, brought with it, we assume, compensatory lengthening. Thus, $a^\bar{a} > \bar{a}$, and thence the o in, for example, Hebrew $ro^{(\bar{a})}\check{s} < r\bar{a}\check{s} < ra^\bar{a}\check{s}$. On the other hand, some occurrences of * $a^\bar{a}$ shifted to * \bar{a} after the operation of the Canaanite Shift, appearing as \bar{a} in Hebrew but as o in Phoenician, as in $nasot$ ²³ = $na\check{s}ot(i)$.²⁴ Such forms can be attributed to the Phoenician Shift, usually $\bar{a} > o$, operating unconditioned by quantity on newly formed long \bar{a} . Since * \bar{a} can be reconstructed as an intermediate step of the Phoenician Shift, attributing such cases of $a > o$ to the Phoenician Shift is not out of keeping with the course of the Phoenician Shift.

4. $o > u$

The product of the Phoenician Shift did not merge with the product of the Canaanite Shift. Rather, the o from the Canaanite Shift shifted to u ,²⁵ at a point when the product

²⁰ Charles Krahmalkov, "Observations on the Affixing of Possessive Pronouns in Punic," *Rivista degli studi orientali* 44 (1969): 185–86; idem, "The Punic Speech of Hanno," *Orientalia*, n.s., 39 (1970): 62. Krahmalkov also points out that the *-hom* may be the second person masculine plural possessive suffix.

²¹ The question of the relevance of stress to the application of the Canaanite Shift is a controversial one and cannot be decided here. Daniel Sivan (*Grammatical Analysis and Glossary of the Northwest Semitic Vocables in Akkadian Texts of the 15th–13th C. B.C. from Canaan and Syria*, *Alter Orient und Altes Testament*, vol. 214 [Kevelaer and Neukirchen-Vluyn, 1984], p. 33) describes how the scholars line up on either side of the issue but points out that "there is no way of knowing which of the scholars is correct." The evidence for unstressed \bar{a} to \bar{o} , which would have to come from unstressed \bar{a} 's in the proto-language, is not available. If the Canaanite Shift was stress-conditioned, however, and if \bar{a} is to be posited as an intermediate step of the Phoenician Shift (sec. II, 2 above), then we would have an even more striking similarity between the Canaanite and Phoenician Shifts: $\bar{a} > o$ in each case.

²² Harris, *Development of the Canaanite Dialects*, American Oriental Society, vol. 16 (New Haven,

1939), p. 44; and Garr, *Dialect Geography*, p. 31.

²³ *Poenulus*, l. 937.

²⁴ Dotan ("Phoenician/Punic—Hebrew," p. 73) writes * $na\check{s}\bar{o}ti$ for the Phoenician; $\check{s} > \check{s}$ in Phoenician quite early, however, before the development of the writing system. The Hebrew word $mo\check{s}o^\bar{a} < *maw\check{s}a^\bar{a}$ (not * $maw\check{s}\bar{a}^\bar{a}$ as Dotan suggests [ibid., p. 76]) is another example of $a^\bar{a} > \bar{a}$ occurring after the cessation of the operation of the Canaanite Shift.

²⁵ Sznycer (*Les passages puniques*, p. 149) describes a "son intermédiaire entre *o* et *u*." If there were such a sound at some point, however, it was halfway through the shift $o > u$. This would be an additional stage in our sequence between o and u . While Sznycer suggests a merger as o and u moved towards an intermediate position, the examples he adduces are of earlier o written with u , with no examples of earlier u written as o . This indicates a movement of o towards u , and not u towards o . That the shift $o > u$ is not always complete is seen in the writing of o side-by-side with u , both from Proto-Semitic * \bar{a} , for example, *ma-com*, *alonuth* (*Poenulus*, l. 930; see Klaus Beyer, *The Aramaic Language: Its Distribution and Subdivisions*, trans. John Healey [Göttingen, 1986], p. 35, n. 45).

of the Phoenician Shift was still *o* and had not yet shifted to *o*.²⁶ Had *o* from the Canaanite Shift and *o* from the Phoenician Shift merged, the markers of the feminine plural noun and the singular feminine noun would have merged to *-ot*, since the *-at#* of the feminine singular on nouns did not go to *-ā* in Phoenician until late in the history of Punic. Rather, the feminine plural noun marker became *-ut*.²⁷ (For example, *alonuth*,²⁸ Punic *SANUTH*).²⁹ Χουσωρ, *kušor* is an example of two shifts operating in the same word.³⁰ Ugaritic *kθr* = *kōθar*,³¹ Arabic *kawθar*, and Hebrew *košōroʿ*³² suggest an original **kawθar*. The first syllable has *u* from *o* < *aw*, while the second has *o* from *ā*.³³

5. *u* > *ü*

The product of the *o* to *u* shift did not merge with original *u*. Rather, earlier *u* shifted to *ü*.³⁴ This is a phonologically exceptional step for the Semitic languages, as rounded front vowels are very rare in this family.³⁵ But there is some admittedly meager evidence for *ü* in Phoenician and in Punic in particular: Greek upsilon, originally pronounced *u*, came to represent *ü* in Attic-Ionic from an early date, perhaps already by the sixth century B.C.E. (although in certain dialects the *u* pronunciation lasted until much later) and remained *ü* in most of the Hellenistic dialects through the third century C.E. Upsilon later was pronounced *i*.³⁶ The debated date of the shift from *ü* to *i* is not strictly relevant to the discussion of the existence of Phoenician *ü*, for if we see *u* used to transcribe a vowel in Phoenician that is the reflex of Proto-Semitic **u*, then the *u* may indicate one of three situations in the two languages:

1. At the time that the transcription was made, *u* indicated *ü*, and proto-**u* was *ü* in Phoenician.

²⁶ On *o* > *u*, see Kutscher, “*kānaʿanīt, ʿibrīt*,” p. 91; Segert, *Grammar of Phoenician*, §34.3, 4; Harris, *Grammar*, §7; and Friedrich and Röllig, *Grammatik*, §79b. In order to prove that Proto-Northwest-Semitic II-weak perfect forms had short **a*, for example, **ram-*, not long **ā*, for example, **rām-*, Kutscher uses the shift *o* > *u*. According to Kutscher, transcriptions such as *hīrōm* (1 Kings 5:24, 7:40), Εἰρωμος (Josephus; see Harris, *Grammar*, for these forms and others) underwent the Phoenician Shift *ā* > *ó* rather than the Canaanite Shift *ā* > *o*. For if the Proto-Northwest-Semitic form had been **rām-*, shifting to *rom-* with the Canaanite Shift, then it would have shifted to *rum-* under the later *o* > *u* shift, but the transcriptional evidence does not support that. Rather, the Proto-Northwest-Semitic form was **ram-*, shifting to *rom-* under the Phoenician Shift. Indeed, proto-*ram-* is easily explainable as a result of paradigm leveling with the forms with consonant-initial suffix, such as **ramtā*. The short *a* in **ramtā* is shortened from *ā* in a doubly closed syllable. This is why the paradigm has *o* throughout in Hebrew but *o*, the product of the Phoenician Shift, in Phoenician.

²⁷ Segert, *Grammar of Phoenician*, §52.233.

²⁸ *Poenulus*, l. 930.

²⁹ *KAI*, p. 180.

³⁰ See sec. II, 2 above.

³¹ Segert, *A Basic Grammar of the Ugaritic Language with Selected Texts and Glossary* (Berkeley and Los Angeles, 1984), p. 190. Syllabic cuneiform evidence supports this vocalization, *kōθar* < *kawθar*, as against **kāθar* (suggested by Dotan, “Phoenician/Punic—Hebrew,” p. 76). See Segert, *Basic Grammar of Ugaritic*, p. 190; and John Huehnergard, *Ugaritic Vocabulary in Syllabic Transcription*, Harvard Semitic Series 32 (Atlanta, 1987), p. 141.

³² Ps. 68:7.

³³ Note also that when the final syllable is doubly closed in the feminine, in Χουσαρτ *košart*, the *ā* does not shift to *o* (Kutscher, “*kānaʿanīt, ʿibrīt*,” p. 96).

³⁴ Segert, *Grammar of Phoenician*, §36.42; Friedrich and Röllig, *Grammatik*, p. 85.

³⁵ Except for the *ü* which von Soden (*GAG*, §8c) sees in certain Akkadian “broken writings.” (Most Assyriologists do not accept this.)

³⁶ William Sidney Allen, *Vox Graeca*, 3d ed. (Cambridge, 1987), pp. 65–69; see also Edgar Sturtevant, *The Pronunciation of Greek and Latin* (Philadelphia, 1940), §36.

2. At the time that the transcription was made, v indicated i , while proto- $*u$ was \ddot{u} in Phoenician, but v ($= i$) was chosen as one of the closest graphemes to \ddot{u} .
3. At the time that the transcription was made, v indicated i and proto- $*u$ had shifted beyond \ddot{u} to i in Phoenician.

Each of these three interpretations is compatible with the existence of a Phoenician \ddot{u} .

Although v in the earliest period was pronounced u , this reading cannot be supported for the period of the Greek transcriptions. This is because u had a different orthography of its own—the digraph ov ,³⁷ as, for example, $KOY\Lambda\Omega \leftarrow qol$,³⁸ and $Mov\tau \leftarrow mut < mot < mawt$.³⁹

The Latin letter y in the Punic passages in Latin script in the *Poenulus* of Plautus is particularly valuable because of its origin in Greek v . Manuscripts of the *Poenulus*, however, show the cumulative distortion of generations of copyists who did not know Punic. One important point which must restrain our use of the y 's is that “the alphabet used by Plautus did not have y .”⁴⁰ The y 's in the *Poenulus* were inserted later, long after the play's composition, as a scholarly repair to a corrupted text.⁴¹ Were the y 's inserted at random, however, as Harris has suggested,⁴² they could be found in any position in a word, whereas, in fact, they seem to occupy positions where we might expect a reflex of proto- $*u$ or $*i$.⁴³ We may use the *Poenulus* for evidence of Punic vowels, but only with great caution.

The shift $u > \ddot{u}$ can be understood by noting the difference in the direction of the change of features between this shift and the previous ones. Before this shift in the sequence, the shifts moved the vowels higher on the vowel chart (table 1). But u is the highest vowel; thus any shift from u cannot continue the previous shifts in the direction of making the vowel even higher. Rather, another feature must be changed, and so the u shifts from back to front. In fact, u -fronting is extremely common cross-linguistically, perhaps because of the asymmetry of the vocal organs—the back of the throat is narrower than the front. While intermediate steps between u and \ddot{u} are not known from

³⁷ Allen, *Vox Graeca*, pp. 75–79; and Sturtevant, *Pronunciation*, §35d.

³⁸ See *KAI*, p. 175.

³⁹ Harris, *Grammar*, p. 116.

⁴⁰ Friedrich and Röllig, *Grammatik*, §90; Harris, *Grammar*, p. 5. The importance of paying attention to the conclusions of Latin scholars in examining Latin transcriptions is pointed out by A. S. Gratwick, “Hanno's Punic Speech in the *Poenulus* of Plautus,” *Hermes* 99 (1971): 36–40. Plautus uses neither y nor “the spelling th , ch or z . For y , u was used; for th , ch , one wrote t , c ; for z , one used s . The spellings th , ch (and ph . . .) first occur about the middle of the 2nd century B.C., well after Plautus; y was introduced about 50 B.C.” Neglecting facts well known to Latin scholars, some Semitic scholars “offer us Punic texts that contain no words with [Punic] Z ,” instead of considering whether the text could include some Punic z 's written s .

⁴¹ Gratwick, “Hanno's Punic Speech,” p. 36.

⁴² *Grammar*, p. 5.

⁴³ “[T]ext II (the repetition of the text in Punic) is the genuine version, already desperately corrupt in the early Empire, and . . . text I is a scholar's repair, made up independently, but with reference to text II, in the contemporary Neo-Punic and Roman orthography of his time” (Gratwick, “Hanno's Punic Speech,” p. 37). If the Punic in Latin letters were transcribed directly from an original in Greek letters, the v , not yet used in the Latin alphabet, could have been used among the Latin letters, especially when no other transcription of Greek v was available (Gad Ben-Ami Sarfatti, review of Szzyrmer, *Les passages puniques*, in *Lěšoněnu* 33 [1968–69]: 49). Indeed, Latin orthography did just this but not until 50 B.C.E. (Gratwick, “Hanno's Punic Speech,” p. 37). See, for example, *chyl* in l. 935 in MS Codex vetus Camerarii, but *chyl* in MSS Codex Decurtatus and Codex Ursinianus (Szzyrmer, *Les passages puniques*, p. 46).

Phoenician or other languages where the shift occurred, it is possible that *u* proceeded through the high-central rounded vowel before becoming *ü*.⁴⁴

6. *ü* > *i*

Finally, *ü* may have been derounded to *i*.⁴⁵ The evidence for this last shift is not clear because of difficulties inherent in the transcriptional systems. As mentioned above (sec. II, 5), if we see proto-**u* transcribed with a grapheme that typically denotes *i*, we cannot know if that really indicates *i* or *ü*. Derounding of *ü* and merger with earlier *i*, however, is a cross-linguistically common phenomenon, especially as an end product of this sequence of shifts (see secs. IV and VI below).

III. SUMMARY OF THE REFLEXES OF THE PROTO-SEMITIC VOWELS

The steps of the sequence under consideration in Phoenician are summarized in table 2 below.

TABLE 2

Diachronic Development of Proto-Semitic *á, *ā, *aw, and *u in Phoenician⁴⁶

Proto-Semitic	á	ā, aw	u
Common Canaanite	á	o ⁴⁷	u
Phoenician	o	u	ü

⁴⁴ Hans H. Hock, *Principles of Historical Linguistics*, Trends in Linguistics, Studies and Monographs 34 (Berlin, 1986), p. 155.

⁴⁵ This shift is quite different from the “sound change u—i in closed syllables,” with intermediate stage *ü*, analyzed at length by Kutscher, *The Language and Linguistic Background of the Isaiah Scroll (IQIsa^a)*, Studies on the Texts of the Desert of Judah, vol. 6 (Leiden, 1974), pp. 452–96. The shift Kutscher mentions is a fundamentally different type of shift from all those mentioned in our sequence, as Kutscher recognizes (ibid., p. 496), since it is an alternation between short vowels in a limited phonetic environment, perhaps as a type of *Murmelvokal*, especially under dissimilatory influence, rather than an unconditioned shift. Moreover, it is not a “strong” sound shift, but only a tendency that occurs to greater or lesser extent in various languages. Kutscher’s shift of short *u* to *i* in closed syllables appears to be quite widespread in the area under consideration in this essay. John Huehnergard, however (“Historical Phonology and the Hebrew Piel,” in Walter R. Bodine, ed., *Linguistics and Biblical Hebrew* [Winona Lake, Indiana, 1992], p. 221, n. 53), challenges the validity of this shift in at least some of the dialects that Kutscher

considers.

⁴⁶ Kutscher (“*kəna^canīt*, *‘ibrīt*”) presents a slightly different picture of the Phoenician/Punic reflexes of Proto-Semitic **a*, **á*, **ā*, and **ū*: they were close to *a*, *o*, *u*, and *ü* respectively, but in Kutscher’s opinion they may have been more precisely *æ* (“front a”), *ɔ*, high *o* (like Sznycer’s “son intermédiaire entre *o* et *u*” [*Les passages puniques*, p. 149]), and *u* respectively. “Front *á*” would be the Phoenician *a* (unshifted to *o* when unstressed), which Kutscher places on the vowel chart in a more front position than the low mid *a* we have in our vowel chart (see table 1 above), presumably to make the *a* vowel as phonetically distinct as possible (ibid., pp. 92, 95). Kutscher’s high *o* can be considered, like Sznycer’s intermediate *o/u*, an intermediate stage of the shift *o* > *u* described here (sec. II, 4). In any case, Kutscher generally agrees with the directions of the shifts in table 3, while differing on the exact phonetic position of the reflexes. Because Kutscher treats both *ou* and *u* as *u*, when in fact they denoted *u* and *ü* respectively, however, his conclusions do not take into account Phoenician *ü*.

⁴⁷ *aw* > *o* occurred in North Canaanite, but in the Jerusalem dialect only in unstressed syllables.

IV. THE SAME SEQUENCE IN SEMITIC AND OTHER ANCIENT NEAR EASTERN LANGUAGES

This sequence of sound changes is also found in many languages related to Phoenician or in its geographical area.

As mentioned above,⁴⁸ Hebrew includes a few of the shifts from the sequence. The Canaanite Shift, $\bar{a} > \bar{o}$, is shared by Hebrew and Phoenician. The shift of stressed $\acute{a} > \text{ɔ}$ ($q\bar{o}m\bar{o}s$) with stress-lengthening, $\acute{a} > \acute{a}$, as an intermediate step, resembles the Phoenician Shift in the conditioning environment⁴⁹ and in the direction of movement of the vowel.⁵⁰ Centuries later, certain Ashkenazi Hebrew dialects took the sequence even further, shifting $\text{ɔ} > o$, $o > u$, and even $u > i$.⁵¹

Some Aramaic dialects participated in this sequence of shifts,⁵² including Western Syriac (Jacobite), Ma^clūla, and Christian Palestinian Aramaic. Long \bar{a} (stressed or unstressed) shifted to \bar{o} ($Z^e q\bar{o}f\bar{o}$) and \bar{o} to \bar{u} ($E\bar{s}\bar{o}s\bar{o}$). In the case of Syriac, the shift can be dated as far back as the first century C.E.⁵³ This does not occur in Eastern Syriac, but it does in the modern Eastern Aramaic dialect of Tūrōyō.⁵⁴ The shift $\acute{a} > \acute{o}$ occurs in the modern Western Aramaic dialect of Ma^clūla.⁵⁵ There are several possibilities for the origin of these Aramaic shifts: first, this may be a late influence of neighboring Canaanite dialects that had long since undergone the Canaanite Shift;⁵⁶ second, the isogloss between $\bar{a} > o$ regions and $\bar{a} > \bar{a}$ ones may have been an early one, which continued for millennia in the same geographic area, despite the change of languages in the region (according to dialect-continuum theory). Given the chronological separation, I would reject such causal links and instead attribute the Aramaic shifts to a third option: an independent sound shift that occurred in western dialects of Aramaic along the lines of the sequence under consideration, motivated by a cross-linguistic tendency to move vowels in this direction.⁵⁷

Mehri has a large part of the sequence in the history of its vowels. Proto- $\ast\acute{a}$ ⁵⁸ [\acute{a}]⁵⁹ $> \acute{o}$ is as far as the sequence goes in South Mehri, while in North Mehri this \acute{o} shifts onwards to \acute{u} . Thus, for example, the third-person masculine singular G perfect, proto- $\ast qatala$, is $q\bar{a}t\bar{u}l$.⁶⁰ Unlike the \acute{a} of Phoenician, original \acute{a} in Mehri goes beyond o all the way to u .

⁴⁸ See sec. II, 1 and 3.

⁴⁹ Although Hebrew also demonstrates pretonic $\bar{a} > q\bar{o}m\bar{o}s$.

⁵⁰ Furthermore, as pointed out above (sec. II, 2), we cannot know if the product of the Phoenician Shift was not at some point ɔ .

⁵¹ These were often conditioned on shifts in the Yiddish substrate. On Ashkenazic Hebrew, see Dovid Katz, "The Phonology of Ashkenazic," in L. Glinert, ed., *Hebrew in Ashkenaz: A Language in Exile* (Oxford, 1993), pp. 47–87. On Yiddish, see William Labov, *Principles of Linguistic Change*, vol. 1, *Internal Factors*, *Language in Society* 20 (Oxford, 1994), pp. 131, 285–87, 313–14.

⁵² Labov, *Principles*, p. 122.

⁵³ Carl Brockelmann, *Syrische Grammatik*, 5th ed. (Leipzig, 1938), §43; and Kutscher, *Isaiah Scroll*, p. 495.

⁵⁴ Adolf Siegel, *Laut- und Formenlehre des neuaramäischen Dialekts des Tūr 'Abdīn* (Hannover, 1923), §43. In Mandaic "both o and \bar{a} are often replaced by a short back \bar{a} " (Rudolf Macuch, *Handbook of Classical and Modern Mandaic* [Berlin, 1965],

p. 30). The shift $a > \text{ɔ}$ fits into our sequence, but $o > \text{ɔ}$ is a movement in the opposite direction.

⁵⁵ Anton Spitaler, *Grammatik des neuaramäischen Dialekts von Ma^clūla* (Leipzig, 1938), §2b, §5c.

⁵⁶ F. Praetorius ("Zur hebräischen und aramäischen Grammatik," *ZDMG* 55 [1901]: 369) has suggested an origin for the Canaanite Shift among the autochthonous non-Semitic inhabitants of the area in the mid-second millennium B.C.E. Evidence for this is slim.

⁵⁷ Garr, *Dialect Geography*, p. 66.

⁵⁸ Note the similarity between the stress-conditioning in Mehri and in Phoenician.

⁵⁹ This \bar{a} appears to be a hypothetical intermediate step for which there is no evidence.

⁶⁰ Maximilian Bittner, *Studien zur Laut- und Formenlehre der Mehri-Sprache in Südarabien*, vol. 2, *Zum Verbum*, 168. Band, 2. Abhandlung, *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien, Phil.-hist. Kl.* (Vienna, 1911), p. 7; and Ewald Wagner, "Gedanken zum Verb des Mehri aufgrund der neuen Materialien von Johnstone," *Zeitschrift für arabische Linguistik* 25 (1993): 323.

In Attic-Ionic Greek, the creation of \bar{o} overcrowded the space of back vowels, creating the conditions for the shifts $\bar{o} > \bar{u}$ and $\bar{u} > \bar{i}$. Later, the \bar{i} was derounded to \bar{i} . In spite of the well-known contacts between Phoenician and Greek, this sequence is cross-linguistically common, and so it probably developed independently in the two languages.⁶¹

Vocalic shifts belonging to the sequence of shifts have been reconstructed for the development from ancient Egyptian into Coptic. Direct evidence for the vocalization of the hieroglyphic stages of Egyptian is sparse, but it seems safe to assume that the following shifts occurred: Egyptian $\acute{a} >$ Coptic o , and $\acute{a} > \bar{o}$.⁶² (Here stressed short $*\acute{a}$ and long $*\acute{a}$ have reflexes whose quantities differ. We cannot know the quantities of the reflexes of $*\acute{a}$ and $*\bar{a}$ in Phoenician.) Also the shift $u > i$ has been plausibly postulated for Egyptian and Coptic, including the intermediate step $*\bar{i}$.⁶³

V. PROCESS OF PULL- (DRAG-) AND PUSH-CHAINS

Two modes of operation have been described for chain-shifts: the push-chain, in which the shift of one phoneme towards another causes the shift of the target phoneme away from its former position, setting off yet another shift in turn, and the drag-chain, in which the shift of one phoneme allows another to fill its vacated former position, the vacuum created being filled in turn.⁶⁴

There is a fundamental difference in principle between the drag-chain and the push-chain models. In the drag-chain model, phonemes move to fill a gap in the phonetic structure. In the push-chain model, on the other hand, phonemes move to avoid a possible phonemic merger. But while phonetic structures tend to remain well balanced (restoring balance when it is lacking), phonemic inventories often tolerate mergers, even when the merger causes homonymy.⁶⁵ Thus, "push-chain analyses rest on considerably weaker theoretical foundations than do drag-chain analyses," and, in those languages that have been

⁶¹ Sound developments in one language are frequently influenced by a neighboring unrelated language.

⁶² Leo Depuydt, personal communication, fall 1994; Jürgen Osing, *Die Nominalbildung des Ägyptischen: Textband* (vol. 1), Deutsches Archäologisches Institut, Abteilung Kairo (Mainz, 1976), pp. 10–11; Wolfgang Schenkel, *Einführung in die altägyptische Sprachwissenschaft*, Orientalische Einführungen (Darmstadt, 1990), pp. 87–88 (he dates $\acute{a} > o$ to "ca. 550–450 v. Chr." and $\bar{a} > o$ to "zwischen der Zeit Ramses' II. und der Assyrerzeit"); Kurt Sethe, "Die Vokalisierung des Ägyptischen," *ZDMG* 77 (1923): 166–71; William Foxwell Albright, "The Principles of Egyptian Phonological Development," *Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes* 40 (1923): 66 (he dates the shifts to "after 1300").

⁶³ "Long Semitic [and Ancient Egyptian] \bar{u} corresponds to Coptic \bar{i} There must have been a sound like French u or German \bar{u} in Neo-Egyptian." Werner Vycichl, "Egyptian and Other Hamito-Semitic Languages," in James and Theodora Bynon, eds., *Hamito-Semitic*, Proceedings of a Colloquium Held by the Historical Section of the Linguistics Association

(Great Britain) at the School of Oriental Linguistics Association (Great Britain) at the School of Oriental and African Studies, University of London, on the 18th, 19th, and 20th of March 1970 = *Janua Linguarum, Series Practica* 200 (The Hague and Paris, 1975), p. 205; Albright, "Principles," p. 66; and Schenkel, "Einführung," p. 90, give a slightly different shift, $\bar{u} > \bar{e}$.

⁶⁴ This approach, together with an examination of similar vowel chain-shifts, is represented by André Martinet, *Economie des changements phonétiques: Traité de phonologie diachronique*, Bibliotheca Romanica, Series Prima, Manualia et Commentationes 10 (Bern, 1955). See esp. pp. 50–52. In fact, phonemes often do merge and do not always maintain the same relative distribution. Martinet's functionalist approach has been rejected by generative theories which define sound shifts as the insertion of discrete rules (Edward Greenstien, personal communication, spring 1993) and by a desire to avoid naive teleological arguments (Ladov, *Principles*, p. 549).

⁶⁵ Hock, *Principles*, pp. 150–52.

studied in the process of change, no push-chains have been observed.⁶⁶ Our sequence is therefore more likely to have been a drag-chain than a push-chain.

VI. OTHER CHAIN-SHIFTS OF THE SAME SEQUENCE

Similar sequences of shifts have been discovered in many languages, including Akha, Albanian, English, Frisian, German, Greek, Lappish, Lithuanian, Old Prussian, Portuguese, Romansh, Swedish, Swiss French, Syriac, and Yiddish.⁶⁷ Comparison with these languages suggests universal principles of chain shifts, which can help clarify the Phoenician situation: the cross-linguistic principles “in chain shifts, long vowels rise” and “in chain shifts, back vowels move to the front”⁶⁸ are represented by the shifts $\acute{a} > o$, $o > u$, and $u > \ddot{u}$, as recognized in Phoenician.

One of the most complete examples of the chain-shift, which occurred in some of the Scandinavian languages around 1200–1400 C.E., will shed light on the Phoenician chain-shift.⁶⁹ First the shift $\bar{a} > \bar{a}$ (where \bar{a} came from a lengthening of short *a) caused overcrowding of the back-vowels. This was relieved by a shift of \bar{u} frontwards to \bar{u} (the rounded mid central vowel), which, in turn, set off a shift of \bar{o} to \bar{u} .⁷⁰ This shift, in turn, “dragged” after it $\bar{a} > \bar{o}$.⁷¹

Compare Phoenician, where a new back vowel ɔ developed from \acute{a} , and Greek, where a new back vowel \bar{o} developed from the diphthong ou and from short o .⁷² Phoenician pursued a course similar to that of the other languages, I would suggest: there was an overcrowding of the back vowels caused by the Canaanite and Phoenician Shifts. The overcrowding pushed u to \ddot{u} , however, which dragged o to u in turn. Thus, Phoenician underwent a drag-chain that was triggered by an initial entry of an extra phoneme into the space of back vowels.

VII. THE SEQUENCE OF SHIFTS SUMMARIZED

Our sequence of shifts, seen to its fullest extent in Phoenician, includes an example of a drag-chain of phonetic shifts, as seen in table 3.

Leaving out of consideration for the moment the very early Canaanite Shift, and leaving out theoretical intermediate steps, the well-documented shifts in Phoenician are $\acute{a} > o$ (the Phoenician Shift), $o > u$, and $u > \ddot{u}$. Kutscher⁷³ has already stated that $\acute{a} > o$ and $o > u$ happened “all at once,” and we add that $u > \ddot{u}$ was simultaneous with these, as a drag-chain. The sequence as a whole, which is very common cross-linguistically, systematizes our knowledge of the history of Phoenician vowels.

⁶⁶ Theodora Bynon, *Historical Linguistics*, Cambridge Textbooks in Linguistics (Cambridge, 1977), p. 88; and Hock, *Principles*, p. 157.

⁶⁷ Labov, *Principles*, p. 122. Labov reviews the course of some of these shifts in detail. Structuralist principles are applied to the cases of French, Greek, and Azores Portuguese in A. G. Haudricort and A. G. Juillard, *Essai pour une histoire structurale du phonétisme français* (Paris, 1949), pp. 100–113.

⁶⁸ Labov, *Principles*, p. 116.

⁶⁹ Einer Haugen, *The Scandinavian Languages: An Introduction to Their History* (London, 1976),

p. 257; P. Oktor Skjaervo personal communication, spring 1994; and Labov, *Principles*, pp. 130–31, 281.

⁷⁰ Compare Szyner's (*Les passages puniques*, p. 149) “son intermédiaire entre o et u ” of Phoenician.

⁷¹ Written with the grapheme \acute{a} in modern Norwegian and Swedish.

⁷² Allen, *Vox Graeca*, pp. 76–77; and Hock, *Principles*, p. 156.

⁷³ “ $kana'anit$, ‘ $i\bar{b}r\bar{i}t$,” p. 91.

TABLE 3

GREEK ⁷⁴	CANAANITE, PHOENICIAN, PUNIC	PHOENICIAN	HEBREW
proto-Greek <i>a</i> ↓ <i>ā</i>		<i>á</i> ↓ <i>ā</i> (tonic lengthening)	<i>á</i> ↓ <i>ā</i> (tonic lengthening)
<i>ā</i> ↓ <i>ɔ</i>	proto-Canaanite <i>ā</i> ↓ <i>ɔ</i> (intermediate step suggested for Canaanite Shift)	<i>ā</i> ↓ <i>ɔ</i> (intermediate step suggested for the Phoenician shift)	<i>ā</i> ↓ <i>ɔ</i> (Tiberian <i>qɔmɔʕ</i>)
	<i>ɔ</i> ↓ <i>o</i> (completion of Canaanite shift)	<i>ɔ</i> ↓ <i>o</i> (completion of Phoenician shift)	<i>ɔ</i> ↓ <i>o</i> (Ashkenazic Hebrew <i>qɔmɔʕ</i>)
<i>o=ow</i> ↓ <i>u</i>	<i>o</i> ↓ <i>u</i> (in Phoenician)		
<i>u</i> ↓ <i>ü</i> <i>ü</i> ↓ <i>i</i>	<i>u</i> ↓ <i>ü</i> <i>ü</i> ↓ <i>i</i> ⁷⁵		

NOTE: the horizontal lines separate the developments of different proto-vowels.

⁷⁴ Sturtevant, *Pronunciation of Greek and Latin*, §§34–46.

⁷⁵ The evidence for *ü* > *i* is weak.