

HEBREW SONORITY AND TIBERIAN CONTACT ANAPTYXIS: THE CASE OF VERBS *PRIMÆ GUTTURALIS*¹

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Abstract

This paper begins to address the alternation between simple vs. complex shewa in the environment of the Hebrew gutturals. Specifically, this paper is limited to one interesting subset of data: guttural-initial verbs. The initial observation was that the following, medial root consonant conditioned the alternation. This observation was elevated to a hypothesis of *contact anaptyxis* induced by sonority differences. In turn, the data permitted, *ex hypothesi*, the induction of a Hebrew sonority scale with intercalated gutturals that holds great interest in crosslinguistic perspective. This study lays the groundwork for research of broader scope.

It is considered axiomatic in Tiberian Hebrew (TH) phonology that the so-called ‘gutturals’ (pharyngeals and glottals) cannot accommodate a *shewa simplex* (or ‘simple shewa’).² In large measure this gener-

¹ This work is dedicated to a *magister* of Masoretic studies and a true inspiration, John Revell, upon his retirement from the Department of Near & Middle Eastern Civilizations, University of Toronto. May he long enjoy his new life in Oxford.

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² Such a categorical statement on Modern Hebrew as well can be found in S. Shlonsky, ‘Some Aspects of Modern Hebrew Phonology,’ in R.A. Berman, *Modern Hebrew Structure* (Tel Aviv 1978), chap. 2, 11–67: 17, §2.2.2 (a).

alization is empirically adequate; and this first approximation is duly reinforced, e.g., by the standard verbal paradigms.³ However, this generalization is flatly contradicted by verbs *tertia gutturalis*:⁴ the gutturals regularly close out syllables by taking a *shewa quiescens* (or ‘silent shewa’). Furthermore, despite the misleading paradigms (*ya‘āmōd* and *yehēzaq*), verbs *prima gutturalis* not infrequently violate the rule by accepting a *shewa simplex* (e.g., *yaḥmōd*, *yaḥmōl*).

As a rule standard reference grammars take note of such variation, if at all, only in passing. Blau, e.g., quickly dismisses the variation in pointing: the pointing ‘freely alternates’.⁵ The fullest treatment is still to be found in GKC. Here we are told that verbs *prima gutturalis* divide roughly into two classes, depending on whether the syllable is ‘firmly closed’ or ‘loosely closed’.⁶ As a linguistic description, however, let alone explanation, this distinction singularly fails to pass muster. Since it is the *same* consonants closing the *same* syllables, it is thus a complete mystery how to distinguish ‘firm’ from ‘loose’ closing.

This paper proposes in a preliminary way a solution to this problem of variation with gutturals (simple shewa vs. complex shewa). Following the hints provided by Angoujard, I assume that gutturals and the so-called ‘emphatics’ are quasi-sonorant; and that they are sonority-ranked among themselves as well.⁷ I invoke the syllable preference laws of Vennemann, specifically the Syllable Contact Law: transitions with rising sonority are disfavoured.⁸ I follow Vennemann in describing the TH ‘remedy’ to the bad syllable contact as *contact anaptyxis*.⁹ So in fact there really is no mystery at all. While in terms of raw frequencies, the traditional generalization holds good, in terms of the nature of the *second* root consonant there is more or less an even split: the *more sonorous* consonants (e.g., glides *y*, *w*; liquids *r*, *l*; and nasals *n*, *m*) generally force the *ḥātēp* or composite shewa (= *loosely closed*); while the *less sonorous* consonants (e.g., espe-

³ J. Blau, *A Grammar of Biblical Hebrew*, 2nd edn (Wiesbaden 1993), paradigms 5–6, 124–5 = GKC paradigms D–E.

⁴ Blau, *A Grammar*, paradigm 6, cont’d, 126–7 = GKC paradigm F.

⁵ Blau, *A Grammar*, 39 §10.4.

⁶ GKC §63b–c.

⁷ J.-P. Angoujard, *Théorie de la syllable: rythme et qualité* (Paris 1997); see also ‘Les hiérarchies prosodiques en arabe’, *Revue québécoise de linguistique* 16.1 (1986), 11–38.

⁸ T. Vennemann, *Preference Laws for Syllable Structure and the Explanation of Sound Change* (Berlin 1988).

⁹ Vennemann, *Preference Laws*, 11 (B8, ‘The Contact Law’, [5]); 40–55, esp. 54 (on anaptyxis, [95]).

cially stops *p, b, t, d, k, g*¹⁰) generally permit a *shewa simplex* (= *firmly closed*).

This paper is organized as follows. A general introduction to sonority (with reference to Modern Hebrew [MH] consonant clusters) and the so-called syllable contact law is provided. Next, approximations of the TH contact law are progressively revised as the so-called gutturals are examined in TH in the following order: first *h*; then the pharyngeals *ħ* and *ʕ*; and finally *ʔ*. In the course of this examination a few ancillary constraints are introduced as subregularities. Every attempt is made to explain apparent anomalies in the course of this exposition; but it is suggested that the handful that elude explanation are probably mistakes in the Leningrad Codex (primarily in the Psalms). A note on the limited data from Biblical Aramaic is appended.

1. Sonority and Sonority Scales

The idea that phonetic segments are ranked along a *sonority scale* or hierarchy is commonplace in linguistics.¹¹ We may prefer to rank segments by their *consonantal strength* relative to the prototypical voiceless stops; but usually — and equivalently — we rank segments by their *sonority* or resonance relative to the prototypical vowels. As a first approximation, a typical scale might run: *a > i u > l r > m n > fricatives > stops*.

Syllables are *peaks* of sonority. It follows that a syllable onset should *rise* in sonority and that a syllable offset should *fall* in sonority. In Semitics we see sonority at work in /CVCC/ nouns in Arabic dialects. Final CC# sequences that fall in sonority are permitted; whereas, final CC# sequences that rise in sonority receive an epenthetic vowel. In Makkan Arabic, for example, we find a minimal contrast **šukr*/*šukur* ‘thanks’ (rising *kr*) vs. *širk*/**širik* (falling *rk*) ‘atheism’.¹²

Similarly, a Hebrew sonority scale determines which consonant clusters are permitted as onsets.¹³ Rosén provides a handy table for

¹⁰ As already noted, with regard to stops in general, by J. Blau, ‘On the Multilayered Structure of Biblical Hebrew in the Light of Modern Hebrew’, *Leshonenu* 54 (1990), 103–14 (in Hebrew with English summary p. ii).

¹¹ See, e.g., C. Gussenhoven and H. Jacobs, *Understanding Phonology* (London 1998), 152–3 §10.3.1.

¹² M.H. Abu-Mansour, ‘Epenthesis in Makkan Arabic: Unsyllabified Consonants vs. Degenerate Syllables’, in B. Comrie and M. Eid (eds), *Perspectives on Arabic Linguistics III* (Amsterdam 1991), 139 (6)–(7); and 143 (17)–(18).

¹³ Shlonsky, 46 §2.3.2.

all possible combinations in MH.¹⁴ On this basis, we can construct a Hebrew sonority scale as follows.

HEBREW SONORITY SCALE: $y > r, l, n, x > m > \text{obstruents}$

Thus, for example, *pratim* ‘details’ or *glima* ‘gown’ with rising sonority are permitted; whereas, **ndida/medida* ‘wandering’ or **mgeral/megera* ‘drawer’ have bad, falling sonority contours and force the epenthetic *e*.¹⁵

This MH sonority scale has interesting properties which bear on the TH phenomenon below. First, the place of *m* requires comment. In Hebrew, *mr*, *ml*, *mn* and *mx* are permitted as onsets, while **rm*, **lm*, **nm* and **xm* are not: hence $r, l, n, x > m$. That *m* should rank lower in sonority is actually not remarkable in crosslinguistic perspective. The same sort of ranking of *m* obtains in Russian, for example, as well as Spanish and Old French.¹⁶ Second, the place of *x* among the sonorants is surprising, but again, not completely unparalleled. In Old English, for example, the phenomenon of *breaking* (diphthongization) of vowels is triggered in a graded manner by the non-nasals $r, l > w, x$.¹⁷ No doubt other examples can be found.

To round out this introduction to sonority, it is necessary to introduce Angoujard’s *proposed* hierarchies for gutturals and emphatics, based in part on Arabic data.¹⁸ The study below shows how suggestive these scales are, and in fact makes a novel contribution by correcting them based on the TH data.

GUTTURAL SONORITY SCALE: $r > ʕ > ħ > h > ʔ$

EMPHATIC SONORITY SCALE: $ṭ > ṣ > q$

2. The Syllable Contact Law and Contact Anaptyxis

Not only does sonority play a role within syllables, but it also determines a possible syllable transition or *syllable contact*. In general, syl-

¹⁴ H.B. Rosén, *A Textbook of Israeli Hebrew*, 2nd edn (Chicago 1966), 4 §0.161.

¹⁵ Scholars of Modern Hebrew will see that this is a gross oversimplification of the facts: so much more could be and needs to be said about permitted clusters. Nevertheless, this treatment is sufficient for the purposes here.

¹⁶ Y.-C. Moran, ‘Morphologisation de l’épenthèse en ancien français’, *Canadian Journal of Linguistics* 25.2 (1980), 204–25: $l, n > s, z > m$, p. 208; on Spanish, 220, note 11.

¹⁷ S. Suzuki, ‘Breaking, Ambisyllabicity, and the Sonority Hierarchy in Old English’, *Diachronica* 11.1 (1994), 65–93, esp. pp. 83, 87.

¹⁸ See *Théorie de la syllable*, 137–54, §5.1, 137–54, for his application in Semitics. I adapted his figures 5.4 and 5.7 for Hebrew.

lable contact is less favoured with a rising transition, while contact with a falling transition is favoured. Thus, in a system that disallows a complex onset, [al.ka] with a falling transition would be preferred, while [ak.la] with a rising transition would be unexpected.¹⁹ Vennemann phrases the (SYLLABLE) CONTACT LAW in the following terms.

A syllable contact A^sB is the more preferred, the less Consonantal Strength [CS] of the offset A and the greater the Consonantal Strength of the onset B; more precisely—the greater the characteristic difference CS(B)-CS(A) between the Consonantal Strength of B and that of A.²⁰

There is a strong tendency to optimize a syllable transition by decreasing the sonority. There are a number of such ‘remedies,’ as Vennemann catalogues.²¹ Among these is *contact anaptyxis* (vowel epenthesis, cf. English *thatway* > *thataway*), which Vennemann formalizes as A.B > AV.B (where V is a vowel).²² His examples include English *ath.lete* → *a.tha.lete*; Old High German *zes.wa* → *zesa.wa*; and Italian *-is.mu* → *-esi.mo*.²³

The basic proposal, to be fleshed out below, is that *yahmōl* is reasonably expected, since *ex hypothesi* we see a *falling* sonority transition; whereas, *yehēzaq* shows *contact anaptyxis* because of an impermissible *rising* sonority transition. But first, we must establish the scope of this paper.

3. Scope of the Investigation

This paper adopts a divide-and-conquer strategy by restricting the scope of this first investigation quite narrowly. The goal is to try to limit and control for complicating factors. Prosody, for example, is most clearly a complicating factor, as Ben-David notes: it is the *unstressed* environment that licenses anaptyxis,²⁴ and so consistently

¹⁹ This example is borrowed from Gussenhoven and Jacobs, *Understanding Phonology*, 153.

²⁰ *Preference Laws*, 40 (67).

²¹ *Ibid.*, 50–1.

²² *Ibid.*, 51 (6).

²³ *Ibid.*, 54 (95).

²⁴ I. Ben-David, ‘Two Comments on Morphology’, *Leshonenu* 58.4 (1994–5), 297–307 (in Hebrew with English summary, pp. i–ii.). He presents a number of interesting examples of prosodically based alternations: *mā’lā/mā’ālā* and verbal forms such as *šāmā’nū/šāma’ānūhā*.

closed, unstressed syllables are required. For this reason, I have chosen to limit the search and study to just those verbal forms with inflectional prefixes. This decision systematically excludes all cases of preposition plus infinitive construct (the morphophonological status of this construction remains problematic). It also excludes the ubiquitous *segholate* nouns (also problematic in my opinion: I do not believe they have underlying, final CC clusters²⁵).

Those cases of an inflectional prefix with [i] are also excluded, since they are not affected: such cases (only with *hyh* and *hyh*) are systematically exempt from the sonority effects. It may be that this different treatment of [i] on the one hand vs. [ɛ], [a] and [ɔ] on the other can itself be ascribed to a sonority effect, since vowels often differ in sonority; no doubt the common medial glide [y] is also a contributing factor.

Finally, this study does not treat of the complex final codas with pharyngeal plus coronal stop; but certainly the fact that the stops do not spirantize in such instances should be related directly to the conclusions on Tiberian sonority below. The generalization would appear to be otherwise that final CC# clusters *are* permitted if falling off in sonority: nouns *qōšṭ* and *nērd*; and verbal forms such as *wayyišb* or *wayyašq*.

4. Initial *h*

There are twelve initial-*h* roots with inflectional prefixes in my database. The five roots with stops in medial position permit the *shewa simplex* (are *firmly closed*)²⁶; however, the seven with sonorants (*r, l, m*) appear with a *ḥāṭēp* (*loosely closed*).²⁷ This behaviour is indicative of a *syllable contact law* which can be formulated in terms of a TH sonority profile:

TH SONORITY SCALE: sonorants > *h*, obstruents
 TH SYLLABLE CONTACT LAW: *A.B, where B > A and A a guttural

The syllable contact law can be read as barring *rising* syllable transitions involving gutturals. Thus, *tehbālû* is permitted, since the tran-

²⁵ V. DeCaen, review of *Tiberian Hebrew Phonology: Focussing on Consonant Clusters* by A.W. Coetzee (Assen 1999), *JSS* 47 (2002).

²⁶ *hbl, hdp, hdr, hkr, hgh*.

²⁷ *hmb, hrg, hrb, hrs, hl', blk, blm*.

sition clearly involves a falling contour; whereas, *yahălômû* exhibits obligatory anaptyxis since the transition crucially involves a *rising* sonority contour.

5. Initial *h*

There are in my database eighteen verbs with plain stops in second position.²⁸ The strong generalization is that these plain stops firmly close the syllable (with two exceptions *hbl* and *hbš̄* examined below). As well, with few qualifications, we find firmly closed syllables with the sibilants *s* and *š̄*,²⁹ the nasal *m*³⁰ and the so-called ‘emphatic’ *q*.³¹

In the other camp, exhibiting contact anaptyxis, we find the sonorants excluding *m*.³² Here too are emphatic *t̄*³³ and the sibilants *z* and *š̄*.³⁴ On this basis, the sonority should be refined as follows.

TH SONORITY SCALE, II: $y, w, n, l, r, ś, z, t > h > b^{35} > s > m, š̄ > h, q \dots$

First we will consider the general properties of this scale; and then we will take up the apparent exceptions. The division of the emphatics is consistent with Angoujard’s proposal, as is that of the gutturals (see above). What is perhaps more interesting is the manner of *intercalation*. The division of the sibilants is somewhat puzzling, though certainly the voicing of *z* would tend to increase its relative sonority (cf. n. 16). On the other hand, the distinction between *s* and *ś* is counterintuitive, since both are putatively pronounced [s]; historically it is sometimes supposed that *ś* derives ultimately from a lateral, but it might still be considered surprising that TH had preserved such a historically conditioned contrast.

Exceptional anaptyxis falls under three rubrics. The first can be ascribed to *prosodic conditioning*. Here we find the minimal con-

²⁸ *hph, hpz, hps, hpr, hps̄; hb̄, hbb, hbt, hbl, hbš̄; hth, htm, htp, htr, ht̄; hdl; hkm; hgr.*

²⁹ *hsh, hsl, hsm, hsr; hšb, hšh, hšl.*

³⁰ *hmd, hml, hms, hmq, hmr.*

³¹ *hqr.*

³² *hyh, hwr; hnh, hnt, hnp; hrb, hrg, hrd, hrb, hrm, hrp, hrs, hrq, hrš, hrt; hl, hll, hlt, hlm, hlp, hls, hlq, hš.*

³³ *ht̄, htb, htm, htp.*

³⁴ *hzh, hzq; hšp.*

³⁵ In this regard, it is interesting to compare the scale derived by Angoujard from first principles: $r > l > \underline{n} > \underline{p} > \underline{b} > \underline{m} > f > t > d > s > \dots$ (66 §2.3.3, table 2.4, with the relevant section underlined).

trasts: *nehmādīm* (Ps. 19:11) vs. *nehmād* (*passim* 11x); cf. *nehšālīm* (Ps. 19:11); and *yahšōbūn* (Ps. 35:20) vs. *yahšōbū* (Isa. 13:17). In these cases, as well as some with ʕ , a secondary stress is applied to the prefix because of the additional prosodic foot; and we might suppose, therefore, that anaptyxis is optimal in just these cases: $*\text{ʕ}.\sigma\acute{\sigma} \rightarrow \text{ʕ}\sigma.\sigma\acute{\sigma}$. We can simply restrict the contact variation to syllables *within the same foot*, and add a rider covering such prosodic conditioning.

The second type appears to implicate \acute{s} : anaptyxis can be found in two forms somewhat exceptionally. However, it appears certain that we are again dealing with a prosodic effect. The two apparent exceptions with *hšb* actually conform to the prosodic generalization on secondary feet.



The last class involves the voiced labial stop *b*, and here we are probably dealing with a sonority effect: hence the proximity of $h > b$ on the scale. The pointing of *hbl* seems to vary by book: for example, we find firmly closed syllables in Job (20:6, 24:3, 9); but anaptyxis in Deuteronomy (24:6, 17). Or maybe a prosodic condition applies: the examples in Deuteronomy are preceded by the clitic *lōʾ*. It is not clear. What is clear, though, is that prosody does distinguish the variants of *hbš* (and so prosody should be considered in the explanation for *hbl*). Those with a full vowel exhibit anaptyxis; while those with a *shewa mobile* (vocal *shewa* arising from syncopation) do not: we find minimal contrasts such as *'ehēbōš* vs. *'ehbāšēk*; and *yahābōš* vs. *yahbāšēnū*. This generalization is found in other forms below, sufficient to raise it to a principled prosodic exemption, SHEWA EXEMPTION.

SHEWA EXEMPTION explains the major class of exceptions with closed syllables. With a medial lateral *l*, the guttural takes a *shewa quiescens* just in those cases where the lateral takes a *shewa mobile*. Thus we find, e.g., *yahlāmū* or *tahlaqū*. We will call this phenomenon LATERAL EXEMPTION — a special case of SHEWA EXEMPTION, and ascribe this *relaxation* of the contact law to a sonority effect. (The verb *hllh* also participates in this relaxation, suggesting perhaps that the underlying, root-final *y* is present at the relevant point in the derivation. However, this may simply be a case of analogy.)

There is finally a phonetically conditioned alternation in those final-weak roots with medial sibilants. When the vowel of the prefix is [a], a firmly closed syllable obtains; however, when the vowel is the front [ε], anaptyxis is the result. Thus we find such contrasts as *maḥšê* vs. *teḥšê*. The contrast can be formulated as a phonetic constraint *SEGHOL-SIBILANT. We might suppose that since [a] can be assumed to be more sonorous than [ε], the ḥ has two phonetic realizations that differ in sonority and hence factor into the acceptability of the syllable transition. (From this generalization there are two exceptions, Pss. 57:2 and 91:4.)

Augmenting our hypothesis with these subregularities still leaves out two forms. Clearly *yahragû* in Ps. 18:46 is a gross violation; but according to *BHS* this ought to be *yahgarû*, which *does* in fact conform perfectly to the contact law — presumably a mistake, then. The other case is marked as a *hapax* in the margin by the Tiberians: *'eḥsê* (Ps. 57:2) — a violation of the constraint *SEGHOL-SIBILANT, vs. the expected *'eḥšê* (*passim* 3x; 4x with other prefixes). (It might very well be the prosodic effect of minor pause on *'atnah*.)

6. Initial ʿ

Taking the stops first, we find one diagnostic that distinguishes the voiced from the voiceless pharyngeal. We do find that generally stops permit the *shewa quiescens*, at least the *non-labial* stops.³⁶ But crucially the *voiced labial* stop as a rule forces anaptyxis (*'bd*, *'bt*, *'br*), as does the labial nasal (the voiceless stop does not appear in this database). The three roots with medial š also force anaptyxis (*s* does not appear either).³⁷ On the other hand, the non-labial sonorants³⁸ do force anaptyxis as expected, and LATERAL EXEMPTION operates as expected. (There is one glaring exception, viz. the root *'lm*, which regularly takes the *shewa quiescens*; and unless an explanation comes along, this root would have to be marked lexically as an exception.)

We can, therefore, confidently add ʿ to a revised sonority scale as follows (the emboldened section is explained below).

TH SONORITY SCALE, III: *y, w, n, l, r, ś > z, ṣ, ṭ > ḥ > b > s > m > š > ʿ > h, q ...*

This picture is complicated in two ways. First of all, there is a SHEWA EXEMPTION at work in first person cohortatives of the root

³⁶ *'m, 'q, 'r; 'dh, 'dp, 'dr; 'kr; 'gb.*

³⁷ *'šn, 'šq, 'šr.*

³⁸ *'nh, 'nq, 'nš; 'rb, 'rg, 'rh, 'rm, 'rp, 'rṣ; 'lh, 'lz, 'ls, 'lš.*

'br (which is regular otherwise). We find the systematic contrast 'ēbōrâ and na'ābōrâ in pause; but the syncopated contextual forms are 'ēbārâ and na'bārâ — clearly prosodic, but somewhat surprising.

The major complication is the chaos, seemingly, with that portion of the sonority scale emboldened in the sonority scale above. There does not appear to be any rhyme or reason to the variation, though perhaps there are regularities by books (e.g., Psalms vs. elsewhere). But we might look to the *third root* consonant for a possible generalization: the roots with chaotic variation are 'ṭh and those with final *r*: 'ṭr, 'ṣr, 'zr. Those behaving as expected all just happen to have a *final labial*: 'ṭp, 'ṣb, 'ṣm, 'zb. There is too little data to generalize, but it does seem that an appeal to the third (final) root consonant is a viable way out of this chaos (and as we see with ' below, this approach may have an independent motivation).

We might have to settle for marking 'mq as lexically exceptional.³⁹ But the systematic contrast between ya'āmōs with sonorous [a] and he'mīs with less sonorous [ε] might be phonetically conditioned: a slightly more rising contour in the first, slightly less rising in the latter (cf. above *SEGHOL-SIBILANT).

On this basis, we might identify two mistakes (?). Clearly the form ya'āzərūnî is a mispointing in Ps. 119:175; and the ʿ should have a full [a] according to the above generalizations. The other apparent exception would be ne'ṣab (1 Sam. 20:34; vs. ne'ēṣab 2 Sam. 19:3).

7. Initial 'ʿ

Based on the lack of sonority of the glottal stop, perhaps the least sonorous of all segments, we might justifiably expect the total failure of 'ʿ-*initial* roots to take a *shewa simplex* and thereby close the syllable. And we would be correct in an overwhelming number of cases (23 roots). However, there is a class of very interesting exceptions: 'dm, 'dr (crucially vs. 'ṭh); 'zr, 'sr (crucially vs. 'ṣp, 'ṣl); 'ṭm, 'ṭr; and 'šm, 'šr. The generalization, again somewhat surprisingly, is to be found in the nature of the *third radical*: in this case, both *r* (see above the exceptions with ʿ) and *m* — but not apparently *l*. Somewhat of a mystery, but again a viable solution, seemingly. To be consistent, we should call it the ALEPH EXEMPTION, in keeping with the nomenclature above. There is even a subregularity governing medial-sibilant roots: just in the case where the sibilant takes a *shewa mobile* the

³⁹ 7x; and one prosodically motivated ma'āmîqîm.

glottal stop cannot firmly close the syllable: e.g., *yá'azrénî* or *yá'asrêhû*. On this basis we can identify a likely mistake in Gen. 42:24 (*yé'sôr* vs. *yé'sôr passim* 6x). There is, finally (!), one further case, *yé'pôd* (Lev. 8:17), which defies expectations: unfortunately it is the only *p*-medial root in the entire database, but we might conjecture that *p* ranks relatively high in sonority (see n. 35).

8. Tiberian Aramaic (TA)

There are too few data from TA to make a sure comparison. But the above observations hold with only two qualifications. Thus *shewa quiescens* is obtained with *'dh*; whereas anaptyxis applies to *hwh*, *hw̄h*, *h̄zh* and *'bd*. The LATERAL EXEMPTION operates in *yahləpûn*.

There are two differences, one definitely characteristic of Aramaic generally, and one perhaps also characteristic of TA. The obvious difference is that the glottal stop cannot close a syllable in Aramaic: an open syllable obtains instead with compensatory lengthening (*'z'*, *'zl*, *'mr*).

The other apparent difference in TA, though the paucity of data makes the observation tenuous, is that the sibilants are treated somewhat differently. The constraint *SEGHOL-SIBILANT applies unexpectedly to *hsn*: *yahs̄mûn* is permitted; but anaptyxis is found in *heh̄šînû*. And SHEWA EXEMPTION is observed unexpectedly (?) with the root *h̄p̄š* (*mah̄šəpâ* and *məh̄ah̄šəpâ*).

9. Conclusion

We began with the general observation that a *shewa simplex* is permitted with a guttural when the *second* radical is a plain stop, but not when the second radical is a sonorant (glide, liquid or nasal). This finding, it was suggested, should naturally be ascribed to a sonority effect, specifically to a *syllable contact law* governing TH quasi-sonorant gutturals; it was further proposed that it is *contact anaptyxis* that gives rise to the *h̄āṭēp* or composite shewa in closed, crucially *unstressed* syllables.

This first approximation worked perfectly for *h*; but we had to add two ancillary principles, SHEWA EXEMPTION (no doubt a prosodic generalization that we are missing: perhaps a species of resyllabification?) and the *minor* constraint *SEGHOL-SIBILANT, to achieve some observational adequacy for the pharyngeals *ḥ* and *ʕ*. A decidedly bizarre principle, ALEPH EXEMPTION, was invoked for *'*.

Despite the distraction of the extra principles, limited in number, the sonority hypothesis has remarkable explanatory power: it is easy to lose sight of just how many data are covered.

On this basis we were able to leverage *ex hypothesi* a sonority scale that intercalates gutturals, sibilants and emphatics in an interesting way. N.B. the *sonorant* status of Tiberian \acute{s} (vs. s , \check{s})!

TH-TA SONORITY SCALE: $y, w, n, l, r, \acute{s} > z, \check{s}, \text{ } \acute{t} > \text{ } \acute{h} > b > s > m > \check{s} > \text{ } \acute{c} > h, q \dots$

With reference to Argoujard's proposals above, this gives a *corrected* sonority hierarchy for gutturals and the so-called emphatics, based on our Tiberian data; we may add a scale for sibilants as well (on $l, n > s, z > m$, see again n. 16).

GUTTURAL SONORITY SCALE: $r > \acute{h} > \acute{c} > h > \text{ } \acute{b}$

EMPHATIC SONORITY SCALE: $\acute{t}, \check{s} > q$

SIBILANT SONORITY SCALE: $\acute{s} > z, \check{s} > s > \check{s}$

We also noted that reference to the *third* radical (r, m and apparently also final-weak y) would capture natural classes of exceptions (including perhaps \acute{lm})—this is, after all, the substance of the ALEPH EXEMPTION. (How to implement this behaviour in a generative framework is another question. We might consider some sort of feature spreading in a non-linear phonology: but *what* feature?)

We also identified the exceptional behaviour of $\acute{hb}\check{s}$ and \acute{br} (both with b), and also \acute{mq} and \acute{pd} (also with medial labials). Finally we found an apparent difference in the TA treatment of sibilants in $\acute{h}sn$ and $\acute{h}sp$.

Exceptions to the proposed treatment were limited, for the most part, to the book of Psalms (perhaps left for the rookie scribe? or maybe something to do with poetry?). I believe, considering the fine detail of the rules posited, that this is a praiseworthy testament to the linguistic talents and accuracy of the Tiberian scribes: even more so if the historical distinction between \acute{s} and s can be confirmed.

In conclusion, then, we have a working hypothesis with a respectable degree of empirical coverage with which to tackle the behaviour of the Tiberian gutturals. As a bonus, we have motivated a unique sonority scale, finely grading and intercalating gutturals, emphatics, sibilants and the sonorous labials. It remains to be seen whether it has crosslinguistic validity.