

A Prosodic Explanation of Stress-retraction (*Nesiga*) in Tiberian Hebrew: Prosodic Structure and Optimality-theoretic Constraints

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Extended Outline (12/August/2009)¹

A. NECESSARY PROSODIC CONDITIONS

A.1 Sandhi

A.2 Stress-clash (moras)

B. PROSODIC PRINCIPLES (CONSTRAINTS)

B.1 Syntax: BINMAX >> WRAP >> BINMIN >> ALIGNXP

B.2 Morphology: CLITIC, SUPERHEAVY, LONGWORD

C. ANCILLARY PROSODIC PRINCIPLES (BLOCKING ENVIRONMENTS)

C.1 Pause (Intonational Phrases)

C.2 Accents

1. Stress-retraction (or *nasîgâ*) in Tiberian Hebrew (TH) is a *phonological* process: specifically, stress-retraction is a *prosodic* phenomenon.²

1.1 The description and explanation of TH stress-retraction must also be strictly *phonological*: reference can legitimately be made only to *phonological* primitives, features, rules, principles, constraints, structures, phrasing, environments, etc.

1.11 No direct reference to non-phonological linguistic levels can be permitted in the description and explanation of TH stress-retraction (autonomy of levels³).

1.111 To the extent that there are morphological, syntactic and lexico-semantic influences on stress-retraction,⁴ such influences must be mediated by the *phonological interface* (or *prosodic structure*).

1.12 TH stress-retraction must be *strictly rule-governed*.⁵ There is a *generative grammar* that predicts the distribution of stress-retraction.

¹ Acknowledgements: esp. Kirk Lowery, Jim Price, John Hobbins, ... et al.

² Revell (1987) employs the terms “speech rhythm” and “intonation” and related adjectives in a family of senses that more or less overlap with “prosodic” here (##1.21, 9.1).

³ See further the strong statements on *autonomy* in, e.g., Saddock, *Autolexical Syntax* (1991), and Jackendoff, *The Architecture of the Language Faculty* (1997).

⁴ The description of stress-retraction shows that it is “to a very large extent, conditioned by observable features of syntactic and other [lexico-]semantic relationship” (Revell 1987: #9.1, p. 105).

⁵ “Grammars inform us that stress position is, in a number of cases, the only feature which distinguishes two grammatical forms. . . . In some such cases, however, . . . retraction of stress in one of the forms can obliterate the distinction. Consequently the claim that stress position is phonemic in Hebrew cannot be maintained unless it can be shown that its retraction occurs under particular conditions” (Revell 1987: #1.3, p. 10).

1.2 As a first approximation, TH stress-retraction is triggered by stressed syllables in contact.⁶

1.21 However, clearly not all stressed syllables in contact trigger stress-retraction (cf. Revell 1987: #1.12, p. 13).

1.211 Closer examination indicates that stress-retraction typically obtains where the final closed syllable is heavy /CVC/, but fails where the final syllable is superheavy /CVVC/.⁷ According to DeCaen (2008), these closed syllables are *monomoraic* and *bimoraic*, respectively.

1.2111 Consequently, following DeCaen (2008), TH stress-retraction must be phrased in terms of *stressed moras in contact*—not stressed syllables.

1.2112 Accordingly, a binary distinction must be made among closed syllables: (1) monomoraic syllables that *trigger* stress-retraction (stressed moras in contact); and (2) bimoraic syllables that *do not trigger* stress-retraction (stressed moras not in contact).

(1)	/CVC/	*i	[e:] ~ [ɛ]	*u	[o:] ~ [ɔ]
		*e	[e:] ~ [ɛ]	*o	[a:] ~ [a]
(2)	(a) /CVV.C/	*ii	[i:]	*uu	[u:]
		*ee	[e:]	*oo	[o:]
	(b) /CV.C/	*e →	[e:]	*o →	[ɔ:]

1.21121 The breaking vowel *furtive pathah* [a] is inserted before final gutturals where the vowel is [front] and/or [high].

1.2113 Clearly, there is a related and crucial morphology-phonology interface constraint or correspondence rule: where the nonverbal form is *bound*, the final syllable is /CVC/; however, where the nonverbal form is *free*, the final syllable is *necessarily superheavy* with an *extrametrical consonant* /CV(V).C/ (cf. Churchyard?!).

1.21131 Let us call this constraint or correspondence rule **SUPERHEAVY**.

1.21132 This constraint or correspondence rule results in the fundamental contrast in final closed syllables in (3). (On moraic association lines, see DeCaen 2008).

(3)	(a) bound	/CV.CVC/	[dəβa:ɛ]	(b) free	/CV.CV C/	[dɔ:βɔ:ɛ]
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Granted. However, since stress position *clearly is phonemic*, it follows that stress-retraction must be *strictly rule-governed*.

Revell (1987) concludes that since stress-retraction “is a variation automatically conditioned” (#1.21, p. 19), the argument for phonemic stress is left “untouched,” yet it is still “weak in the extreme” in light of the variability of stress position (#9.20, p. 114). Consequently, he takes the opposite tack: “it nevertheless seems clear that if questions of phonemic status must be asked of a written text, the prudent answer about that of stress position is negative” (#9.20, p. 114).

⁶ “*Nesiga* typically occurs in a word which would be, in normal context, stressed on its final syllable, when it is joined by a conjunctive accent to a following word stressed on its first syllable, that is, on the vowel following its first consonant” (Revell 1987: #1.12, p. 13).

⁷ Failure of stress-retraction will therefore always obtain in the case of the plural endings **iim* (e.g., Q:BFRI^YM, Job 17:1) and **oot* (e.g., (:ANOWNO^WT, Job 19:29).

1.3 TH stress-retraction is a *sandhi* rule, applying to pairs of words “phrased together” (Sanskrit *sandhi* “putting together”); according to 1.1, such pairs of *phonological words* (ω) must be together in a *phonological phrase* (φ).

1.31 Without many qualifications, the conjunctive accent in TH is not a reliable guide to being “phrased together”: especially where a string of two or more conjunctives obtains.

1.32 There must be an independent syntax-to-phonology algorithm that correctly outputs the prosodic structure. Pairs of words will be considered “phrased together” or “standard pairs” when this specific algorithm assigns them together to the same *phonological phrase* (φ).

1.321 These abstract phonological phrases are the input to the TH accentuation algorithm(s). These additional accentuation algorithms introduce *phonological adjustments* (Dresher 1994 and earlier) or *transformations* (Price 1990) that tend to render the prosodic structure somewhat *opaque*.

1.33 Other sandhi rules are sensitive to the same phrasing: external gemination (Revell 1988, 1989) and simplification (DeCaen & Dresher, part of *dechi* project).⁸

1.4 Stress-retraction is remarkably regular in the three books marked up by the poetic accentuation, contrasting conspicuously with the data from the prose accentuation.

1.41 Stress-retraction is also relatively more common in poetry than prose (Revell 1987: #1.4, p. 10).

1.411 Moreover, the frequency distribution of stress-retraction over the several ranks of disjunctive accents is strikingly constrained in poetry versus prose.⁹ (Cf. Revell (1987) on the supposed relation of stress-retraction to pausal environments (##1.18-1.21).)

1.4111 These observations on poetry versus prose demand an explanation in terms of poetic stylistics and metre (see further DeCaen 2009), if not also prosodics.

1.42 Accordingly, in the spirit of divide-and-conquer, this paper focuses on just the data from the three books marked up with the so-called poetic accentuation (Psalms, Job, Proverbs). The poetic database for this study is that of Revell (1987: Index, pp. 144-152, with omissions and typographical errors corrected¹⁰).

⁸ Differences with spirantization; and cases from prose/poetic comparison.

⁹ Provide here distributional stats over disjunctive accents in poetic versus prose systems; and also isolate poetry within the so-called prose corpus as a further compare and contrast.

¹⁰

Typos:	YGL	→ YGYL	Ps 21:2
	YBW)	→ YB)	Ps 55:4
	MWC)	→ MC)	Job 38:27
	WXQQW	→ YXQQW	Pr 8:15
	TQ(→ TWQ(Pr 17:18
Omissions:	GMR	Ps 77:9	
	WMY	Job 41:2	
	WT)MR	Pr 7:13	
	MWSDY	Pr 8:29	[check Churchyard's database too]

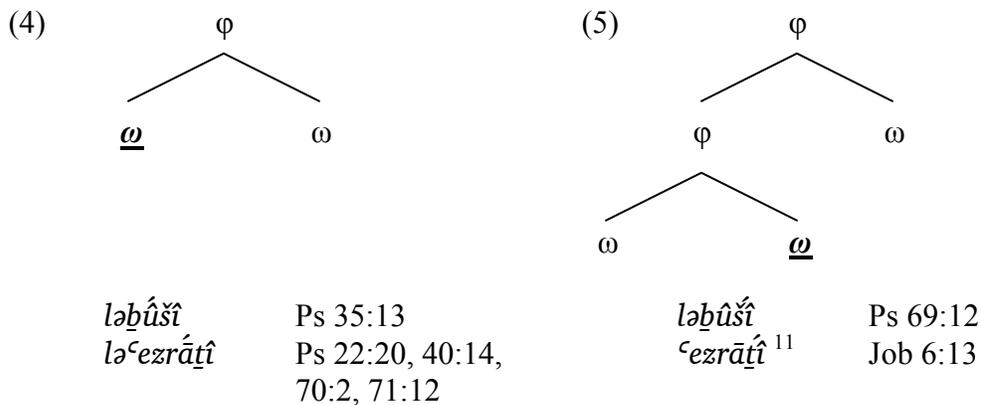
1.421 The results obtained will act *as a screen or filter on the variability* and deviations observed in the larger prose database. The larger study will be reported on separately at a later date.

2. So-called “*virtual disjunctives*” (Price 1990) conspicuously block stress-retraction (see further DeCaen 2008, 2009 for arguments for the recursive prosodic structure of virtual disjunction).

2.1 The transformation that results in virtual disjunctives is an essential *phonological adjustment*, triggered by disjunctives in contact: characteristic of the special poetic system of cantillation (see further DeCaen 2008).

2.11 Comparison of those poems that receive both a prose and poetic mark-up shows that virtual disjunctives in the poetic system correspond to actual disjunctives in the prose system (DeCaen & Drescher, in progress).

2.2 There are in fact minimal pairs of words with and without stress-retraction. These minimal pairs correspond respectively to (4) a two-word phrase (*conjunctive disjunctive*) versus (5) a three-word phrase (*conjunctive1 conjunctive2 disjunctive*), where the failure of stress-retraction occurs on *conjunctive2 = virtual disjunctive*. Relevant positions are marked with bold underlining.



2.3 As a first approximation, then, it is a necessary condition for stress-retraction that the conjunctive-disjunctive pair actually appears together in a phonological phrase as in (4); following Revell’s terminology, we might call this pair a “standard pair.” Where that necessary condition fails, as in (5), stress-retraction is predicted to fail; we will say these are not “standard pairs.”

2.31 By the same token, it is predicted (correctly) that stress-retraction will occur between words phrased together in the subordinate phonological phrase in (5), in fact constituting a “standard pair,” marked in this case by two conjunctives (e.g., *munach munach P.:LI^)FH*, Ps 139:6).

2.32 All virtual disjunctives are transparent and can be identified in the poetic cantillation by rule (see further Price 1990 for details). A list of **58** occurrences¹² is given in the

¹¹ The case in Job does not have the prefixed preposition.

¹² Revell (1987) lists 31 of these **under #7.7** (p. 93-94): “Where two words ... have no direct syntactical connection” (p. 93). Further, “These examples provide the final demonstration that a close syntactical relationship ... was necessary for *nesiga* to occur” (#7.8, p. 94).

following table; bold underlining in the second column identifies the exact position of the virtual disjunctive. Stress-retraction fails as predicted in **52** cases; **six exceptional “long words”** showing stress-retraction are marked in the third column with bold underlining.

Accents		
VD1f (26x)	<i>tarcha <u>munach</u> silluq</i>	Ps 4:8, 5:5, 25:16, 28:8, 33:12, 46:4, 47:5, 71:8, 76:4, 77:16, 81:8, 83:5, 88:18, 89:46; Job 3:7, 3:15, 13:13, 13:24, 30:13, 33:10; Pr 8:7, 22:23, 25:4
	<u><i>mereka</i></u> <i>silluq</i> (long words)	Ps <u>5:11</u> , <u>37:40</u> , 87:7
VLegarmeh ¹³ (5x)	<i>tarcha <u>munach</u> silluq</i>	Ps 41:8, 44:9, 77:4; Job 37:12
	<u><i>mereka</i></u> <i>silluq</i> (long word)	<u>Job 20:27</u>
VD2f before D1 (20x)	<i>munach <u>munach</u> athnach</i>	Ps 9:3, 31:4, 40:18, 69:12, 70:6, 81:5, 89:23, 105:17, 147:15; Job 3:20, 6:13, 18:9, 22:18, 27:3, 38:39; Pr 24:27
	<u><i>mereka</i></u> <i>athnach</i> (long words)	Ps 18:18, <u>72:17</u> , 134:2
	<u><i>munach</i></u> <i>athnach</i> (check?!) (long word)	Ps <u>14:5</u>
VD2f before D1f (1x)	<i>mereka <u>mereka</u> revia-mugrash</i>	Ps 55:4
VD3f (6x)	<u><i>sinnorit-mahpak</i></u> <i>revia (D2)</i> (long word)	Ps <u>23:4</u>
	<i>sinnorit <u>mereka</u> little-revia (D2f)</i>	Ps 132:12
	<i>illuy <u>munach</u> dechi (D2f)</i>	Ps 42:4
	<i>illuy <u>munach</u> munach (VD2f)</i>	Ps 78:24, 119:69
	<u><i>munach</i></u> <i>dechi</i> (long word)	Job 34:37

2.321 The six exceptions are all (a) so-called “**long words**” (DeCaen 2008) that (b) are **finite verbs** or, in the case of Job 20:27, a participle and, crucially, (c) that **end in a vowel**. Such long words are apparently long enough for the accent system to create virtual disjunction; but they are not such that they create a barrier to stress-retraction.

2.3211 Rule-ordering is therefore implied. The phonological phrasing, according to 2.321, must be sensitive to the pre-stress-retraction verb-form as input to the accentuation algorithm. Stress-retraction then eliminates the condition for such phonological phrasing, rendering the situation opaque.

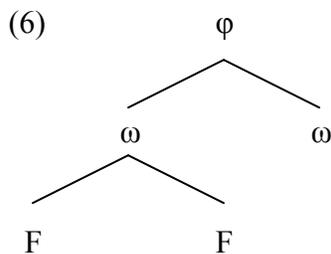
2.3212 N.B. Job 20:27 involves a compound or augmented conjunctive *sinnorit-mereka*, and Ps 23:4 *sinnorit-mahpak*.

¹³ These are distinguished by the preceding D1f substitute **great shalsholet**.

2.32121 The two other cases of *sinnorit-mereka* in Ps 118:25 should also be considered cases of stress-retraction. Revell (1987) considers these two cases as failures of stress-retraction, but excludes them as anomalous in any case (#1.14, p. 14). However, the concomitant external gemination in the two cases in Ps 118:25 strongly suggests stress-retraction.

2.3213 The contrast identified in 2.321 would follow from a prosodic algorithm that has high-ranking optimality-theoretic (OT) Selkirkian¹⁴ constraints **BINMAX**¹⁵ >> **ALIGNXP**¹⁶: a phonological phrase barrier would not therefore exist in the five exceptional cases, but would obtain elsewhere.

2.32131 The proposed structure for the six exceptional “long words” is given in (6). There is no subordinate phonological phrase (φ) resulting from the constraint **ALIGNXP**; however, it will be assumed that there is sufficient structure in the second metrical foot (F)—crucially, pre-stress-retraction—to force a virtual disjunction.¹⁷



2.32132 The introduction of the constraints **BINMAX** >> **ALIGNXP** raises the question of whether **ALIGNXP** will insert a prosodic barrier in the middle of two-word phrases (*conjunctive disjunctive*), blocking stress-retraction. Such environments can be isolated (41 cases).

2.321321 There is a sufficient number of cases of stress-retraction to confirm that the syntactic constraints are ranked: **BINMAX** >> **BINMIN**¹⁸ >> **ALIGNXP**. In other words, the mapping algorithm will prefer to phrase two words together (**BINMIN**) rather than split them apart because of a syntactic edge (**ALIGNXP**).

2.3213211 All forms that end in a vowel will be subject to stress-retraction in these cases, therefore, regardless of the syntactic phrasing. There are 23 cases conforming to prediction.¹⁹

2.3213212 However, despite words being phrased together by 2.321321, where a *nonverbal* form ends in a closed syllable, stress-retraction will necessarily fail because of

¹⁴ Cite important papers by Selkirk and Truckenbrodt, and also *Hellmuth on Cairo Arabic*.

¹⁵ Read: a phonological phrase φ may consist of *at most* two word-feet.

¹⁶ Read: the right edge of any XP in syntactic structure must be aligned with the right edge of a phonological phrase φ in prosodic structure.

¹⁷ Notice, crucially, that this does not overgenerate. Verbs that appear on virtual disjunctives by the phrasing of three words still do not show nesiga: **W:)E(ELCF^H** (Ps 9:3), **NOWDE^H** (Ps 44:9), **):\$ER-)FH"^B** (Ps 47:5).

¹⁸ Read: a phonological phrase φ must consist of *at least* two word-feet.

¹⁹ Ps 22:11, 22:20, 35:13, 40:14, 70:2, 71:12, 76:8, 77:11, 89:27, 109:27, 119:99, 139:6, 140:7; Job 17:14, 19:25, 20:2, 29:7, 37:22; Pr 3:15, 6:23, 7:4, 15:16, 17:21.

the *superheavy syllable* by 1.2113: there can therefore be no clash of stressed moras here. There are 14 conforming to this prediction.²⁰

2.3213213 This leaves four apparent exceptions.

2.32132131 CFBF[^] (Ps 68:12): The form ends in a vowel in phonetic output, but clearly the *aleph* is present in the underlying phonological representation: a type of *h-muet* found in French. At the relevant level of representation, the final syllable is superheavy and so conforms to 1.2113; and so is not an exception.

2.32132132 CID:QFT:KF[^] (Ps 119:142) versus **K.IY-YF[^]D:KF** (Ps 109:27): In point of fact, the latter form, which conforms to the rule stated, is the actual exception: it is the only case with the 2ms object suffix, among many in the biblical corpus, in which stress-retraction occurs.²¹ The word **YFD:KF** is exceptional in several ways, including its relative shortness; and it is not clear which feature is crucial. **N.B.** stress-retraction is accompanied here by *external gemination* as well, adding to the burden of explanation²² of that directly related phenomenon (see Revell 1988, 1989).

2.32132133 NOWRF[^] (Ps 96:4)²³ and **(:ARFBF[^]H** (Job 24:5): These two cases are pointed with the conjunctive *mereka*; and, if stress-retraction would obtain, would appear directly following the major pause of the half-verse,²⁴ bumping up against the major disjunctive *athnach*.

2.321321331 CONJECTURE: the nature of (a) the conjunctive accent and/or (b) the pausal environment immediately preceding that conjunctive constitute a *blocking environment* for the operation of **BINMIN**. There is some constraint (or constraints) to be determined, call it **CONSTRAINTX**, that dominates: **CONSTRAINTX >> BINMIN >> ALIGNXP**. The net effect in this case would be to allow **ALIGNXP** to operate; where **ALIGNXP** is not an issue, stress-retraction is still expected.

2.3213213311 Such *blocking constraints* operating at the beginning of intonational phrases would contribute to an alternative explanation of the *asymmetry* captured by Revell (1987) when he characterizes stress-retraction as a “terminal” phenomenon on par with pausal phonology (#1.18, p. 17).

2.32132133111 The three cases of a number phrase [NumP XP] in Pr 30, all in the identical accentual environment with *munach dechi* (D2f), also conform to this sort of generalization: **JAR:B.F[^](FH** (Pr 30:24) shows stress-retraction with the *buffer syllable* at the left-edge of the intonational phrase; **\$:LO\$F[^]H** (Pr 30: 18 & 29) does not show stress-

²⁰ Instances of participles are underlined: Ps 18:31, 31:15, 35:3, 39:5, 45:2, 50:6, 119:63; Job 6:3, 10:15, 15:23, 30:24; Pr 26:19, 30:5, Pr 31:1.

²¹ In the poetic corpus, see also **Y:GUR:KF[^]** (Ps 5:5) and **Y:HAL.EL:KF[^]** (Pr 27:2).

²² The generalization: for all final syllables of the form –Cā#, if that final syllable is *post-tonic in the pausal form*, then external gemination is a concomitant of stress-retraction. Cf. Revell (1988): “the conjunctive *dagesh* [external gemination] occurs after words in which the final *qames* was not originally stressed, not after those in which it was” (p. 101).

N.B. the overlap of pausal forms and “*not originally stressed*” (cf. Revell 1987: ##1.2-1.4); see further DeCaen (2005) for arguments in favour of the *historical and derivational priority* of the pausal versus contextual forms (esp. p. 323).

More broadly, we must assume that all such final –Cā# syllables, post-tonic in the pausal form, have *some sort of superheavy structure* which is instantiated by external gemination.

²³ Contrast **NO[^]WRF**) with stress-retraction in Ps 76:8 and Job 37:22.

²⁴ On the nature and distribution of major and minor pause, see further DeCaen (2005).

retraction where the stress would be placed at the very beginning of the intonational phrase (discounting the *shwa*), crucially without the buffer syllable.

2.321322 *Ex hypothesi*, the two-word phrasings with syntactic structure [X YP]_X must always be environments in which stress-retraction obtains (excluding the cases of superheavy final syllables). Stress-retraction does in fact obtain in a little over 90% of the **105** cases involving short words (i.e., cases excluding factors introduced by word length).

2.3213221 (N NP)_φ or bound construction (*smixut*): **24** instances, only one exception before YF[^]H. (Ps 118:17).

2.3213222 (V XP)_φ or verb with following modifying XP: **81** instances, eight apparent exceptions, two before YF[^]H. (Ps 115:18, 118:19).

2.32132221 Two exceptions involve infinitives.

(a) **K:RAX[^]AM** (Ps 103:13, sic A): The form is exceptional in the preposition *k* versus typical infinitival *l*. Such cases with the closed final syllable should be assimilated to the free nouns in 1.2113.

(b) **HOWK[^]A[^]X** (Pr 15:12): This infinitive absolute should also be assimilated to the free nouns with closed final syllables in 1.2113.

2.32132222 It appears to be a principle of the poetic accent system that compound or augmented conjunctives are *inherently ambiguous* with respect to stress placement; this phenomenon should be explained in terms of the demands of the actual musical tropes.

(a) *mahpak-mereka* before *tarcha* (virtual minor D2f before *munach* virtual minor D1f):

HF[^]YW.[^] Ps 83:9

T.F[^]SI[^]YT Job 14:13

(b) *mahpak-mereka* before *little revia* (minor D2f substitute before D1 *oleh*):

NO[^]WDE[^]H Ps 79:13

(c) *sinnorit-mahpak* before *revia* (major D2):

N:BF[^]R[^]K: Ps 115:18

2.321322221 Observations: While Ps 115:18 should be a failure of stress-retraction (before YF[^]H.), Ps 79:13 must be a case of stress-retraction because of the concomitant external gemination.²⁵ While Ps 83:9 should by rights be a case of stress-retraction, Job 14:13 cannot be a case of stress-retraction unless it is the *only* exception²⁶ in the biblical corpus to the superheavy-syllable blocking effect.

2.32132223 CONJECTURE: certain conjunctives in certain environments will always constitute *blocking environments*; see 2.321321331.

(a) *illuy* before virtual D3f *munach* (Pr 21:29)²⁷

(b) *munach* following major D2 *revia* and before virtual D2f *munach* (Ps 135:4)

(c) *galgal* following minor D2f *sinnorit* and before major D1 *oleh* (Job 29:25)

2.321322231 There is a family resemblance in these three cases that will be relevant in the larger prose study; the relevant traits are:

²⁵ This must also be the case in the two anomalous forms in Ps 118:25 with *sinnorit-mereka* noted but excluded by Revell (1987: #1.14, p. 14). See also 2.32121 above.

²⁶ Revell (1987) reads the form in Job 14:13 as *mahpak-metheg* (#1.12, p. 13), hence as a case of stress-retraction (but see his n. 10). **Dotan BHL** has the correct *mahpak-mereka* in Job 14:13. (The other possible exception in Ezekiel 23:40 is clearly a mistake in L versus A and C (#1.6, p. 11), yet is retained by Revell on principle (##1.11-1.12, pp. 12-13).)

²⁷ **H[^]([^]A[^]Z:** there may be an additional morphophonological effect here from the hiphil of the geminate: such geminate hiphil forms conspicuously appear in the prose exceptions list.

(a) rarer versions of the regular conjunctives: *galgal* for *mereka*, *illuy* for *munach*

(b) before virtual disjunctives in environment

(c) after supralinear disjunctives of rank 2 in environment

2.3213223 Permitting an arbitrary lexical conditioning of stress-retraction such as the presence of **YF^H**. is inconsistent with 1.11. However, it is worth considering that the reading of this lexical item as *adonay* would obviate the apparent difficulty.

2.3213223 *Ex hypothesi*, even two-word phrasings with **more than two moras** (including clitics) and with syntactic structure [X YP]_X must always be environments in which stress-retraction obtains (excluding the cases of superheavy final syllables).

2.3213231 (N NP)_φ or bound construction (*smixut*): **29** instances with no exceptions.

2.3213232 (V XP)_φ or verb with following modifying XP: stress-retraction obtains in **121 of 126 (96%)**.

2.32132321 CONJECTURE: certain conjunctives in certain environments will always constitute **blocking environments**; see 2.321321331, 2.32132223.

(a) *munach* following major D2 *revia* and before virtual D2f *munach* (**YO**)**M:RW**.^ Ps 41:6); see 2.32132321(b)

(b) *munach* following major D1 *oleh* and before virtual D2f *munach* (**Y:GO**:(**A\$W**).^ Job 34:20)

(c) *tarcha* following major D1 *athnach* and before virtual D1f *munach* (**tFM:NW**).^ Ps 142:4)

(d) *munach* following virtual D3f *mahpak* and before virtual D2f *munach* (**NOW**:(**ACW**).^ Ps 83:6); **CONJECTURE**: *virtual disjunctive mahpak itself a blocking factor here*.

2.321323211 Again, there is a family resemblance in these three cases that will be relevant in the larger prose study (see 2.321322231); the relevant traits are:

(a) before virtual disjunctives in environment

(b) after major disjunctives (D1, D2)

(c) N.B. 2.32132321(d) extremely relevant for prose study.

2.321323212 CONJECTURE: **Prosodic length** is a secondary conditioning factor: longer words have buffering syllables.

(a) **WAT**:(**XO**^**WL**^**L**) (Ps 90:2) with **buffer syllable** (before virtual D2f) shows stress-retraction, versus no stress-retraction on shorter words without a buffer syllable in the same environment (Ps 41:6, Ps 135:4).

(b) **W:LO**-(**F**^**BAR**) (Job 15:19) with **buffer syllable** (before virtual D1f) shows stress-retraction, versus no stress-retraction on a shorter word without a buffer syllable in the same environment (**tFM:NW**).^ Ps 142:4).

2.32132322 The 2ms object suffix is blocking factor in **Y:HAL.EL:KF**^ (Pr 27:2); see 2.32132132.

2.321324 In light of the above, the following must be true of nonfinite participles:

(a) where the form ends in a vowel, stress-retraction obtains;

(b) where the form ends in a consonant, stress-retraction obtains in **bound** forms;

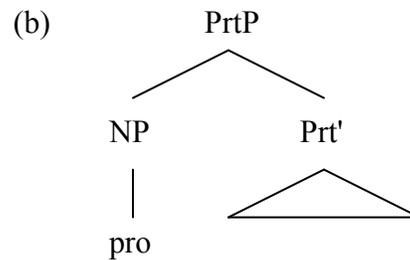
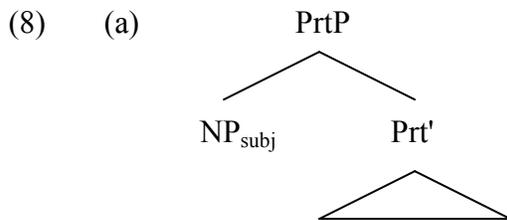
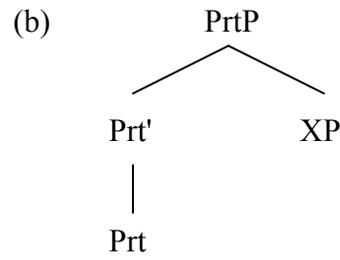
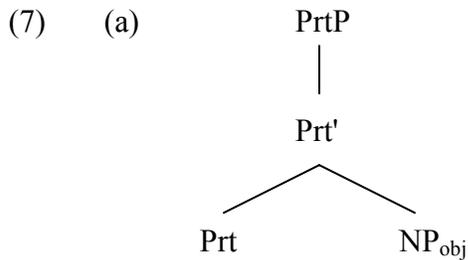
(c) whereas stress-retraction does not obtain in **free** forms;

(d) accentual blocking effects may affect (a)-(c).

2.3213241 There are **65** instances of participles ending in a vowel (12 singular,²⁸ 53 plural), and there are no exceptions to 2.321324(a).

2.3213242 There are **46** instances of participles ending in $-C\bar{e}C\#$: 14 show stress-retraction, 29 do not, and 3 are ambiguous by virtue of the augmented conjunctive.²⁹

2.32132421 Consider the following three constructions. In (7), the PrtP is a clausal constituent and is case-marked; as a rule, it takes one overt argument; and the mpl participle ends in $-\hat{e}$. In (8) by contrast, the Prt heads a small-clause predication with an overt subject or an empty NP “little pro”; there are often multiple arguments present; and the mpl participle ends in $-\hat{im}$.



2.321324211 It is predicted that all 14 cases of stress-retraction must conform to (7a) and therefore will only occur between a *qotel* participle and a direct-object NP. There are no exceptions. A finite verb heading the predicate appears in the clause in 8 of the 14 cases.

2.321324212 Cases not involving a direct-object NP are ambiguous between (7b) and (8b) in the absence of a finite verb. There is no occurrence of stress-retraction in such a construction.

2.321324213 However, in the absence of a finite verb, in cases with a direct-object NP in which stress-retraction fails, the expectation is that these should be parsed as (8b). This appears uncontroversial in 8 of the 29 cases.

2.321324214 OBSERVATIONS

(a) the string *Prt NP Prt NP* is always parsed as a verbless clause

$[Prt\ NP]_{subj} = [Prt\ NP]_{complement}$, and therefore both phrases should conform to 2.321324211.

(b) a modifying function for $[Prt\ NP]_{PrtP}$ conforms to 2.321324213 in the two tokens: Ps 9:5 and Ps 106:20.

²⁸ This 12 includes 2 cases of the feminine singular participle from the final-weak root (**&H** “to do” (Ps 118:15 & 16).

²⁹ Ps 9:7 *mahpak-azla*; Job 31:35 *sinnorit-mahpak*; and Ps 55:20 *mahpak-mereka*.

(c) the string *Prt NP_{obj} PP* with multiple arguments conforms to 2.321324213 in 5 of 6 cases.

2.3213242141 There are three conspicuous exceptions to 2.321324214(a).

2.32132421411 CONJECTURE: despite having the appearance of (7a), these are actually cases of (7b) with, crucially, non-accusative or “oblique” case-assignment; and so the distinction can be registered in the prosodic structure (per stricture 1.111).

(a) oblique case with *guarding, keeping*:

NOC[^]R (Pr 13:3)

\$OM[^]R (Pr 21:23)

(b) oblique case with *knowing*:

YOWD[^]A(D.F[^](AT (Pr 17:27)

(N.B. These are not isolated examples of these semantic classes, as will be seen in the larger prose study.)

3. Summary

3.1 NECESSARY AND JOINTLY SUFFICIENT PROSODIC CONDITIONS

3.11 Sandhi

3.12 Stress-clash (moras)

3.2 PROSODIC PRINCIPLES (MAPPING CONSTRAINTS)

3.21 Syntax: BINMAX >> BINMIN >> ALIGNXP

3.22 Morphology: CLITIC, SUPERHEAVY, LONGWORD

3.3 ANCILLARY PROSODIC PRINCIPLES (BLOCKING ENVIRONMENTS)

3.31 Pause³⁰

3.32 Specific Accentual Environments

3.321 Major Applications

(a) blocking effects with prose conjunctive *azla* (cf. Revell 1987: #1.16, pp. 15-16)³¹

(b) strict taxonomy of prose accents with respect to pseudo-stress-retraction (expected stress-shifting blocked) or not with the so-called perfect consecutives 2ms (cf. Revell 1987: ch. 8)³²

³⁰ Right-edge of intonational phrases (IP) blocking stress-retraction on following conjunctive (at left-edge of its IP).

³¹ *Azla* serving VD3f's blocks stress-retraction. Where *azla* follows a major pause (following *zaqef*, *athnach* or *silluq*) stress-retraction is blocked, regardless of word length; elsewhere stress-retraction obtains [this needs a tweak or two].

³² Pseudo-stress-retraction obtains in **all regular 1s four-syllable** tokens.

Blocking environments of retraction for **2ms** perfect consecutive, crucially with external-gemination-inducing final *-tā#*:

VD3f *munach*;

D2f *pashta*;

D1f *tipcha*;

D1 *zaqef*.

Otherwise, penultimate stress obtains with other prose accents.

[Q: do **D2f, D1f and D1** form a natural class?]