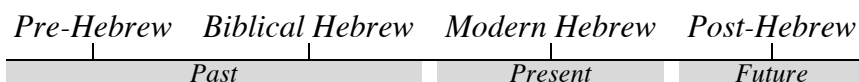


HEBREW STRESS: BACK TO THE FUTURE

Outi Bat-El
Tel-Aviv University

This is a journey through four stages of the Hebrew stress system:



This journey will allow us

- a. to observe causes of change in stress systems, resulting chaos, and recovery procedures, and
- b. to restore the glory of grammatical principles and reduce the role of frequency.

1. PAST – trochaic systems: Pre-Heb (reconstructed) and Bib-Heb (based on the interpretation of the script in the Old Testament) seem to have had fairly regular stress systems, with a trochaic foot aligned with the right edge of the prosodic word (Churchyard 1999 and Florentin 2002 for Pre-Heb; Prince 1975, McCarthy 1979/1985, and Rappaport 1984 for Bib-Heb). The difference between these two stages was in the foot’s units: Pre-Heb preferred syllabic trochees, thus assigning penultimate stress across the board. Bib-Heb preferred moraic feet, assigning final stress in C-final words and penultimate in V-final words. The change from Pre-Heb to Bib-Heb is due to the loss of word final short vowels (case marking in nouns and person marking in verbs).

(1) From Pre-Hebrew to Biblical Hebrew (Churchyard 1999)

	<i>Pre-Hebrew</i>	<i>Biblical Hebrew</i>	
a.	$\dots \text{C}\acute{\text{V}}.\text{CV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}::\text{CV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}\text{C}.\text{CV}\}_{\circ}$	$\dots \text{C}\acute{\text{V}}\text{C}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}:\text{C}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}\text{CC}\}_{\circ}$	<i>final</i>
b.	$\dots \text{C}\acute{\text{V}}.\text{CVV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}::\text{CVV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}\text{C}.\text{CVV}\}_{\circ}$	$\dots \text{C}\acute{\text{V}}.\text{CVV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}::\text{CVV}\}_{\circ}$ $\dots \text{C}\acute{\text{V}}\text{C}.\text{CVV}\}_{\circ}$	<i>Penult</i>

The shift from Pre-Heb to Bib-Heb has led to a system where word-final CVC syllables attract stress, while word-final CVV syllables do not. This system does not comply with the universal weight hierarchy CVV > CVC > CV (Gordon 2006), or with the generalization that compensatory lengthening applies only when a length contrast is independently motivated in the language (de Chene and Anderson 1979).

However, we assume that there is no phonemic weight contrast in Bib-Heb (Florentin 2015). Vowels are lengthened via various processes (e.g. tonic and pretonic lengthening in an open syllable), and word final consonants get a mora via Weight-by-Position (W-by-P; Hayes 1989) specified for word final position (Rappaport’s 1984 accent addition): W-by-P]_{\circ} » DEP_{\mu} » W-by-P.

2. PRESENT – chaotic system: Mod-Heb did not adopt the lengthening processes from Bib-Heb, and it also lost a few word final consonants. This has led to unpredictable stress in nouns (Bat-El 1993), final or penultimate stress regardless of the word-final segment (e.g. *góva* ‘height’, *róxav* ‘width’, *rofé* ‘doctor’, *soxér* ‘merchant’). Verbs, however, enjoy a fairly regular system (Graf and Ussishkin 2003), with no lexical minimal pairs, though with surface minimal pairs resolved by the morphology (e.g. *ráts-a* ‘she ran’ – *ratsá* ‘he wanted’). There is a debate as to the formal nature of the current stress system, whether it is an iambic system (Bat-El 1993), trochaic (Becker 2003), or mixed (Graf and Ussishkin 2003, Bat-El 2005). Either way, a great amount of lexical specification is required to account for the contrastive stress in nouns.

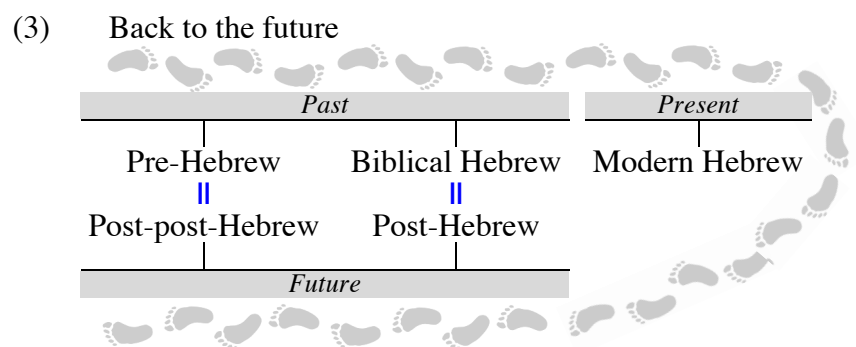
Thus, while Bib-Heb stress was systematic but typologically rare, Mod-Heb stress is non-systematic, and consequently unstable.

3. FUTURE – Trochaic system: Assuming that languages strive for stable systems, the current instability allows predicting the future. I will consider two possible directions of change that may lead to Post-Heb:

- (2) Two possible directions of change: Prediction for Post-Hebrew
 - a. *Frequency-based change – final stress:* Since ~73% (types and tokens) of the noun stems bear final stress, stress in Post-Heb will be final.
 - b. *Grammar-based change – penultimate stress:* Since Mod-Heb does not have weight contrast, the preferred foot is trochaic and stress in Post-Heb will thus be penultimate (Hayes 1995).

I will provide evidence suggesting that it is the grammar that dictates the direction of change (2b). The evidence is drawn from experimental and natural speech data (of children and adults), which show that Mod-Heb speakers prefer penultimate stress, i.e. a right-aligned trochaic syllabic foot.

Moreover, Fainleib’s (2008) experimental results suggest that the predicted Post-Heb system has overlapping characteristics with Bib-Heb. However, it is quite possible that Pre-Heb is the general direction, i.e. there is an expected Post-post-Heb similar to Pre-Heb.



As for the effect of frequency, it probably contributes to the pace of change, ensuring that a full-fledged Post(-post)-Heb with penultimate stress will not arise during our lifetime.

Bat-El, O. 1993. Parasitic metrification in the Modern Hebrew stress system. *The Linguistic Review* 10:189-210. **Bat-El**, O. 2005. The emergence of the trochaic foot in Hebrew hypocoristics. *Phonology* 22:1-29. **Becker**, M. 2003. Hebrew stress: Can't you hear those trochees? In E. Kaiser and S. Arunachalam (eds) *Proceedings of PLC 26*, 9:45-58. **de Chene**, B. and S. **Anderson**. 1979. Compensatory lengthening. *Language* 55:505-535. **Churchyard**, H. 1999. *Topics in Tiberian Biblical Hebrew Metrical Phonology and Phonetics*. Ph.D. dissertation, The University of Texas at Austin. **Fainleib**, L. 2008. *Default Stress in Unpredictable Stress Languages: Evidence from Russian and Hebrew*. M.A. thesis, Tel-Aviv University. **Florentin**, M. 2002. The Hebrew stress curve and what can we learn from it and from Samaritan Hebrew on stress in the Mishna. *Leshonenu* 64:221-230 [in Hebrew]. **Florentin**, M. 2015. Pre-Tiberian Hebrew and the heavy syllable law: A different approach for explaining the conditions of vowel reduction and lengthening during the pre-Tiberian stage of the language. *Leshonenu* 77:161-176 [in Hebrew]. **Gordon**, M. 2006. *Syllable Weight: Phonetics, Phonology, Typology*. New York: Routledge. **Graf**, D. and A. **Ussishkin**. 2003. Emergent iambs: Stress in Modern Hebrew. *Lingua* 113:239-270. **Hayes**, B. 1989. Compensatory lengthening in moraic phonology. *LI* 20:253-306. **Hayes**, B. 1995. *Metrical Stress Theory: Principles and Case Studies*, Chicago: The University of Chicago Press. **McCarthy**, J. 1979/1985. *Formal Problems in Semitic Phonology and Morphology*. New York: Garland. **Prince**, A. 1975. *The Morphology and Phonology of Tiberian Hebrew*. Ph.D. dissertation, MIT. **Rappaport**, M. 1984. *Issues in the Phonology of Tiberian Hebrew*. Ph.D. dissertation, MIT.