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Shmuel Bolozky, *University of Massachusetts - Amherst*

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Shmuel Bolozky
Judaic and Near Eastern Studies
Herter Hall
University of Massachusetts
Amherst, MA 01003, USA
e-mail: shmuel.bolozky@judnea.umass.edu

Abstract

It is shown that in Israeli Hebrew, as well as in Biblical Hebrew, the location of stress may have a “phonemic” function, in that it distinguishes between otherwise identical morpho-phonological patterns. Stress location can determine syntactic, temporal and similar categorial differences as well as semantic nuances.

This study presents a general description of ‘mobile’ vs. ‘fixed’ stress in Israeli Hebrew followed by a brief discussion of stress as tense marker in Biblical Hebrew, and by a more detailed examination of three instances in Israeli Hebrew in which stress has a phonemic function: the *maCCuC* pattern vs. the identical native Hebrew pattern; the non-ultimately-stressed ‘Yiddish/English type’ *+er* vs. ultimately-stressed ‘French type’ *+ér/(y)onér*; and *+i* vs. related *+ai* among gentilic nouns and residents of geographical places.

0. Introduction¹

The verb component of Hebrew is more closed than the noun/adjective system is. Nouns are borrowed relatively freely, and are often adopted intact, while borrowed verbs are absorbed more selectively, and undergo considerable morpho-phonological change in the transition. On the other hand, once a borrowed stem has been converted into a verb, it behaves quite regularly, just as native verb stems do. Thus, even though stress assignment in verbs varies according to the type of stem or suffix involved (see below), once a new verb is incorporated, all its various realizations conform to the stress assignment principles applying to the verb system as a whole.² The noun/adjective system, on the other hand, is relatively open, and the distribution of stress is consequently more complex and more variable, requiring considerable lexical marking. So the article will begin with a discussion of the complexity of stress assignment in nouns and adjectives, and will then proceed to show how the location of stress may even serve a “phonemic” function, systematically distinguishing between segmentally similar forms that serve different semantic or syntactic functions. To a limited extent, this phonemic role may be argued to have a precursor in the Biblical Hebrew verb system as well.

1. ‘Mobile’ and ‘fixed’ stress in Israeli Hebrew, and the role of suffixes in determining stress assignment

Podolsky,³ following Rosén,⁴ classifies Hebrew nouns for stress purposes as having either ‘mobile’ or ‘stable’ stress. The classification is largely dependent on the type of suffix involved. A derivational suffix is one that in creating a new word also changes the major syntactic category (e.g., noun to adjective or vice versa, noun to verb or vice versa) or the semantic feature composition (e.g., a stative verb to a causative one) of the base to which it is

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¹ I am grateful to Baruch Podolsky and to Ora Schwarzwald for their useful comments on an earlier version of this paper.

² As pointed out to me by Outi Bat-El, there is at least one interesting exception to this generalization. Bolozky (“On the new imperative in colloquial Hebrew,” *Hebrew Annual Review* 3 (1979) 17-24) shows that in Israeli Hebrew, what appears to be the “reinstated” formal imperative is in fact the future tense form used imperatively, with its prefix “chopped off,” e.g., *tisgór* ‘(you m.s. will) close!’ > *sgór*, *tisgerí* ‘(you f.s. will) close!’ > *sgerí*. When the first radical of the root is y, and the resulting consonant cluster violates the sonority hierarchy, insertion of the minimal vowel *e* is required. This *e*, however, is assigned primary stress in colloquial Hebrew, in violation of the general stress assignment rule for such forms: *terdí* ‘(you f.s. will) come down!’ > *rédi* (not the formal *redí*), *telxí* ‘(you f.s. will) go!’ > *léxi* (not the formal *lexí*). Clearly, this is in analogy to the closest pattern available, of ‘hollow’ roots with a middle w or y, as in *kúmi* ‘(you f.s.) get up!’

³ B. Podolsky, “The problem of word accent in Modern Hebrew.” In H. G. Mukarovsky (ed.), *Proceedings of the Fifth International Hamito-Semitic Congress*, Band 2 (Beiträge zur Afrikanistik, 41) (1991) 277-281, Wien: Institut für Afrikanistik und Ägyptologie der Universität Wien; “*Ha-ta’ am ke-gorem morfologi ba-’ivrit ha-xadaša* (Stress as a morphological factor in Modern Hebrew),” *Lešonenu* 45 (1981) 155-156.

⁴ H. B. Rosén, *Ha-’ivrit šelanu (Our Hebrew)* (1957), Tel Aviv: Am Oved.

appended; when attached to the base, it forms a new lexical item, and is independent of sentence structure. An inflectional suffix does not change the major syntactic category or the basic semantics of the base, but specifies its gender, number, case, person, tense, mood, voice, etc. Its realization is determined by sentence structure, and it does not form a new lexical item. Formation of new words by inflection is thus more predictable and more regular than formation by derivation. In the majority of Hebrew nouns, stress shifts to an appended derivational suffix, even when the noun-stem is borrowed, as in:

(1) **Stress shift in borrowed nouns with native derivational suffixes**

	Base	Gloss	Base+í/aí/án	Gloss	Base+út	Gloss
Native	<i>dát</i>	religion	<i>datí</i>	religious	<i>datiyút</i>	being religious
Stem	<i>matír</i>	permit (part.)	<i>matirán</i>	permissive	<i>matiranút</i>	permissiveness
	<i>itón</i>	paper, journal	<i>itonaí</i>	journalist(ic)	<i>itonaút</i>	journalism
					<i>itonút</i>	(the) press
Borr.	<i>bánk</i>	bank	<i>bankaí</i>	banker	<i>bankaút</i>	banking
Stem	<i>xélem</i>	Chelmno	<i>xelmaí</i>	simpleton	<i>xelmaút</i>	simple-mindedness
	<i>čélo</i>	cello	<i>čelán</i>	cellist		
	<i>vióla</i>	viola	<i>violán</i>	viola player		
	<i>xára</i>	shit	<i>xaraí</i>	shitty		
			<i>xaryán</i>	shitty person		
	<i>estétika</i>	aesthetics	<i>estetikán</i>	one with a sense of aesthetics; scholar of aesthetics		

The shift may even apply when a borrowed derivational suffix is appended, as in the case of *+íst* and *+áli*:

(2)	Form	Gloss	Derived Form	Gloss
	<i>tánk</i>	tank	<i>tankíst</i>	member of tank crew
	<i>balagán</i>	mess, disorder	<i>balaganíst</i>	disorderly person
	<i>múzika</i>	music	<i>muzikáli</i>	musical
	<i>fízika</i>	physics	<i>fizikáli</i>	physical, of physics
	<i>studént</i>	student	<i>studentyáli</i>	of student

Cases like *+íst* and *+áli*, however, do not represent an actual stress shift from the base. There are non-alternating instances like *virtuáli* ‘virtual,’ *trivyáli* ‘trivial,’ which suggest⁵ that stress determination in borrowings is often associated directly with particular foreign (derivational) affixes, or with foreign strings perceived as foreign suffixes, probably determined by substratum influences of the source or substratum language (Polish, Russian, German, French, English, Arabic, Yiddish, etc.).

Inflectional suffixes like *+a/it*, *+im*, *+ot* normally also cause stress to shift from the noun/adjective stem (*xavér* ‘friend m.s.’ ~ *xaverá* ‘friend f.s.’ ~ *xaverím* ‘friends m.’ ~ *xaverót*

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⁵ See S. Bolozky, “Some aspects of Modern Hebrew phonology.” Chapter II in R. Aronson Berman, *Modern Hebrew Structure* (1978) 11-67, Tel Aviv: Universities Publishing Projects.

‘friends f.’), but when they are appended to what Schwarzwald⁶ labels ‘unintegrated’ items, including borrowed stems, proper names, acronyms, games (mostly children’s), units of mass names, and some individually marked lexical items, the position of main stress tends to remain fixed, i.e., the normal shift does not apply:⁷

(3)	Masc. Sing.	Fem. Sing.	Masc. Pl.	Fem. Pl.	Gloss
	<i>studént</i>	<i>studéntit</i>	<i>studéntim</i>	<i>studéntiyot</i>	student
		<i>víza</i>		<i>vízot</i>	visa
		<i>protékcyá</i>		<i>protékcyot</i>	connections, preferential treatment
		<i>filosófya</i>		<i>filosófyot</i>	philosophy
	<i>yerušálmi</i>	<i>yerušálmit</i>	<i>yerušálmim</i>	<i>yerušálmiyot</i>	(resident) of Jerusalem
	<i>telavívi</i>	<i>telavívít</i>	<i>telavívím</i>	<i>telavívíyot</i>	(resident) of Tel-Aviv
	<i>libeáli</i>	<i>liberálit</i>	<i>liberálim</i>	<i>liberáliyot</i>	liberal
	<i>obyektívi</i>	<i>obyektívít</i>	<i>obyektíviyim</i>	<i>obyektíviyot</i>	objective
		<i>re(ákcyá)</i>		<i>re(ákcyot)</i>	reaction
	<i>mól</i>	<i>mólit</i>	<i>mólim</i>	<i>móliyot</i>	publisher (acronym)
	<i>rasár</i>	<i>rasárit</i>	<i>rasárim</i>	<i>rasáriyot</i>	sergeant-major (acronym)
	<i>memkáf</i>	<i>memkáfit</i>	<i>memkáfim</i>	<i>memkáfiyot</i>	section commander (acron.)
	<i>kláf</i>		<i>kláfim</i>		card game (vs. <i>kláfim</i> ‘cards’)
	<i>búl</i>		<i>búlim</i>		stamp collecting (vs. <i>bulím</i> ‘stamps’)
	<i>mic</i> ‘juice’		<i>mícim</i>		bottles of juice (vs. <i>micím</i> ‘types of juice’)
		<i>ambátya</i>		<i>ambátyot</i>	bath; bath tub
		<i>glída</i>		<i>glídot</i>	ice cream
	<i>tíras</i>		<i>tírasim</i>		corn(-on-the-cob)

Bat-El⁸ also recognizes the important role of suffixes in stress assignment, and distinguishes between ‘accenting’ and ‘pre-accenting’ suffixes. So do Melčuk and Podolsky,⁹ the first to propose a complete account of the Modern Hebrew stress system for nominals, borrowed as well as native. They postulate a tripartite division between strong affixes, which are obligatorily stressed, weak ones that are never stressed, and neutral ones, which may be stressed,

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⁶ O. R. Schwarzwald, “Inflection and derivation in Hebrew linear word formation,” *Folia Linguistica* 3-4 (1998) 265-287.

⁷ See also Rosén, *Ha-`ivrit šelanu*, 235.

⁸ O. Bat-El, “Parasitic metrification in the Modern Hebrew stress system,” *The Linguistic Review* 10 (1993) 189-210.

⁹ I. Melčuk. and B. Podolsky, “Stress in Modern Hebrew nominal inflection,” *Theoretical Linguistics* 22 (1996) 155-194.

but not obligatorily. Thus, in the verb system, for instance, suffixes with an initial consonant are ‘pre-accenting’ (e.g., *katávti* ‘I wrote,’ *katávnu* ‘we wrote’), whereas suffixes beginning with a vowel tend to be accented (e.g., *katvú* ‘they wrote,’ *yixtevú* ‘they will write’), except for the past tense of *hif’il* (e.g., *hixtíva* ‘she dictated,’ *yaxtívu* ‘they will dictate’) and past/future forms derived from the so-called ‘hollow’ roots (e.g., *kámu* ‘they got up,’ *yakúmu* ‘they will get up’) and from the so-called ‘double’ ones (e.g., *hegéna* ‘she defended,’ *yagénu* ‘they will defend’). As pointed out above, the situation is more complex in the noun/adjective system.

The term ‘unintegrated’ proposed by Schwarzwald is appropriate only in part. Since the majority of Hebrew words are stressed on the final syllable, Schwarzwald takes it for granted that word-final stress is the natural choice. And indeed, in inflectional derivation involving bases that were borrowed long ago, such as Greek, Roman or Aramaic words, stress shifts to an inflectional suffix as it does in the native lexicon, whereas stable stress is generally characteristic of more recent items. But the very fact that certain types of recent innovations, as well as some colloquial alternants of frequent lexical items, do maintain stable stress, may also suggest that today, fixed stress is in fact a natural option when words are inflected. In other words, it may be argued, as Noyman¹⁰ does, that under certain conditions, Hebrew speakers prefer not to move the stress to an inflectional affix, in order to keep the base maximally transparent; when they do shift stress to an inflectional suffix, it is under the pressure of the less natural normative system. ‘Unintegrated’ is thus quite appropriate for normative Hebrew, which follows the model of earlier phases of the language, but not necessarily for colloquial Israeli Hebrew. Some evidence for Noyman’s claim will be presented below, in the section on *+i* and *+ai*. At this point, one can already point out that there are cases of native stems, or ones that were nativized long ago, which do maintain stable stress when inflectional affixes are appended, like *glída* ‘ice cream’ ~ *glídot* ‘ice cream types/cones.’ Furthermore, the above generalization that a derivational suffix triggers stress shift is often violated when the unmarked adjectival suffix (the *nísba*) *+i* and the unmarked nominalization suffix *+ut* are involved. In the case of the former, most instances involve a borrowed stem, or residents of countries and geographical places, though an occasional native stem may also be affected:

(4) **Forms in which the derivational suffix *+i* does not trigger stress shift**

Base	Gloss	Base+ <i>i</i>	Gloss
<i>modiín</i>	information, intelligence	<i>modiíni</i>	of intelligence/information
<i>saxarín</i>	saccharine	<i>saxaríni</i>	overly sweet
<i>partáč</i>	sloppy work (Yidd.)	<i>partáči</i>	done sloppily
<i>telavív</i>	Tel Aviv	<i>telavívi</i>	resident of Tel Aviv
<i>batyám</i>	Bat Yam	<i>batyámi</i>	resident of Bat Yam
<i>švédyá</i>	Sweden	<i>švédi</i>	Swede; Swedish
<i>albánya</i>	Albania	<i>albáni</i>	Albanian

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¹⁰ Y. Noyman, “*sugyot be-inyeney hege ve-cura* (Issues related to phonology and morphology,)” (2000) Ben-Gurion University ms.

The question of how to deal with residents of countries and geographical places (see the last four examples above) will be discussed in some detail below. As for cases with *+ut*, they appear to be restricted to forms ending in *+iyut*:

(5) **Forms in which the derivational suffix *+iyut* does not trigger stress shift**

Base	Gloss	Related <i>+i</i> form	Gloss	Base+ <i>iyut</i>	Gloss
<i>xuligán</i>	hooligan	<i>xuligáni</i>	of hooligan	<i>xuligániyut</i>	hooliganism
		<i>sekulári</i>	secular	<i>sekuláriyut</i>	secularism
<i>fáyter</i>	fighter			<i>fáyteriyut</i>	being a fighter
<i>mabsút</i>	happy			<i>mabsútiyut</i>	being happy
<i>póc</i>	arrogant person			<i>póciyut</i>	arrogance
<i>xorán</i>	region in the Golan	<i>xoráni</i>	sloppy	<i>xorániyut</i>	sloppiness

Since these two derivational suffixes, *+i* and *+ut* (or actually *+iyut*), are quite productive and fairly automatic, they share some features with inflectional suffixes, which may account for their behavior with regard to stress. The highly colloquial (and ‘familiar’) nature of these items may play a role as well (see below). Still, one would need to separate those cases of *+i* and *+(iy)ut* that do not carry primary stress from those that do.

Some instances of mobile stress in borrowed words ¹¹ may or may not be accounted for by reference to particular suffixes:

(6)	Singular	Plural	Singular	Plural
	<i>télefon</i> ‘telephone’	<i>tèlefónim</i>	<i>téleskop</i> ‘telescope’	<i>tèleskópim</i>
	<i>ótobus</i> ‘bus’	<i>òtobúsim</i>	<i>ámbulans</i> ‘ambulance’	<i>àmbulánsim</i>
	<i>éskimo</i> ‘Eskino’	<i>èskimósim</i>	<i>jérikan</i> ‘jerrycan’	<i>jèrikánim</i>

Podolsky considers explaining these shifts through avoidance of stress assignment four syllables away from the end of the word, but then rejects this explanation, in view of the existence of forms with suffixes like *+iyot*, where stress does fall on the fourth syllable from the end:

(7)	Base	Gloss	Related M. N/Adj.	Rel. F. N/Adj.	F. Plural
	<i>šlúmper</i>	slob	<i>šlúmperi</i>	<i>šlúmperit</i>	<i>šlúmperiyòt</i>
	<i>núdnik</i>	nag	(<i>núdniki</i>)	<i>núdnikit</i>	<i>núdnikiyòt</i>
	<i>kibúcnik</i>	kibbutz member		<i>kibúcnikit</i>	<i>kibúcnikiyòt</i>
		of chamber (music)	<i>kámeri</i>	<i>kámerit</i>	<i>kámeriyòt</i>

And there are some other isolated cases where stress falls four syllables from the end of the word: *púmpernikel* ‘pumpernickel,’ *nókautim* ‘knockouts’ (< *nókaut* ‘knockout’). These counterexamples, however, do not constitute sufficient evidence against a restriction on primary

¹¹ See B. Podolsky, “The problem of word accent;” D. Cohen-Gross, “*Ha-mivne ha-fonologi-ha-havarati šel ha-jivrit ha-xadaša* (The morphological-syllabic structure of Modern Hebrew)” (1997) Ph.D. dissertation, Bar-Ilan University; O. R. Schwarzwald, “Word foreignness in Modern Hebrew,” *Hebrew Studies* 39 (1998) 115-142.

stress being placed four syllables from the end of the word. The *i* in *šlúmpëriyòt* etc., as well as the *u* in *nókawtìm*, could be considered “extra-metrical”: such vowels are very weak, and the two-vowel sequence is often diphthongized, i.e., *šlúmpëryòt* and *nókawtìm*, respectively. Their weakness is also manifest in secondary stress not being placed on them. Secondary stress in Israeli Hebrew tends to alternate fairly regularly,¹² i.e., is normally assigned to every other syllable away from the main stress. The alternating stress pattern should have been *šlúmpëriyot, then, but speakers skip over this *i* when secondary is assigned. In other words, speakers normally treat these items as containing three-vowel sequences, as if that *i* “did not count.” Thus, while stress placement four syllables away from the end is possible,¹³ its marginality suggests that a restriction on such configuration may be maintained, with some modifications.

The *télefon*-type forms above also have some relevance to the association of stress in borrowings with affixes. In words like *télefon*, *ótobus*, *téleskop*, stress tends to be associated with particular derivational affixes, *téle*+, *óto*+, *míni*+, which attract primary stress to themselves. If a suffix is added, placing stress four syllables away from the end of the word, the main stress shifts, but secondary stress still falls on the prefix. It is possible that when a suffix is added, the placing of main stress on the last stem vowel rather than anywhere else is affected by the “pull” of the prefix, which still attracts the secondary stress to itself, as in *tèlefónim*. Had the primary stress fallen on the second or final vowel, i.e., *teléfonim or *telefoním, regularly-alternating secondary stress would not have been assigned to the first *e* in *tele*.

2. Stress assignment as a means of distinguishing between phonetically-similar patterns

While primary stress in borrowed Hebrew words may be determined by particular word formation patterns (usually characterized by an appended suffix), the question remains whether the inverse is also true, i.e., that systematically-different stress assignment would also signal morphological and semantic distinctions, even if the forms concerned appear to be similar. Just as stress distinguishes *pérmit* (N) from *permít* (V), *cónvert* from *convért*, etc., so too some classes of Israeli Hebrew words can be distinguished through stress placement. Two well-known groups of words distinguish (a) between lexical items and their penultimately-stressed proper names:¹⁴

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¹² See S. Bolozky, “Remarks on rhythmic stress in Modern Hebrew.” *Journal of Linguistics* 18 (1982) 275-289.

¹³ There is one related case, *senátor* ‘senator’ > *senatórim* ~ *senátorim*, where the variant *senatórim* cannot be accounted for by the proposed avoidance or stress assignment four syllables from the end. One possibility is that a parallel tendency exists (by analogy?), by which a final rounded vowel in a borrowed stem attracts the primary stress to itself once a suffix is added. But this requires further examination.

¹⁴ See, for instance, S. Bolozky, “Some aspects.”

(8)	Form	Gloss	Variant	Gloss
	<i>rexovót</i>	streets	<i>rexóvot</i>	Rehovot (town south of Tel Aviv)
	<i>xuldá</i>	rat	<i>xúlđa</i>	Hulda (a kibbutz name)
	<i>xa(y)ím</i>	life	<i>xá(y)im</i>	Hayyim
	<i>pniná</i>	pearl	<i>pnína</i>	P(e)nina

and (b) between some normative lexical items and their penultimately-stressed variants which designate related games or attributes, usually children's:

(9)	Form	Gloss	Variant	Gloss
	<i>kláfím</i>	cards	<i>kláfim</i>	card game
	<i>bulím</i>	stamps	<i>búlím</i>	collecting stamps
	<i>rišón</i>	first	<i>ríšon</i>	first step in hopscotch
	<i>šení</i>	second	<i>šéni</i>	second step in hopscotch
	<i>cfoní</i>	northern	<i>cfóni</i>	of (the more affluent) Northern Tel Aviv

Whether or not under the influence of Yiddish, the penultimately stressed forms are associated with a degree of familiarity/intimacy. Also, there are cases where patterns like *CoCeC* or *CaCaC*, for instance, are distinguished from their penultimately-stressed segolate counterparts through stress assignment:

(10)	<i>CoCeC/CaCaC</i>	Gloss	<i>CóCeC/CáCaC</i>	Gloss
	<i>oxél</i>	eat	<i>óxel</i>	food
	<i>naxál</i>	inherit	<i>náxal</i>	river
	<i>paxád</i>	fear (V)	<i>páxad</i>	fear (N)

Our purpose here, however, is to find out whether differences in stress placement only signal differences among similar lexical items, or may also go beyond that, to distinguish between morphological patterns that are similar, but not identical. In the first two classes of items above, there is no morphological denominator common to all forms; in the third there is, and the difference in stress also signals a verb-noun distinction. In *pa)al/qal*, final vs. penultimate stress distinguishes between otherwise-identical forms stemming from roots with *y* as the third radical, and ones whose second radical is *w* or *y*:¹⁵

(11)	Form	Gloss	Root	Form	Gloss	Root
	<i>racú</i>	they wanted	<i>r.c.y</i>	<i>rácu</i>	they ran	<i>r.w.c</i>
	<i>šavú</i>	they captured	<i>š.b.y</i>	<i>šávu</i>	they returned	<i>š.w.b</i>
	<i>xalú</i>	they became sick	<i>x.l.y</i>	<i>xálu</i>	(they) applied	<i>x.w.l</i>
	<i>saxú</i>	they swam	<i>s.x.y</i>	<i>sáxu</i>	they spoke/narrated	<i>s.y.x</i>
	<i>mašú</i>	they pulled out of the water	<i>m.š.y</i>	<i>mášu</i>	they moved	<i>m.w.š</i>

¹⁵ See also O. R. Schwarzwald, "Nedidot te)amim ba-`ivrit ha-meduberet (Stress shifts in colloquial Hebrew)." *Shay le-Chaim Rabin*, ed. M. Goshen-Gottstein, S. Morag and S. Kogut (1991) 393-414, Jerusalem: Akademon.

Also in *pa`al/qal*, the feminine singular of the *benoni*/present tense of roots whose second radical is *w* or *y* is distinguished from its perfect/past tense counterpart by stress assignment, in pre-modern Hebrew and in normative modern Hebrew (in colloquial Israeli Hebrew the penultimately stressed variant serves for both, which again supports the claim for the naturalness of stable stress):

(12)	Benoni f.s.	Gloss	Past f.s.	Benoni f.s.	Gloss	Past f.s.
	<i>kamá</i>	rise, get up	<i>káma</i>	<i>ba'á</i>	come	<i>bá'a</i>
	<i>šavá</i>	return	<i>šáva</i>	<i>racá</i>	run	<i>ráca</i>
	<i>laná</i>	stay overnight	<i>lána</i>	<i>šará</i>	sing	<i>šára</i>

And stress assignment may also distinguish between some segmentally-identical verb forms and prepositions with pronominal clitics, as in *banú* ‘they built’ vs. *bánu* ‘in us.’

2.1 Phonemic stress in Biblical Hebrew

The *kamá* ~ *káma*-type above indicates that the role of stress assignment as a means of distinguishing between systematically identical but functionally different patterns has its roots in Biblical Hebrew, and is thus well rooted in the linguistic tradition – at least subconsciously – even before the revival of the spoken language. This device is not unique to Hebrew; the English *pérmit* ~ *permít* type indicates that it can be found in other languages, which means that it is expected even without historical precedents. It is possible, however, that previous use of phonemic stress can have a facilitating effect on further employment of similar devices by later generations of speakers.

The *kamá* ~ *káma* group is not the only manifestation of phonemic stress in Biblical Hebrew. Research shows that final vs. penultimate stress could also function phonemically, to distinguish between past and present-future tense in segmentally-similar forms in Biblical Hebrew. A detailed discussion of the relationship between stress placement and tense reference can be found in Zevit.¹⁶ In Biblical Hebrew, the past tense is designated by either the *qātál*-suffixed form, or the *(wa)yíqtol*-prefixed form,¹⁷ and the present-future (= not past) by either the *yíqtól*-prefixed form, or the *(wə)qātál*-suffixed form. These form-tense relationships are supported by evidence from other Semitic languages, and in spite of apparent counterexamples and alternative solutions that have been proposed (related to aspect/modality, syntactic context, etc.), Zevit convincingly argues in favor of “reinstating” the claim that phonemic stress may capture tense differences in Biblical Hebrew. That the tense difference between the two *yíqtol* forms may be marked through a difference in stress assignment is indicated by the use of the so-called “short form” of the verb vs. the long one. Generally, verbs indicating the past with

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¹⁶ Z. Zevit, *The Anterior Construction in Classical Hebrew* (*The Society of Biblical Literature Monograph series* #50) (1998), Atlanta: Scholars Press.

¹⁷ Zevit places the *wa* in brackets since this is how the verbal forms commonly appear in narrative prose.

“weak” consonants in second or third root position in *pa`ál* use the short form with penultimate stress (as in *wayyáqom*¹⁸ ‘he rose,’ *wayyíven* ‘he built’), whereas those referring to the present-future use the “long form” with final stress (*yāqúm*, *yivne*). When the conjunction *wa/wə* is used in both, sort-of “minimal pairs” emerge, as in:

- (13) Gen 4:8 *wayyáqom qáyin el heveel (āhíw* ‘Cain rose up against Abel his brother’
 vs. Ec 12:4 *wəyaqúm (?wəyaqóm) ləqól hassipór* ‘he shall rise up at the voice of the bird’
 Gen 8:20 *wayyíven nóah mizbéah* ‘Noah built an altar’
 vs. Ps 69:36 *wəyivne `āre yəhūḏā* ‘he will build the cities of Judah’
 Gen 8:9 *wattāšov elāw el hattevā* ‘she returned unto him to the arc’
 vs. Iks 13:6 *wetāšōv yādí `eláy* ‘that my hand may be restored me again’

It is possible, of course, that it is the short vs. long form per se that indicates tense in such forms, and that the stress distinction is only secondary. However, the *qātal* variants do provide actual pairs distinguished only by the position of stress. In regular verbs, when the suffixes *+ti*, *+ta* and *+tem/ten* are associated with the past tense, they are normally preceded by penultimate stress, as in *dibbárti* ‘I spoke’ etc. When they refer to the present-future, it is usually the suffix itself that is stressed, as in *wədibbárti* ‘I will speak.’ When the form indicating the past tense is also followed by a conjunction, as in *wədibbárti* ‘and I spoke,’ the only difference between the present-future form and the past form is the position of stress. Below are a few illustrations:

- (14) Nu 11:17 *wəyāraḏtí wədibbárti `imməxá šám* ‘and I will come down and talk with you there’
 vs. Ec 2:15 *wədibbárti vəlabbí šeggám zə hável* ‘then I said in my heart that this also is vanity’
 Ex 3:13 *wə`āmartí lāhem `əlohē* ‘and I shall say unto them the god of...’
 vs. Ec 2:15 *wə`āmartí `ānī bəlabbí* ‘then I thought in my heart’
 Ex 6:6 *wəhissaltí `əθxem me`āvoḏāḥām* ‘I will rid you out of their bondage’
 vs. ISa 17:35 *wəhikkiṯíw wəhissálti mippíw* ‘I smote him, and delivered it out of his mouth’

Thus, stress had contrastive status already in Biblical Hebrew. Four similar cases in Israeli Hebrew will be discussed below. In the first, the difference in stress placement also signals a categorial (syntactic as well as semantic) distinction. In the other three cases, the minimal pairs will be very close, and the difference in stress assignment will identify smaller and less obvious semantic or functional distinctions.

2.2 The two *maCCuC* patterns and their semantic/syntactic distinctions

Bolozky argues that Hebrew has borrowed from Arabic not only individual words in the *maCCuC* pattern, such as *mabsút* ‘happy’ or *majnún* ‘crazy,’ but also the *maCCuC* pattern itself,

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¹⁸ Owing to overstrike limitations, stressed long vowels are not be marked with a macron for length.

as a somewhat-productive word formation device in the realm of slang.¹⁹ Thus, although *mab'ús* 'depressed,' a variant of *mevo'ás*, is ultimately derived from Arabic *bá'sā* 'misery,' it is nevertheless an original Hebrew creation; so too, *magnúv* 'wonderful, attractive,' the variant of *ganúv*. Such innovations in *maCCuC* cannot be argued to be based on native Hebrew *maCCuC*, as in *man'úl* 'lock,' *malbúš* 'piece of clothing,' *maslúl* 'lane,' or *macpún* 'conscience.' Despite the similarity of the patterns, significant distinctions exist between the native Hebrew and Arabic-related words. All the native Hebrew items are nouns while the Arabic-related ones are adjectives (or nouns characterized by these adjectives) – a semantic distinction with syntactic implications. And the stress pattern is different as well – a phonemic distinction. While the plurals of the former carry word-final stress, as in *man'ulím* 'locks,' *maslulím* 'lanes,' the latter maintain their lexical stress when an affix is added (i.e., stress is stable), as in:

(15)	Base	Gloss	Feminine
	<i>mab'ús</i>	depressed	<i>mab'úsa</i>
	<i>magnúv</i>	wonderful, attractive	<i>magnúva</i>
	<i>maflúc</i>	very ugly, monster-like	<i>maflúca</i>

Thus, in Arabic-related *maCCuC*, stable stress, as distinct from (regular) mobile stress, distinguishes between two seemingly-identical stem forms, which are also different in syntactic category (adjectives and related nouns vs. a group of unrelated nouns). That Arabic-related *maCCuC* will preserve its stable stress when an inflectional suffix is appended is predicted by its 'unintegrated' status, but may also reflect its familiar/intimate connotation.

2.3 +er and +er/+oner

Stronger evidence for the role of stress as a morphological marker can be drawn from agentive nouns ending with +er or +er/+oner. Hebrew borrowed a good number of words from Yiddish, ending with the agentive suffix +er, preceded by penultimate or antepenultimate stress:

(16)	<i>máxer</i> 'activist; influential person'	<i>píšer</i> 'young, small, novice'
	<i>faršlófener</i> 'sleepy, drowsy person'	<i>kíbicer</i> 'kibitzer'
	<i>šnórer</i> 'one living on alms/soliciting (usually unmerited) donations'	

and from English, for agents as well as for instruments:

(17)	<i>fáyter</i> 'fighter'	<i>gángster</i> 'gangster'	<i>bóyler</i> 'boiler'	<i>stárter</i> 'starter'
	<i>míkser</i> 'mixer'	<i>stóper</i> 'stopper'	<i>frízer</i> 'freezer'	

Such words were borrowed as atomic units, suffixes included, and there are no free-standing words in Hebrew such as **máx(n)*, *píš, *faršlófn, *kíbic, *bóyl, *stárt, *míks, *fríz. So they have no direct bearing on the "psychological reality" of the +er suffix in Israeli Hebrew. But in other cases the borrowed word, although already containing +er to start with in the source

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¹⁹ S. Boložky, *Measuring Productivity in Word Formation: the Case of Israeli Hebrew* (*Studies in Semitic Languages and Linguistics* 27) (1999) 97-101, Leiden: Brill.

language, also has a **Hebrew** alternant without *+er*, which suggests that Hebrew speakers indeed treat it as a suffix. Such is the case in the following items borrowed from Yiddish:

(18)	Base	Gloss	With <i>+er</i>	Gloss
	<i>švíc</i>	sweat (N); bragging	<i>švicer</i>	braggart
	<i>káka/káke</i>	excrement, shit	<i>káker</i>	disgusting person
	<i>šnór</i>	solicit (usually) unmerited donations with cunning	<i>šnórer</i>	beggar; one living on unmerited donations
	<i>xápn</i>	grab	<i>xáper</i>	independent cab driver (who ‘grabs’ passengers from regular taxi stations)

and others borrowed from English:

(19)	Base	Gloss	With <i>+er</i>	Gloss
	<i>blóf</i>	bluff, lie (N, from Eng.)	<i>blófer</i>	liar; teller of tall tales
	<i>tést</i>	test (esp. of driving)	<i>téster</i>	tester (esp. of driving)
	<i>tóst</i>	toast (N)	<i>tóster</i>	toaster

More direct evidence can be drawn from the following, which may be regarded as “original” Hebrew additions of *+er* to borrowed items:

(20)	Base	Gloss	With <i>+er</i>	Gloss
	<i>kvéč</i>	squeeze (from Yid.)	<i>kvéčer</i>	stapler
	<i>špríc</i>	squirt, spray (from Yid.); adding seltzer to wine	<i>špricer</i>	liquid-spraying device
	<i>gríl</i>	grill	<i>gríler</i>	grilling instrument

Thus there is some evidence for the existence in Israeli Hebrew of an independent *+er* suffix, in which stress always falls on the penultimate or antepenultimate syllable. When **new** words are formed in this pattern in Israeli Hebrew, they appear to be restricted to instruments. This is not surprising. As shown in Bolozky,²⁰ speakers often do not distinguish between human agents and instruments, treating them both as ‘performers’ of the action -- thus accounting, for instance, for normative instrumental *maghec* ‘iron (N)’ being realized as agent/performer *megahec*, *mafcéax* ‘nutcracker’ as *mefacéax*, etc. However, a final *+er* is not always unstressed. There is a group of forms, semantically agentive, in which stress falls on the final *+ér* itself. In most cases, such *+ér* is usually preceded by *on*, as in:

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²⁰ S. Bolozky, *Measuring Productivity*, 130-134.

(21)	Base	Gloss	With +er	Gloss
	<i>milyón</i>	million	<i>milyonér</i>	millionaire
	<i>bilyón</i>	billion	<i>bilyonér</i>	billionaire
	<i>misyon</i>	mission (rel.)	<i>misyonér</i>	a missionary
	<i>ligyón</i>	legion	<i>ligyonér</i>	legionnaire
	<i>fúncya</i>	function, role	<i>funkcyonér</i>	a functionary
	<i>protékya</i>	useful connections	<i>protekcyonér</i>	one benefitting from such connections

I have found only two instances of stressed +*er* without +*on*:

(22)	Base	Gloss	With +er	Gloss
	<i>milyárd</i>	billion	<i>milyardér</i>	billionaire
	<i>stáž</i>	internship	<i>stažér</i>	intern

This group appears to be based on borrowing from French (through other substratum languages?) of the *milyonér* type, that adopted the same stress placement as in French, but semantically is no different from the Yiddish/English +*er* group. In cases like *funkcyonér* or *protekcyonér*, it might be suggested that either there is some underlying /*funkcyon*/ etc. from French or German, or that the suffix is restructured from +*ér* into +*yonér* or +*onér*.

Some more recent formations throw some light on this question:

(23)	Base	Gloss	With +er	Gloss
	<i>máfya</i>	mafia	<i>mafyonér</i>	mafioso
	<i>kríza</i>	rage	<i>krizyonér</i>	one easily going into rage
	<i>básta</i>	stall in market	<i>bastyonér</i>	owner of stall in market
	<i>fúks</i>	luck, serendipity	<i>fuksyonér</i>	lucky person (by serendipity)
	<i>ugdá</i>	army group	<i>ugdonér</i>	army group commander
	<i>fášla</i>	failure (from Ar.)	<i>fašlonér</i>	one responsible for failure
	<i>širyón</i>	armor	<i>širyonér</i>	soldier in armor corp
	<i>bizayón</i>	disgrace	<i>bizyonér</i>	one responsible for disgrace

For the majority of words ending with +*er*, a one-syllable base results in Yiddish/English-type +*er* with non-ultimate stress, and a longer one in French-type ultimately stressed +*er*, but this is not always the case. We have *faršlófener* ‘sleepy, drowsy person’ and *kíbicer* ‘kibitzer’ on the one hand, and *stá* ‘internship’ > *sta*ér ‘intern,’ *fúks* ‘luck, serendipity’ > *fuksyonér* ‘lucky person (by serendipity)’ on the other. So the length of the base, though possibly relevant, is not sufficient to determine the location of stress or the recent differentiation in function (instrumental unstressed +*er* vs. agentive stressed +*ér*). There are two possible accounts here: either the presence of a vowel at the end of the stem causes the insertion of the unmarked nasal, *n*, to avoid an undesirable two-vowel sequence when it occurs, or the ‘French-related’ suffix has indeed been restructured, and for newly-formed items is now +*onér*, and in the case of *krizyonér*, *bastyonér* and *fuksyonér*, possibly even +*yonér* (+*yonér* in *krizyonér* and

bastyonér probably arose in analogy to earlier *mafyonér*). The latter analysis (i.e., an underlying /+onér/ or /+yonér/) accounts for the final *a* being replaced by *o* in *ugdonér* etc. If a basic *a* is involved, it is elided before +*o* (e.g., *lugda+onér/* > *ugdonér*), and when the stem itself ends with +*on*, the two *on* sequences blend into one (*/širyon+onér/* > *širyonér*). Alternatively, we may simply assume an +*ér* suffix with final stress for the *širyonér* and *bizyonér* items (in addition to *milyardér* and *sta)ér*, of course), but a separate +*yonér* will still be required. So the ‘French-based’ suffix is +*ér* with final stress, which in some cases appears to have been restructured into +*onér* or +*yonér*. It is also possible that by now, with its final stress, +*ér*/(y)*onér* is conceived of as a native suffix. Thus, although the Yiddish/English +*er* and the ‘French-based’ (or by now native) +*ér*/(y)*onér* are functionally quite similar, from a morpho-phonological point of view +*er* and +*ér* are two independent suffixes. It is possible that as already suggested above, the two types of +*er* separated by stress assignment also reflect an emerging semantic difference: while ‘French-related’ +*ér* is clearly agentive, ‘Yiddish-related’ +*er* is being narrowed down to instruments. Thus, understanding of stress placement as related to suffixes enables us to distinguish between apparently similar suffixes that are not identical.

2.5 +*i* and +*ai*

Another illustration involves attributive adjectives and related nouns ending with +*i*/+*ai*. Although the attributive suffix +*i* is related to the Arabic *nísba*, and became productive under the influence of the *nísba* only in Medieval Hebrew, there is little to suggest that it is conceived of as foreign. As noted above, when +*i* is appended to native stems, it generally follows the normative pattern and carries final stress, as in *yaldút* ‘childhood’ > *yaldutí* ‘childish,’ *téva* ‘nature’ > *tiví* ‘natural;’ when appended to ‘normatively unintegrated’ stems, main stress is assigned to the preceding vowel, as in *impulsívi* ‘impulsive,’ *demokrátí* ‘democratic.’ A similar claim would apparently be made regarding agentive nouns or their attributes which end with +*ai* or +*a’i*.²¹ When the stem is native or ‘normatively integrated,’ stress is word-final, as in:

(24) ‘Integrated’ stems with an +*ai* suffix

Base	Gloss	With + <i>ai</i>	Gloss	Normative
<i>pirsúm</i>	advertizing	<i>pirsumái</i> ²²	advertizing agent	<i>pirsumáy</i>
<i>xaklaút</i>	agriculture	<i>xaklaí</i>	agricultural; farmer	farmer= <i>xakláy</i>
<i>itón</i>	newspaper	<i>itonaí</i>	of journalism; journalist	journalist= <i>itonáy</i>
<i>xašmal</i>	electricity	<i>xašmalái</i>	electrician	<i>xašmaláy</i>
<i>xešbón</i>	account	<i>xešbonái</i>	accountant	<i>xešbonáy</i>
<i>maxsán</i>	storeroom	<i>maxsanái</i>	storeroom attendant	<i>maxsanáy</i>
<i>širyón</i>	armor	<i>širyonaí</i>	member of armor corps	<i>širyonáy</i>

²¹ In normative Hebrew, +*áy* is reserved for agent nouns, +*aí* or +*a’í* for related adjectives. In the colloquial, +*ai* is typically used for both agents and related adjectives. The illustrations used all follow normal colloquial usage.

²² Colloquially *pirsomaí*, from *pirsómet* ‘advertizing; ad’

Base	Gloss	With + <i>ai</i>	Gloss	Normative
<i>sport</i>	sports	<i>sportaí</i>	athlete, sportsman	<i>sportáy</i>
<i>múzika</i>	music	<i>muzikaí</i>	musician	<i>muzikáy</i>
<i>kiyósk</i>	kiosk, stand	<i>kiyoskaí</i>	kiosk operator	<i>kiyosaáy</i>

When it is ‘normatively unintegrated,’ it is penultimate, as in:

(25) ‘Unintegrated’ stems with an +*ai* suffix

Base	Gloss	With + <i>ai</i>	Gloss	Normative
<i>akadémya</i>	academy	<i>akademái</i>	academic; academician	academician= <i>akademáy</i>
<i>komédya</i>	comedy	<i>komikái</i>	a comic	<i>komikáy</i>

Thus, it appears that each of the suffixes, +*i* and +*ai*, has two variants: one with final stress, reflecting full normative ‘integration,’ the other with stress falling on the penultimate syllable, owing to ‘absence of normative integration.’ We already noted that Hebrew geographical names typically carry penultimate stress when +*i* is appended (*yerušálmí* ‘Jerusalemite,’ *telavívi* ‘resident of Tel Aviv,’ etc.), and on the other hand there are some non-native ‘gentilic’ terms (i.e., referring to members of nations) where final +*i* is stressed:

(26) Gentilic names with +*i* (final stress)

Base	Gloss	+ <i>i</i> Form	Gloss
<i>rúsyá</i>	Russia	<i>rusí</i>	Russian
<i>ángliya</i>	England	<i>anglí</i>	English(man)
<i>germánya</i>	Germany	<i>germaní</i>	German
<i>polánya</i>	Poland	<i>polaní</i>	Polish/Pole

and as shown above, there are also non-native +*aí* cases with final stress, such as *muzikaí*, *sportaí*, and *kiyoskaí*. In some cases, the period elapsed since a particular word was introduced into the language may account for integration, but certainly not always, as demonstrated by *yerušálmí* ‘Jerusalemite,’ *švédi* ‘Swede; Swedish,’ etc.

Since the majority of ‘normatively integrated’ forms with +*i* carry final stress, lexical marking will probably be required for most occurrences of +*i* where stress does not shift from the stem to the suffix. However, insofar as gentilic terms and residents of geographical locations are concerned (or their related adjectives), +*i* preceded by primary stress is actually the default case. This is particularly true of residents of towns and cities, as in:

(27) Names of residents of geographical entities with +*i* (penultimate stress)

Base	Gloss	+ <i>i</i> Form	Gloss
<i>yerušaláim</i>	Jerusalem	<i>yerušálmí</i>	(resident) of Jerusalem
<i>telavív</i>	Tel Aviv	<i>telavívi</i>	(resident) of Tel Aviv
<i>batyám</i>	Bat Yam	<i>batyámi</i>	(resident) of Bat Yam
<i>xolón</i>	Holon	<i>xolóni</i>	(resident) of Holon
<i>eylát</i>	Eilat	<i>eyláti</i>	(resident) of Eilat

Base	Gloss	+i Form	Gloss
<i>aškelón</i>	Ashkelon	<i>aškelóni</i>	(resident) of Ashkelon
<i>ašdód</i>	Ashdod	<i>ašdódi</i>	(resident) of Ashdod
<i>bagdád</i>	Baghdad	<i>bagdádi</i>	(resident) of Baghdad
<i>kahír</i>	Cairo	<i>kahíri</i>	(?resident ²³) of Cairo
<i>nyuyórk</i>	New York	<i>nyuyórki</i>	(?resident) of New York
<i>bóston</i>	Boston	<i>bostóni</i>	(?resident) of Boston

There are only a few exceptions to this generalization, e.g.,

(28) **Names of residents of geographical entities with +i (final stress)**

Base	Gloss	+i Form	Gloss
<i>cfat</i>	Safad	<i>cfatí</i>	resident of Safad
<i>rexóvot</i>	Rehovot	<i>rexovotí</i>	resident of Rehovot

and normative ‘forced integration’ may yield rather stilted variants like *yerušalmí*, *xoloní*, *batyamí* -- which suggests that penultimate stress may be characterized by greater familiarity/intimacy, as noted for proper names, games etc. above. Among gentilic terms, the exceptions to the default penultimate stress assignment are essentially restricted to some well-established nouns/adjectives, most of them referring to European nations whose base ends with +*ya* (as in *ángliya* > *anglí*, *rúsya* > *rusí* above). In most other instances of gentilic terms, which make for the majority of cases, stress falls on the vowel before +*i*, as in:

(29) **Gentilic names with +i (penultimate stress)**

Base	Gloss	+i Form	Gloss
<i>švédya</i>	Sweden	<i>švédi</i>	Swedish
<i>albánya</i>	Albania	<i>albáni</i>	Albanian
<i>irák</i>	Iraq	<i>iráki</i>	Iraqi
<i>súrya</i>	Syria	<i>súri</i>	Syrian
<i>ostrálya</i>	Australia	<i>ostráli</i>	Australian
<i>hódu</i>	India	<i>hódi</i>	Indian

Again, variants with final stress like *švedí* for ‘Swedish’ would be strictly normative and highly formal.

Although +*ai* normally refers strictly to agents, it may be used to mark gentilic nouns and residents of geographical locations as well. Stress usually falls on the final vowel (as it generally does for +*ai* agents and agent attributes):

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²³ In the case of foreign cities, the first reading of the *nísba* form is of the adjective related to the location rather than to its residents.

(30) **Names of residents of geographical entities with +*ai* suffixation**

Base	Gloss	With + <i>ai</i>	Gloss
<i>berlín</i>	Berlin	<i>berlinaí</i>	Berliner
<i>damése</i>	Damascus	<i>damaskaí</i>	resident
<i>dáblin</i>	Dublin	<i>dablinaí</i>	Dubliner
<i>še(y)nkin</i>	trendy Tel Aviv street	<i>še(y)nkinaí</i>	resident of/visitor to this street; of Sheinkin
<i>xél(e)m</i>	Chelmno	<i>xelmaí</i>	Chelmno resident; simpleton

At least from my own experience with my parents, the same often applies to established designations of *landsmanschaft* members, as in:

(31) **Names of *landsmanschaft* members with +*ai* suffixation**

Base	Gloss	With + <i>ai</i>	Gloss
<i>kobrin</i>	Kobryn	<i>kobrinaí</i>	resident of Kobryn
<i>brísk</i>	Brest-Litowsk	<i>briskaí</i>	resident of Brest
<i>divín</i>	Diwin	<i>divinaí</i>	resident of Diwin
<i>pru)áne</i>	Pru ſane	<i>pru)anaí</i>	resident of Prurzane

In some other instances, penultimately-stressed +*ái* is used, as it is in *akademái* etc. above:

32) **Gentilic terms and residents of locations ending with *ái***

Base	Gloss	With <i>ái</i>	Gloss
<i>brazíl</i>	Brazil	<i>brazilái</i>	Brazilian
<i>maróko</i>	Morocco	<i>marokái</i> ²⁴	Moroccan
<i>portoríko</i>	Puerto Rico	<i>portorikái</i>	Peurto Rican
<i>túnis/tunísya</i>	Tunisia	<i>tunisái</i> (? <i>tunisaí</i>)	Tunisian
<i>paríz</i>	Paris	<i>parizái/parizaí</i>	Parisian

Finally-stressed ?*tunisaí*, rarely attested, is highly formal; *parizaí* is more formal than the familiar *parizái*, but not to the same extent. Generally, the default case for +*ai* is final stress; penultimately stressed +*ái* is rarer, and will require lexical marking. On the other hand, since (as already noted) in gentilic terms and residents of geographical locations with +*i*, penultimate stress is commoner, it is finally-stressed +*i* that is the exception. This distribution may often be correlated with degree of formality, particularly when two variants of the same form are involved: a suffix with final stress is usually associated with a higher register than an unstressed or penultimately stressed suffix. In our case, the default final stress of +*ai* would usually thus signal a higher register: *tunisaí* ‘Tunisian,’ *parizaí* ‘Parisian’ are more formal than *tunisái* and *parizái*, respectively. The default penultimate stress preceding +*i* would generally be associated with a lower register, as in *švédí* ‘Swedish; Swede’ vs. *švedí* above.

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²⁴ In *marokái* and *portorikái*, the base *o* will be elided before *a*, which is expected.

The different defaults for *+i* and *+ai* in terms referring to residents of locations and members of nations (penultimate and final, respectively) may be helpful in identifying the underlying suffix when the stem ends with *a*: are we dealing with *+i* that is appended to the base *a*, or with an atomic *+ai* that has been added to a stem, resulting in the elision of the *a* at the end of the stem? The argument for an atomic *+ai* and concomitant elision of the base *a* is that for many of these agentive *+ai* forms there exist parallel *+i* forms that constitute attributive adjectives. So just as we have separate attributive *+i*-adjectives corresponding to *bona fide* cases of adjectival *+ai* forms, as in:

(33) **Stems ending with *bona fide* *+ai* which alternate with *+i* adjectives**

Base	Gloss	<i>+ai</i> Form	Gloss	<i>+i</i> adj	Gloss
<i>pirsúm</i>	advertizing	<i>pirsumái</i> ²⁵	advertizing agent	<i>pirsumí</i>	of advertizing
<i>akadémya</i>	academy	<i>akademái</i>	academic(ian)	<i>akadémi</i>	academic
<i>komédia</i> ²⁶	comedy	<i>komikái</i>	a comic	<i>kómi</i>	comical

so do we also have adjectival *+i* counterparts of *ai* forms which may or may not be derived from a base *a* plus *+i*, including some gentilic terms:

(34) **Derived *ai* forms ending with *a*, which alternate with *+i* adjectives**

Base	Gloss	<i>+ai</i> Form	Gloss	<i>+i</i> adj	Gloss
<i>handasá</i>	engineering	<i>handesai</i>	engineer=mechanic	<i>handasí</i>	of engineering
<i>mediná</i>	state	<i>medinái</i>	statesman	<i>mediní</i>	of state
<i>polítika</i>	politics	<i>politikái</i>	politician	<i>políti</i>	political
<i>matemátika</i>	mathematics	<i>matematikái</i>	mathematician	<i>matemáti</i>	mathematical
<i>argentína</i>	Argentina	<i>argentínái</i>	Argentinian (N/Adj)	<i>argentíni</i>	same, Adj.
<i>palestína</i>	Palestine	<i>palestinái</i>	Palestinian (N/Adj)	<i>palestíni</i>	same, Adj.

Telling whether a particular *+i*-form with an *a* base involves *+i* or *+ai* is reasonably straightforward when each suffix is semantically distinct from the other, i.e., when the *+ai* form is a noun (usually agentive), while the *+i* counterpart designates an attributive adjective. But *+i* forms are not always attributive, nor is *+ai* necessarily restricted to nouns. There are areas of semantic and function overlap in which both affixes legitimately coexist, and where it is difficult to tell them apart. This is what happens in some *+i* and *+ai* forms are derived from proper nouns constituting place names and nation names, forming either attributes of these names, or beings characterized by these attributes, and there are no ‘minimal pairs’ of the *palestíni* ~ *palestinái* type. Thus, it is hard to establish *a priori* whether an atomic *+ai* is involved, or an *+i* appended to a stem ending with *a* in some terms referring to residents of geographical places:

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²⁵ Normatively, *pirsumáy*, *akademáy*, *komikáy*, *handesáy*, *medináy*, *politikáy*, *matematikáy*, etc.

²⁶ Apparently, items like *komédyá* and *tragédyá* are seen as ending with a suffix *+édyá*, and the suffix *+i* is appended to the /kom/ and /trag/ bases.

(35) **Residents of geographical entities ending with +aí where the stem itself ends with a**

Base	Gloss	With +aí	Gloss
<i>beeršéva</i>	Beer Sheva	<i>beerševaí</i>	(resident) of Beer Sheva
<i>petaxtíkva</i>	Petah Tikva	<i>petaxtikvaí</i>	(resident) in Petah Tikva
<i>xeyfá/xáyfa</i>	Haifa	<i>xeyfaí</i>	(resident) of Haifa
<i>afúla</i>	Afula	<i>afulaí</i>	(resident) of Afula
<i>raanána</i>	Ra)anana	<i>raananaí</i>	(resident) of Ra)anana
<i>vína</i>	Vienna	<i>vinaí</i>	Viennese
<i>atúna</i>	Athens	<i>atunaí</i>	Athenian
<i>móskva</i>	Moscow	<i>moskvaí</i>	Moscovite, of Moscow

and in gentilic terms like the following:

(36) **Gentilic names ending with áí where the stem itself ends with a**

Base	Gloss	With áí	Gloss
<i>amérika</i>	America	<i>amerikáí/amerikáni</i>	American
<i>áfrika</i>	Africa	<i>afrikáí/afrikáni</i>	African
<i>kostaríka</i>	Costa Rica	<i>kostarikáí</i>	Costa Rican

While minimal pairs like *palestinái* ‘Palestinian (N)’ ~ *palestíni* ‘Palestinian (Adj)’ support an atomic +aí alongside +i, there is no *ameriki or *afriki, nor do we find *beerševi, *petaxtikvi, *xeyfi, *afuli, *raanani, or *vini. A simple solution would be to make use of the default stress assignments for the two suffixes for the group of residents of places and members of nations, i.e., +i preceded by stress and +aí with final stress. In other words, surface [aí] with final stress (*beerševaí*, *vinaí* etc.) will suggest an underlying atomic /+aíl/ (*/beerševa+aíl/*, */vina+aíl/*), where a stem-final *a* will be elided before another *a*; if the surface form ends with penultimately-stressed [ái] (*amerikái*, *afrikái*, etc.), it will be interpreted as /a+i/ (*/amerika+i/*, */afrika+i/*). That *amerikái* and *afrikái* are derived from /a+i/ rather than from /+aíl/ is also suggested by their respective alternants, *amerikáni* and *afrikáni*, where the vowel sequence is broken by the unmarked nasal *n*, probably a remnant of foreign noun/attributes which originally had +an, +ain or +ien, as can also be seen in:

(37) **Gentilic terms with áni suffixation of foreign origin**

Base	Gloss	With +á+n+i	Gloss
<i>kúba</i>	Cuba	<i>kubáni</i>	Cuban
<i>koréa</i>	Korea	<i>koreáni</i>	Korean
<i>venecuéla</i>	Venezuela	<i>venecueláni</i>	Venezuelan
<i>číle</i>	Chile	<i>čileáni</i>	Chilean

Had the underlying suffix been /+aíl/, it would not have been broken by a ‘supporting’ consonant like that. The intrusive unmarked *n* does not necessarily have to have been suggested by +an, +ain or +ien:

(38) **Names of residents of geographical entities with +á+n+i suffixation**

Base	Gloss	With +áni	Gloss
<i>tvérya</i>	Tiberias	<i>tveryáni</i>	(resident) of Tiberias
<i>hercelíya</i>	Herzliyya	<i>herc(e)liyáni</i>	(resident) of Herzliyya
<i>beeršéva</i>	Beer Sheva	<i>beerševyáni</i>	(resident) of Beer Sheva (more colloquial alternant of <i>beerševaí</i>)

Alternatively, a basic /t/, stemming from the underlying feminine suffix +*at*, may resurface to break the /a+i/ sequence, as in:

(39) **Names of residents of geographical entities with +á+t+i suffixation**

Base	Gloss	With +áti	Gloss
<i>natánya</i>	Natanya/Netanya	<i>netanyáti</i>	(resident) of Natanya/Netanya
<i>xadéra</i>	Hadera	<i>xaderáti</i>	(resident) of Hadera

Gentilic terms and residents of geographical locations with penultimate stress may occasionally also require some *ad hoc* insertions (followed by pre-*i* stress assignment), as in *búrma* ‘Burma’ > *burmézi* ‘Burmese,’ and *e(y)rópa* ‘Europe’ > *e(y)rópi* ‘European’ ~ *e(y)ropéi*. Sometimes both +*áni* and +*áti* coexist: *ásya* ‘Asia’ > *asyáni* ‘Asian’ ~ *asyáti*.

None of these insertions ever occur when the form ends with finally-stressed +*aí*, i.e., no *afúla* > *afulaní, *afulatí, or **aful(a)ezí*, because an underlying +*aí* is never broken. *Beerševyáni* is possible, since for this alternant the suffix is +*i*, not +*ai*, which also explains why there is no *beerševyaní. Thus, a difference in stress placement would again enable us to distinguish between similar but separate word formation patterns referring to gentilic terms and to residents of geographical places, an underlying +*i* with penultimate stress, and an underlying +*aí* with final stress. As in all similar cases involving the *nísba* +*i* and the suffix +*ai*, final stress (in this case associated with atomic /+*aí*/) tends to be associated with greater ‘normative integration’ and a higher degree of formality.

Since +*i* is the most productive pattern in the noun/adjective system (see Bolozky²⁷), and is fairly automatic, it may be regarded as ‘bordering’ on inflection (see Ornan,²⁸ where the adjectival *nísba* +*i* is argued to be inflectional because of its automaticity). Thus, pairs like *švédya* ‘Sweden’ ~ *švédi* ‘Swedish; Swede’ could be considered ‘normatively unintegrated’ derivations in which +*i* as an inflectional suffix does not affect the location of stress. However, while such a claim can account for derivations like *švédya* ‘Sweden’ ~ *švédi* ‘Swedish,’ it is not supported by many instances in which the location of stress in the base is not stable:

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²⁷ S. Bolozky, *Measuring Productivity*.

²⁸ U. Ornan, “*al mivne ha-milon ve-al mekomo šel ha-toar bo* (on the structure of the dictionary and on the place of the adjective in it),” *Xelkat Lashon* (1988) 25. 13-33.

(40)	Base	Gloss	+i Form	Gloss
	<i>hóland</i>	Holland	<i>holándi</i>	Dutch
	<i>ukráyna</i>	Ukraine	<i>ukraíni</i>	Ukranian
	<i>kúba</i>	Cuba	<i>kubáni</i>	Cuban
	<i>yerušaláim</i>	Jerusalem	<i>yerušálmi</i>	(resident) of Jerusalem
	<i>bóston</i>	Boston	<i>bostóni</i>	(?resident) of Boston
	<i>xadéra</i>	Hadera	<i>xaderáti</i>	(resident) of Hadera
	<i>búrma</i>	Burma	<i>burmézi</i>	Burmese

Consequently, deriving forms with *+i* cannot be regarded as a true derivation, as automatic as it may be. The only common denominator to all forms of this type is penultimate stress, on the vowel preceding the *+i*, and the only explanation I can offer for it is the informal or familiar preference for penultimate stress. However, once such forms are inflected for gender and number, the stress remains stable, on its fixed location in the *+i* form, as in:

(41)	Base	Gloss	+i Masc.	Masc. Pl.	Fem. Pl.
	<i>hóland</i>	Holland	<i>holándi</i>	<i>holándim</i>	<i>holándiyot</i>
	<i>ukráyna</i>	Ukraine	<i>ukraíni</i>	<i>ukraínim</i>	<i>(ukra(íniyot</i>
	<i>kúba</i>	Cuba	<i>kubáni</i>	<i>kubánim</i>	<i>kubániyot</i>
	<i>yerušaláim</i>	Jerusalem	<i>yerušálmi</i>	<i>yerušálmim</i>	<i>yerušálmিয়ot</i>

Thus, we can maintain the generalization, that for the majority of gentilic terms and residents of geographical terms ending with *+i*, stress is unaffected when inflectional affixes are appended.

That gentilic terms and residents of geographical locations tend to maintain fixed stress when the derivation is inflectional also fits with the Noyman's claim that there exists a **natural** tendency in Israeli Hebrew (under certain conditions) to break away from the "bonds" of normative final stress and to opt for stable stress when inflectional affixes are appended. As noted above, Noyman argues that it is no accident that some recent natural inflectional derivations, unhampered by puristic intervention, maintain fixed stress, and proposes the following reasons:

(a) The lexical weight of an inflectional affix is lighter than that of a derivational one, and the **relative** weight of the stem to which it is attached is heavier, which prevents stress from shifting to the suffix;

(b) Leaving stress on the base is the best way to maintain its transparency, as is the case in any linear derivation. When stress shifts to the affix, the derivation is no longer truly linear. It may not be 'discontinuous,' but it is not fully linear either.

To support his claim, Noyman traces the historical development of gentilic terms and related languages.

In Biblical Hebrew, derivations from stems like *'ārām* 'Aram' and *yəhūdā* 'Judea, or Judah' are as follows:

(42)	Base	Gloss	+i Masc.	+it Fem.	+it Language
	<i>'ārām</i>	Aram	<i>'ārammí</i>	<i>'ārammiyyá</i>	<i>'ārāmíθ</i>
	<i>yəhūdā</i>	Judah, Judea	<i>yəhūdí</i>	<i>yəhūdiyyá</i>	<i>yəhūdíθ</i>
		Hebrew	<i>`ivrí</i>	<i>`ivriyyá</i>	
	<i>misráyim</i>	Egypt	<i>misrí</i>	<i>misríθ</i>	
	<i>kúš</i>	Kush	<i>kušší</i>	<i>kuššíθ</i>	
	<i>mō'áv</i>	Moab	<i>mō'āví</i>	<i>mō'āviyyá/mō'āvíθ</i>	

The feminine form in Biblical Hebrew may end with either *+iyyá* or *+íθ*, and usually functions as an adjective. It is possible that when there is a related language ending with *+íθ*, the feminine form is differentiated by the suffix *+iyyá* (there is no *`ivríθ* 'Hebrew' language in the Bible). In Mishnaic Hebrew, the preferred feminine form ends with *+íθ* (for both gentile nouns and adjectives, as well as for languages, e.g., *`ivríθ* 'Hebrew,' *yəwānίθ* 'Greek'), unless there already exists a Biblical *+iyyá* form. When Hebrew was revived as a spoken language around the turn of the twentieth century, the 'revivers,' who tended to have preference for the Biblical model anyway, decided to 'regularize' the system, and maintain the morphological distinction between the language and the feminine form throughout. Apparently, their motivation was minimization of ambiguity. Actually, the semantic division is not as clear cut as it seems. The gentile adjectives also function as gentile nouns (as they did in Mishnaic Hebrew), and the *+it* language form is used for feminine adjective as well – usually for ones modifying non-human nouns, as in *avoda ar(a)vit* 'Arab labor.' Consequently, the *+iyá* suffix is by now used almost exclusively for gentile feminine nouns. In any case, based on existing stems, the 'revivers' introduced paradigms like the following:

(43)	Base	Gloss	+i Masc.	+it Fem.	+it Lang./F. Adj.
	<i>aráv</i>	Arabia	<i>arví</i>	<i>arviyá</i>	<i>arvít</i>
	<i>micráim</i>	Egypt	<i>micrí</i>	<i>micriyá</i>	<i>micrít</i>
	<i>parás</i>	Persia	<i>parsí</i>	<i>parsiyá</i>	<i>parsít</i>
	<i>yaván</i>	Greece	<i>yevaní</i>	<i>yevaniyá</i>	<i>yevanít</i>

and stress fell on the final syllable, as in the Bible. The same model, including stress placement, was used to designate gentile terms and languages related to countries from which early immigrations came, or ones that were of relevance at the time, politically and otherwise, such as:

(44)	Base	Gloss	+i Masc.	+it Fem.	+it Lang./F. Adj.
	<i>túrkiya</i>	Turkey	<i>turkí</i>	<i>turkiyá</i>	<i>turkít</i>
	<i>ángliya</i>	England	<i>anglí</i>	<i>angliyá</i>	<i>anglít</i>
	<i>carfát</i>	France	<i>carfatí</i>	<i>carfatiyá</i>	<i>carfatít</i>
	<i>rúsya</i>	Russia	<i>rusí</i>	<i>rusiyá</i>	<i>rusít</i>
	<i>polánya</i>	Poland	<i>polaní</i>	<i>polaniyá</i>	<i>polanít</i>

Base	Gloss	+i Masc.	+it Fem.	+it Lang./F. Adj.
<i>germánya</i>	Germany	<i>germaní</i>	<i>germaniyá</i>	<i>germanít</i>
<i>sfarad</i>	Spain	<i>sfaradí</i>	<i>sfaradiyá</i>	<i>sfaradít</i>
<i>románya</i>	Romania	<i>romaní</i>	<i>romaniyá</i>	<i>romanít</i>
<i>hungárya</i>	Hungary	<i>hungarí</i>	<i>hungariyá</i>	<i>hungarít</i>

Noyman suggests that when Hebrew began to be spoken by native speakers, existing gentilic terms were maintained as inherited from the parents' generation, but when new ones were formed, they were created naturally, not by prescribed grammar. And the natural tendency was to neutralize the morphological marking for the person/language dichotomy (+iyá vs. +it), which is so easy to figure out from the context. Native speakers thus opted for a single suffix, +it, which is also what speakers of Mishnaic Hebrew had done. At the same time, the neutralization of +iyá with +it may also be attributed to the preference for maintaining maximal transparency of the base by not shifting the stress to the suffix. +iyá is a derivational suffix, and would inevitably attract the main stress; avoiding +iyá would allow truly linear (inflectional) derivation, without the base being affected in any way:

(45)	+i Masc.	Gloss	+it Fem.	+it Lang./	Masc. Pl.	Fem. Pl.
	<i>švédi</i>	Swedish	<i>švédit</i>	<i>švédit</i>	<i>švédim</i>	<i>švédiyot</i>
	<i>albáni</i>	Albanian	<i>albánit</i>	<i>albánit</i>	<i>albánim</i>	<i>albániyot</i>
	<i>síni</i>	Chinese	<i>sínit</i>	<i>sínit</i>	<i>sínim</i>	<i>síniyot</i>
	<i>norvégi</i>	Norwegian	<i>norvégit</i>	<i>norvégit</i>	<i>norvégim</i>	<i>norvégiyot</i>
	<i>bretóni</i>	Breton	<i>bretónit</i>	<i>bretónit</i>	<i>bretónim</i>	<i>bretóniyot</i>
	<i>holándi</i>	Dutch	<i>holándit</i>	<i>holándit</i>	<i>holándim</i>	<i>holándiyot</i>
	<i>ukráini</i>	Ukrainian	<i>ukraínit</i>	<i>ukraínit</i>	<i>ukraínim</i>	<i>ukraíniyot</i>

Thus, there appear to exist two independent tendencies in Israeli Hebrew: to maximize transparency by maintaining fixed stress even in inflectional derivation, and preference for penultimate stress as a marker of informality or familiarity. It may be noted at this point that the naturalness of penultimate stress (and the concomitant familiarity and casualness associated with it) before +i in gentilic terms may also have a secondary function: it occasionally signals a distinction between a non-Jewish member of a nation and an Israeli Jew who had come from that country, e.g.,

(46)	Non-Jewish	Gloss	+it Fem.	+it Lang./F. Adj.
	<i>micrí</i>	Egyptian (N/Adj)	<i>micrít</i>	
	<i>parsí</i>	Persian (N/Adj)	<i>parsít</i>	<i>parsít</i>

compared with:

(47)	Jewish	Gloss	+it Fem.	+it Lang./F. Adj.
	<i>mícri</i>	Egyptian Jew(ish)	<i>mícrit</i>	
	<i>pársi</i>	Persian Jew(ish)	<i>pársit</i>	<i>pársit</i>

Even if there is some derogatory connotation associated with these penultimately-stressed alternants, they are clearly colloquial/familiar in register, whereas the finally-stressed realizations are normative/formal.

Thus, although for the majority of Hebrew words, even inflectional suffixes tend to attract stress to themselves, there also exists an opposing natural tendency for inflection not to affect the stress pattern of the base so as to maximize its transparency. It is found in some recent derivations, as well as in others that are less likely to be affected by prescriptive normativism, such as recent borrowed words, recent gentilic names and residents of geographical locations, proper names, acronyms, games (mostly children's), units of mass names, etc. Independently of that, there exists an independent natural preference for penultimate stress in familiar/casual speech.

3. Conclusion

We have seen that differences in stress assignment enable us to distinguish between apparently-identical morphological patterns: (1) The stress pattern of alternants in the *maCCuC* pattern from Arabic distinguishes it from the identical native Hebrew pattern, also marking a difference in category and in semantic features; (2) 'Yiddish/English type' *+er* (today mostly instrumental) is differentiated from 'French type' *+ér/(y)onér* (agentive). The former bears non-final and the latter final stress; (3) In the categories of gentilic nouns and "residents of geographical places," *+i* and related *+ai* are distinguished by means of stress. The former triggers penultimate stress assignment and the latter is finally stressed. *+aí* with final stress is often associated with more formal registers (as is stressed *+i*); unstressed *+i* preceded by stress often correlates with the familiar/casual register.