THE EMERGENCE OF THE BINARY TROCHAIC FOOT IN HEBREW HYPOCORISTICS

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This paper provides an Optimality Theoretic analysis of the prosodic structure and stress pattern in templatic and non-templatic hypocoristics in Hebrew. It is designed to illustrate the emergence of the binary trochaic foot, whose role elsewhere in the language is otherwise limited. The binary trochaic foot has been shown to determine the structure of templatic hypocoristics in various languages. In Hebrew, however, it plays a major role also in non-templatic hypocoristics, which on the surface look like a simple construction of base-plus-suffix.

1. Introduction

Hebrew is a quantity insensitive language, and its stress system is thus expected to consist of binary trochaic feet (Hayes 1995), assuming that feet are universally binary (Prince 1980 and later studies). However, the stress patterns found in the language are mixed, and in many cases do not meet this expectation. Indeed, quite a few nouns bear penultimate stress, for which the binary trochaic foot can be assigned (e.g. *dégel* 'flag', *tíras* 'corn'). However, many nouns/adjectives (mostly native) and all verb stems bear ultimate stress (e.g. *cayár* 'painter', *ʃamén* 'fat', *sipér* 'to tell'). There are two possible foot structures for the forms with ultimate stress: either a strong degenerate trochaic foot (*si[pér]*) or a binary iambic foot (*[sipér]*). Under either analysis, the expected binary trochaic foot is not an option.

Such uncertainty does not arise with respect to the stress system of Hebrew hyporocristics, where the prominent foot is, as expected, the binary trochaic foot. Hebrew has two types of hypocoristic, templatic (TH) and non-templatic (non-TH), which are both accompanied by a suffix. THs have a minimal and maximal limit of two syllables, and thus undergo truncation. Non-THs preserve the segmental and prosodic structure of the full name, and thus do not involve truncation. As for the stress pattern, THs take penultimate stress and non-TH keep the stress on the same syllable as in their corresponding bases. Nevertheless, the stress pattern in non-TH is predictable from the surface structure of the hypocoristic (without out reference to the base), since it is determined by the suffixes: the hypocoristic bears penultimate stress when the suffix *-i* and antepenultimate when the suffix is *-le*.[1]

(1) Types of Hebrew hypocoristics

a. Templatic hypocoristics		b. Non-templatic hypocoristics			
-i		*-i*		*-le*	
Base name	Hypo	Base name	Hypo	Base name	Hypo
sigál	síg-i	mixál	mixál-i	tíkva	tíkva-le
cipóra	cíp-i	ʔerán	ʔerán-i	míka	míka-le
menáxem	mén-i	revitál	revitál-i	cipóra	cipóra-le

I will argue that the constraints assigning the binary trochaic foot, determine the prosodic structure and stress pattern of THs, as well as the stress pattern of non-THs. The prominent role of the binary trochaic foot in Hebrew hypocoristics reflects “the emergence of the unmarked”. This notion, introduced in McCarthy and Prince (1994), refers to circumstances in which the effect of a markedness constraint, which is usually not active due to a higher-ranked competing constraint, emerges in certain contexts. The context can be some lexical items in which the competing higher-ranked constraint is not relevant, or an entire class of lexical items whose constraint ranking differs from that of other classes. The emergence of the binary trochaic foot in Hebrew hypocoristics is of the second type. That is, the constraint rankings associated with the hypocoristics grant an undominated status to the constraints assigning the binary trochaic foot, FOOT BINARITY and TROCHEE.

The discussion begins with a review of the stress patterns in Hebrew nouns (§2.1), arguing that the role of TROCHEE is limited to one particular class of noun stems, whose stress is penultimate. Otherwise, the stress pattern emerges from the interaction of various

[1] The suffix *-le* has been borrowed from Yiddish, and is used mostly, but not exclusively, by the older generation. The suffix *-i* has probably been borrowed from German, and is much more common. Hypocoristics with either suffix may be used as a term of endearment (i.e. context dependent) as well as the non-formal variant of a name (i.e. register dependent). However, non-THs are more common as a term of endearment, while THs are more common as the non-formal variant of a name. I ignore here marginal patterns of hypocoristics, in particular those borrowed as a whole from Yiddish (e.g. *yícxak – ʔícik*, *yákov – yánka-le*,), as well as those with the suffixes *-uʃ* and *-ki*/*-ko*.

constraints, none of which is TROCHEE. The stress pattern of proper names is then presented (§2.2), as a background for the discussion on non-THs. It is argued that stress in proper names is always to be lexical, although many names have variable stress, one of which is ultimate.

The analysis of Hebrew hypocoristics begins with THs (§3), whose structure is assigned by the binary trochaic foot. It is shown, that the constraint hierarchy deriving the stress pattern of the limited class of noun stems with penultimate stress, is the one deriving the stress pattern in THs. In non-THs (§4), the binary trochaic foot serves as the subcategorization frame of the suffixes. Despite the subcategorization of the suffixes, a non-TH is entirely faithful to its base name, as it does not exhibit either truncation or stress shift.

The data presented in this paper are based on existing hypocoristics (rather than on forms drawn from experiments assessing speakers' intuition). Native speakers were asked to provide the names and the corresponding nicknames of people they know or know of. Nicknames whose segmental structure was remote from the base name (e.g. *kúʃkuʃ* for *mixál*), were excluded, although most of them fit into the binary trochaic foot. Sporadic segmental alternations appearing in THs, such as stopping (e.g. *rúven* – *rú**b**i*) and vowel alternation (e.g. *b**i**nyámin* – *b**é**ni*), are ignored.

2. Stress in Hebrew nouns and proper names

This section provides a brief discussion of the stress patterns in Hebrew nouns, arguing that the effect of TROCHEE is limited to one exclusive type of nouns. Otherwise, foot prominence, either trochaic or iambic, emerges from (i) an underlying distinction between stems with lexical stress and stems free of stress, and (ii) a constraint interaction, where TROCHEE is not active. The first sub-section discusses stress in noun stems and suffixed forms and the second, in proper names.

2.1. Stress in stems and suffixed forms

Hebrew is a quantity-insensitive language; it has no phonemic length contrast and its stress system, as reviewed below, does not distinguish between CV and CVC syllables.[2] According to Hayes' (1995) study of stress systems, "syllabic trochee languages tend to be languages that have no quantity distinction at all" (p. 101). Assuming that feet are universally binary, this tendency gave rise to two competing analyses of the Hebrew stress system. Graf and Ussishkin (2003) argue that the strong foot (enclosed in square brackets) is binary, either iambic or trochaic *([kélev]*, *[cayár]*), while Becker (2003a) argues that the strong foot is trochaic, either binary or degenerate (*[kélev]*, *ca[yár]*).

Graf and Ussishkin (2003) isolate the constraints assigning feet from those assigning foot prominence. The proposal is based primarily on the Hebrew verb paradigm, but is argued to hold for Hebrew nouns as well, taking into consideration some idiosyncrasies to be discussed below. According to this proposal, ultimate stress in Hebrew is due to the interaction of the constraints assigning right-aligned binary feet not specified for prominence (ALIGNR(Ft, PrWd) and FOOT BINARITY), with the constraint assigning stress to the final syllable in the prosodic word (FINAL STRESS). That is, the iambic foot in *[cayár]* 'painter' is not due to the constraint IAMB, and the trochaic foot in *[tíras]* 'corn' is not due to the constraint TROCHEE. As I will show below, while in both the feet are assigned by ALIGNR(Ft, PrWd) and FOOT BINARITY, in the former the prominence of the foot is determined by FINAL STRESS, and in the latter it is lexical.

Graf and Ussishkin's analysis has been challenged in Becker (2003a), who argues that feet in Hebrew are trochaic. Becker's analysis is based on acoustic studies of phrases, which showed that stress has two phonetic manifestations in Hebrew: vowel length in the stressed syllable and high pitch on the following syllable (which can be the first syllable

[2] Also, the templatic morphology of the language does not distinguish between the different types of syllable. For example, the prosodic structure of the verbs *gidel* 'to grow', *tirgem* 'to translate', and *kimpleks* 'to make complex' is assigned by a disyllabic template, not specified for syllable structure (McCarthy 1984, Bat-El 1994, Ussishkin 2000).

in the following word). In isolation, or in phrase-final position, words with penultimate stress get the same structure as in Graf and Ussishkin's analysis, i.e. *[tíras]*. However, words with ultimate stress, in the same context, get a degenerate foot, i.e. *ca[yár]*, rather than a binary foot.[3]

Most noun stems in Hebrew bear ultimate stress, quite a few bear penultimate stress, and there is also a handful with antepenultimate stress. As shown in (2) below, syllable structure, i.e. CV vs. CVC, does not play a role in the stress pattern (Bolozky 1982, Graf1999); both CV and CVC can be stressed in any of the last three syllables of the prosodic word.

(2) Stress patterns in Hebrew noun stems

Stress pattern		Ultimate		Penultimate		Antepenultimate	
Stressed syllable	CV	mispó	'fodder'	kélev	'dog'	télefon	'phone'
		kitá	'class'	tíras	'corn'		
		mataná	'present'	rakévet	'train'		
	CVC	ʃulxán	'table'	tráktor	'tractor'	ámbulans	'ambulance'
		kadúr	'ball'	sávta	'grandma'		
		ʔavirón	'airplane'	mástik	'gum'		

The stress system in the verb paradigm is regular and consistent. All verb stems bear ultimate stress. The stressed pattern in suffixed verbs depends mostly on the type of suffix (vowel-initial vs. consonant-initial), the number of syllables in the stem (one vs. two), and the height of the vowel in the last syllable of the stem (high vs. non-high). Stress in suffixed verbs is penultimate when the stem is monosyllabic (e.g. *ʃár – ʃár-a – ʃár-ti* 'he – she – I sang'), when the vowel in the final stem syllable is high (e.g. *hitxíl – hitxíl-a – hitxál-ti* 'he – she – I started'), and when the suffix is consonant-initial (e.g. *patáx – patáx-ti* 'he – I opened'). When the suffix is vowel-initial (and the stem is not monosyllabic and does not have a high vowel in the final syllable) stress is ultimate (e.g. *patáx – patx-á* 'he – she opened', *tirgém – tirgem-á* 'he – she translated').

[3] Becker, unlike Graf and Ussishkin, does not assume exhaustive footing, due to the absence of acoustic cues for secondary stress. This distinction does not bear on the discussion here.

What is unique to the stress patterns in nouns, as opposed to verbs, is the mixed paradigms, not predicted by phonological properties. Nouns with an identical stress pattern in the stem may have different stress patterns in their suffixed forms (e.g. *gamád – gamad-ím* ‘dwarf (dwarves)’ vs. *salát – salát-im* ‘salad(s)’), and nouns with an identical stress pattern in their suffixed forms may have different stress patterns in the stems (e.g. *gamál – gmal-ím* ‘camel(s)’ vs. *kéter – ktar-ím* ‘crown(s)’).

As argued in Bat-El (1993), the classification of nouns with respect to stress must be based on their behavior in the paradigm, rather than on the stress in the stem (see also Melčuk and Podolsky 1996, Bolozky 2000). In some nouns, stress is immobile, appearing on the same syllable in the bare stem and the suffixed form (3c,d). In others, stress is mobile, ultimate in the suffixed form, and ultimate (3a) or penultimate (3b) in the bare stem. As shown in (3), the position of stress in the stem does not determine its mobility when a suffix is added.[4]

(3) Stress mobility

	Stem’s stress					
	Ultimate			Penultimate		
	a.			b.		
Mobile stress	xút	xut-ím	‘string’	nékev	nekav-ím	‘hole’
	tavlín	tavlin-ím	‘spices’	xéder	xadar-ím	‘room’
	melafefón	melafefon-ím	‘cucumber’	ʃóreʃ	ʃoraʃ-ím	‘roots’
	c.			d.		
Immobile stress	tút	tút-im	‘strawberry’	méter	métr-im	‘meter’
	xamsín	xamsín-im	‘heat wave’	tíras	tíras-im	‘corn’
	hipopotám	hipopotám-im	‘hippopotamus’	tráktor	tráktor-im	‘tractor’

[4] When stress is antepenultimate in the stem, it optionally shifts two syllables to the right when a suffix is added (e.g. *télefon – télefon-im ~ telefón-im*, *ʔámbulans – ʔámbulans-im ~ ʔambulíns-im*). The discussion here is restricted to stems with ultimate and penultimate stress, and to forms with the masculine plural suffix *-im*. See Bat-El (1993) for more extensive discussion.

Of the four types above, those with mobile stress are the most common, as they characterize native vocabulary. Immobile stress is found mostly, but not exclusively, in borrowed nouns (Schwarzwald 1998) and acronym words (Bat-El 1994a).[5]

As the examples in (3) suggest, Hebrew learners are faced with contradicting evidence when it comes to establishing the stress system of nouns. Since generalizations cannot be obtained, they have to learn the stress pattern of each noun stem independently. This learning procedure is supported by the fact reported in Ben-David (2001), that children hardly ever misplace stress in stems, although their vocabulary includes all stress patterns (e.g. *bubá* 'doll', *dúbi* 'teddy bear', *télefon* 'phone'). Had the children reached some generalization at a certain point in the acquisition of stems, we would expect to see incorrect stress patterns in some stems, conforming to the generalization.

When suffixed forms start appearing in the children's speech, immobile stress is prevalent, as reported in Berman (1981) and Levy (1983). However, later on, when sufficient data are encountered, suffixed forms take final stress, with a certain degree of overgeneralization. This overgeneralization is statistically motivated since, as noted above, most nouns take mobile stress, which means that their suffixed forms bear ultimate stress

Adults, however, show a certain degree of preference for immobile stress. A noun with mobile stress may gain a semantically related counterpart with immobile stress, as in *cafón* 'north' – *cfon-í* 'northern' – *cfón-i* 'a person from the north of Tel-Aviv (upper class)'and *kláf* 'card' – *klaf-ím* 'cards' – *kláf-im* 'card games' (Schwarzwald 1998); pluralization of names exhibits immobile stress, as in *yóram* – *yóram-im* (Berent et al. 2002); most acronym words exhibit immobile stress, as in *pakám* – *pakám-im* 'short term deposit(s)' (Bat-El 1994a).[6]

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[5] As shown in Schwarzwald (1991), some non-paradigmatic words have variable stress (e.g. *káma* ~ *kamá* 'how many', *meʔídax* ~ *meʔidáx* 'on the other hand', *támid* ~ *tamíd* 'always'). As shown in §2.2 below, this is true also for Hebrew names.

[6] The acronym *pakám* 'short term deposit' stands for *pikadon kcar moed* 'deposit short term'.

The first subsection below discusses immobile stress (3c,d), which is argued to be lexical, and mobile stress associated with stems with final stress (3a). The second subsection is devoted to mobile stress associated with stems with penultimate stress (3b). The stress system of the latter stems is identical to that of THs.

2.2.1. Lexical-immobile stress and ultimate-mobile stress: Following Bat-El (1993), I assume that stems with immobile stress are lexically specified for stress, while those with final mobile stress are free of lexical specification. I assume Graf and Ussishkin's (2003) analysis, according to which a binary foot not specified for prominence is assigned at the right edge of the prosodic word (it is not relevant here whether footing is exhaustive).[7]

In forms with lexical stress, the prominence of the foot is determined by the position of the lexically specified stress. Given that feet are right-aligned due to ALIGNR(Ft, PrWd), when the lexical stress is ultimate, an iambic foot emerges (e.g. *[ga.lón]* 'gallon'), and when it is penultimate, a trochaic foot emerges (e.g. *ga.[ló.n-im]* 'gallons'). When the lexical stress is antepenultimate, the emergent foot is also trochaic. However, since the head of the foot has to be the lexically stressed syllable, the foot cannot align with the right edge of the prosodic word (e.g. [*trák.to]r-im* 'tractors').

In forms free of lexical stress, FINALSTRESS assigns stress to the final syllable in the prosodic word, and the emergent foot is thus iambic (e.g. *[ga.mád]*, *ga[ma.d-ím]* 'dwarf - dwarves'.

The constraint ranking below, accounts for nouns with lexical immobile stress, as well as nouns with ultimate mobile stress.

[7] I adopt Graf and Ussishkin's approach, because it gives a major role to FOOT BINARITY, which is also dominant in the prosodic morphology of Hebrew in assigning an upper limit of two syllables to stems. Indeed, phonology and prosodic morphology do not necessarily associate with the same constraint ranking. However, the fact that the binary foot in Hebrew hypocoristics is relevant to both stress and prosodic structure, suggests a unified account.

(4) Constraint ranking for lexical-immobile stress and ultimate-mobile stress

FTBIN, IDENTSTRESS >> ALIGNR(Ft, PrWd), FINALSTRESS >> TROCHEE

a. FTBIN (FOOT BINARITY)
Feet are binary[8]

b. IDENTSTRESS
The output syllable corresponding to the input's stressed syllable is stressed

c. ALIGNR(Ft, PrWd)
The right edge of the foot aligns with the right edge of the prosodic word

d. FINALSTRESS
The final syllable in the prosodic word is stressed

e. TROCHEE
The leftmost unit in the foot is prominent

FTBIN assigns a binary foot, and ALIGNR(Ft, PrWd) places the foot at the right edge of the prosodic word. IDENTSTRESS is active only in the presence of lexical stress, as it refers to corresponding stressed syllables in the input (lexical stress) and the output. IDENTSTRESS competes with ALIGNR(Ft, PrWd) when the lexical stress is antepenultimate. In this case, violation of ALIGNR(Ft, PrWd) is forced by the higher-ranked IDENTSTRESS. The interaction of these constraints is demonstrated in the tableaux below (all candidates respect the undominated FTBIN, which is thus left out).

[8] Binarity of feet can also be defined in terms of syllables or moras. However, since Hebrew phonology does not show any evidence for the mora, the relevant constituent here is the syllable.

(5) Lexical immobile stress (3c,d)

	IDENTSTRESS	ALIGNR	FINALSTRESS	TROCHEE
i. galón				
a. ☞ [ga.lón]				*
b. [gá.lon]	*!		*	
ii. galón-im				
a. ☞ ga[ló.nim]			*	
b. ga[lo.ním]	*!			*
c. [ga.ló]nim		*!	*	*
iii. tráktor				
a. ☞ [trák.tor]			*	
b. [trak.tór]	*!			*
iv. tráktor-im				
a. ☞ [trák.to]rim		*	*	
c. trak[to.rím]	*!			*
b. trak[tó.rim]	*!		*	

As shown in (6) below, in the absence of lexical stress, IDENTSTRESS is irrelevant, and FINALSTRESS determines the position of stress, and thus the foot prominence.

(6) Ultimate mobile stress (3a)

	IDENTSTRESS	ALIGNR	FINALSTRESS	TROCHEE
i. gamad				
a. ☞ [ga.mád]				*
b. [gá.mad]			*!	
ii. gamad-im				
a. ☞ ga[ma.dím]				*
b. ga[má.dim]			*!	
c. [ga.má]dim		*!	*	*
d. [gá.ma]dim		*!	*	

As the tableaux above show, TROCHEE has no effect on the stress pattern, and, of course, neither does IAMB have any such effect; nevertheless, iambic and trochaic feet emerge.

2.1.2. Penultimate-mobile stress: The ranking in (4), does not account for the stems of the exclusive class of nouns, to which I will refer as "trochaic stems" (traditionally called "segolates"; see Bolozky 1995). In this class (3b), stress is penultimate in the stems but ultimate in the suffixed form (e.g. *ʃóreʃ – ʃoraʃ-ím* 'root(s)', *kéter – ktar-ím* 'crown(s)'; vowel alternation and deletion are ignored). Since the trochaic stems exhibit mobile stress, they cannot be assumed to bear lexical stress. In the absence of lexical stress, the ranking in (4) predicts ultimate stress in both stems and suffixed forms, as illustrated in (6) above. However, while suffixed trochaic stems exhibit ultimate stress, the stems bear penultimate stress. I thus propose that trochaic stems are associated with a different ranking, in which TROCHEE outranks FINALSTRESS.

There are some phonological cues that may help speakers identify trochaic stems, and thus link them with their exclusive ranking. Trochaic stems are disyllabic, and the penultimate syllable is always CV. The vowels in trochaic stems are always [-high], i.e. they can be either *e*, *o*, or *a* (thus *tíras* 'corn' is never mistaken for a trochaic stem). In most cases, the first vowel in a trochaic stem is *e* and the second is *e* or *a*, and since there are very few non-trochaic stems with an initial *e*, CeCe/aC nouns will usually be identified as trochaic stems.[9] However, stems of the shape CoCeC or CaCaC can be either trochaic stems (e.g. *bóker* 'morning', *náxal* 'river') or non-trochaic stems (e.g. *bokér* 'cowboy', *nahár* 'river'), and speakers thus have to memorize to which class they belong.

Thus, while the stress pattern in suffixed trochaic stems is accounted for by the ranking in (4) above, repeated in (7a) below, that in the bare trochaic stems requires the exclusive ranking in (7b).

[9] The noun *méter* 'meter' looks like a trochaic stem, but exhibits immobile lexical stress, as its suffixed form is *métr-im* (cf. the troachaic stem *kéter – ktar-ím* 'crown(s)'). See Becker (2003b) for the conditions under which a form can shift from one class to another.

(7) Constraint ranking for stress patterns

(a) **FinalStress >> Trochee**

FtBin, IdentStress >> AlignR(Ft, PrWd)

(b) **Trochee >> FinalStress**

The distinction between (a) and (b) in (7) is not relevant for stems with lexical stress, since the higher-ranked IdentStress ensures the preservation of stress in its lexical position. In the absence of lexical stress, the active constraints in trochaic stems are FtBin, AlignR(Ft, PrWd), and Trochee, which assign penultimate stress.[10]

The ranking in (7b) is reflected in a specific class of stems, with a relatively low type-frequency (compared to stems with final stress). Nevertheless, as shown below, this ranking characterizes all hypocoristics, whether templatic (§3) or non-templatic (§4). The emphasis is on the emergence of Trochee, whose effect in Hebrew nouns (and verbs) is limited to specific forms (trochaic stems and, with weaker evidence, to stems with lexical stress), but is pervasive in hypocoristics. The upgraded status of Trochee puts it on par with FtBin, which together give rise to the binary trochaic foot.

2.2. Stress in proper names

Stress in Hebrew names is lexical. Names do not usually appear in plural form, but if they do (as in English "the Johns"), stress is immobile (Berent et al. 2002). A stronger argument for lexical stress in names is that its position is unpredictable. For example, a trisyllabic name can bear ultimate stress (e.g. *revitál*), penultimate (e.g. *menáxem*), or antepentultimate (e.g. *mórdexay*).

In some names, stress is invariable, either ultimate (e.g. *revitál*, *hilá*) or penultimate (e.g. *míka*, *tómer, daniéla*, *ʔeli(ʔ)ézer*); there are no names with invariable

[10] I do not argue here in favor of a particular approach to multiple sub-grammars within a language (see review in Inkelas and Zoll 2003). I assume, however, the "co-phonology" approach, which assigns a specific constraint ranking to each type of construction (Inkelas 1998 and other studies), admitting its failure to predict that (7b) is the unmarked ranking.

antepenultimate stress. However, many names exhibit variable stress, either ultimate and penultimate (e.g. *menaxém* ~ *menáxem*, *davíd* ~ *dávid*, *xaná* ~ *xána*) or ultimate and antepenultimate (e.g. *mordexáy* ~ *mórdexay*, *mixaél* ~ *míxael*, *yonatán* ~ *yónatan*). The variation is often due to register distinction, where ultimate stress is the normative, but it can also be a matter of personal preference or trend.

Since the variation in stress is relevant for the analysis of non-THs, all possible stressed positions are indicated for every name; ultimate stress is marked with an underline and non-ultimate stress with acute (e.g *mórdexay*, *menáxem*). When stress is invariable, it is marked with an acute (e.g. *míka*, *daniéla*).

It should be noted that non-initial glottals surface only in careful and normative speech, as in *ʔahúva*, which is usually pronounced as *ʔaúva*. In names with variable stress and a medial glottal, the glottal may surface only when stress is ultimate (e.g. *gidʔón* ~ *gidón* ~ *gídon*, **gídʔon*). When stress is not ultimate, and the glottal thus does not surface, the hiatus may be resolved by vowel deletion. This happens when the two vowels are identical (e.g. *ʔavra(h)ám* ~ *ʔávram*), and when they are unstressed in the form with the ultimate stress (e.g. *ye(h)udít* ~ *yúdit*). In all other cases, the two vowels survive (e.g. *ʔimanu(ʔ)él* ~ *ʔimánuel*, *ʔe(h)úd* ~ *ʔéud*). All potential sequences of two vowels are resolved in THs (e.g. *ʔe(h)úd* ~ *ʔéud* – *ʔúd-i*, *ʔa(h)úva* – *ʔúv-i*), *ya(ʔ)akóv* ~ *yákov* – *yák-i*, *yisra(ʔ)éla* – *rél-i*).

3. Templatic hypocoristics

THs come in various forms when their correspondence to their base is considered: left-anchored, misanchored, and reduplicated, again, either left-anchored, or misanchored. However, they all conform to the same prosodic structure, consisting of a trochaic syllabic foot, i.e. two syllables and penultimate stress. Morphologically, most THs have the suffix *-i*, which heads the weak syllable of the foot. A few reduplicated THs do not have a suffix.

(8) Types of templatic hypocoristics

Base name	Left-anchored		Misanchored	
	Non-Reduplicated	Reduplicated	Non-Reduplicated	Reduplicated
menáxem	méni		náxi, xémi	
ʔasáf	ʔási		sáfi	
ʔalíza	ʔáli		lízi	zázi, záza
tíkva	tíki			
dóron	dóri	dódi, dódo		
me(ʔ)íra		méme		
hadás			dási	
náxum			xúmi	
ʔáya				yáya

As this paper is concerned with the prosodic structure of hypocoristics, I ignore the different possible segmental makeup exemplified above, as well as the free variation. To simplify the matter, only left-anchored THs are presented in the rest of this paper.

All THs, regardless of their segmental makeup, consist of a binary trochaic foot, i.e. [[□□]$_{F}$]$_{PrWd}$, where the suffix *-i* heads the weak syllable in the foot. When the base name is too long to fit into the template, some segments are truncated (9a). CVC names do not undergo truncation, since, together with the suffix they fit perfectly into the template (9b).[11]

(10) Template satisfaction

a. Names requiring truncation			b. Names fitting perfectly	
menáxem	mén-i	<axem>	rút	rút-i
ʔodélya	ʔód-i	<elya>	ʃír	ʃír-i
koxáva	kóx-i	<ava>	dan	dán-i
míryam	mír-i	<yam>	róm	róm-i
tíkva	tík-i	<va>	tál	tál-i
mázal	máz-i	<al>	gád	gád-i
xána	xán-i	<a>	rán	rán-i

[11] There is one CV name in Hebrew, *li*, for which the reported hypocoristics are *láli* and *líli*.

This type of truncation, called templatic truncation or fake truncation (Bat-El 2002) is found in hypocoristics and clippings in various languages (see examples at the end of the section).

The disyllabic structure of THs is expressed by two markedness constraints: PrWd=Ft and FtBin.[12] PrWd=Ft limits the prosodic word to no more and no less than one foot, and thus rules out prosodic words with unparsed syllables ($*[\sigma[\sigma\sigma]_F\sigma]_{PrWd}$) or two feet ($*[[\sigma\sigma]_F[\sigma\sigma]_F]_{PrWd}$). FtBin limits the foot to no more and no less than two syllables, and thus rules out monosyllabic feet ($*[\sigma]_F$), as well as feet with more than two syllables ($*[\sigma\sigma\sigma]_F$). These two constraints are undominated in THs, and thus the only possible structure is $[[\sigma\sigma]_F]_{PrWd}$. The constraint assigning foot prominence is Trochee, whose dominance with respect to Iamb makes the latter ineffective. These three markedness constraints PrWd=Ft, FtBin, and Trochee thus define the structure $[[\acute{\sigma}\sigma]_F]_{PrWd}$.

Due to the size limit imposed by PrWd=Ft and FtBin, truncation of excessive segmental material is inevitable. Therefore these constraints have to outrank the faithfulness constraint Max, which prohibits deletion of segments from the base name. The constraint ranking is thus as follows:

(10) Constraint ranking for templatic hypocoristics

PrWd=Ft, FtBin, Trochee >> Max

Notice that the constraints FtBin and Trochee dominate FinalStress, as they do in the ranking of the stress pattern of the trochaic stems in (7b), repeated below:

(11) Constraint ranking for trochaic stems stems

FtBin, IdentStress >> AlignR(Ft, PrWd), Trochee >> FinalStress

IdentStress and AlignR(Ft, PrWd) are also respected by THs. As THs consist of one foot only, this foot is obviously aligned with the right edge of the prosodic word, thus

[12] There are several alternative proposals for the constraints defining the minimal word; see Ussishkin (2000) and references therein.

respecting ALIGNR(Ft, PrWd). Due to the truncation imposed by the ranking PRWD=FT >> MAX, a TH preserves only one syllable of the base name. If this syllable is stressed in the name, IDENTSTRESS is respected (e.g. *yónatan – yón-i*). If any other syllable is stressed in the name, IDENTSTRESS is vacuously respected (e.g. *cipóra – cíp-i*), since the stressed syllable of the base name is not present in the hypocoristic (recall that IDENTSTRESS is relevant only if a syllable corresponding to the stressed syllable in the base name is present in the output). Thus, the constraint ranking associated with the limited class of trochaic stems, is also associated with THs. As will be shown in §4, it is also associated with non-THs.

As the discussion above suggests, Hebrew THs do not display the characteristics associated with the non-concatenative morphology of Semitic languages. Semitic-type hypocoristics, as shown in Zawaydeh and Davis (1999) and Davis and Zawaydeh (2001) for Jordanian Arabic, involve the characteristics of Semitic morphology. The characteristics of Semitic-type morphology is the combination of apophony across paradigm (or fixed vocalic patterns within a category) and prosodic restrictions (Bat-El 2002b). This combination is, indeed, exhibited by the Jordanian Arabic hypocoristics, which display a fixed prosodic structure and vocalic pattern in the shape CaCCuuC (e.g. *basma – bassuum*, *xaaled – xalluud*, *samiira – sammuur*, *maryam – maryuum*).

Hebrew THs are similar to THs found in languages that do not display a Semitic-type morphology (the list of languages, the types of TH, and the references are by no means exhaustive). TH in Spanish (Piñeros (1998, 2000) take the shape of the binary syllabic trochaic foot, usually without a suffix (e.g. *armándo – árma*, *manwél – mánu*, *elβíra – élβi*). English TH (Weeda 1992, Benua 1997, Zadok 2002) come in two major shapes, a bimoraic foot without a suffix (e.g. *səmǽnθə – sǽm*, *róbert – rób*, *məlísə – mɛ́l*) and a disyllabic foot including the suffix *-i* (e.g. *səmǽnθə – sǽmi*, *róbert – róbi*, *nəkóʊl – níki*). The latter type looks exactly like Hebrew THs, as well as German (Itô and Mester 1998, Lee-Schoenfeld 2000; e.g. *andréas – ándi*, *édmond – édi*, *gabriéla – gábi*, *háns – hánsi*), especially because of the identical suffix, because otherwise it is like hypocoristics in many other languages. Serbo-Croation THs (Zadok 2002) also have a trochaic disyllabic foot, with various gender-sensitive and gender-neutral foot internal suffixes (e.g. *yélena* – *yél-a*, *yél-ka*, *dúʃanka* – *dúʃ-a*, *míroslav* – *mír-an*, *mír-ko*, *vládimir* – *vlád-a*, *vlád-an*). In Japanese THs (Mester 1990, Poser 1990), the binary foot is moraic, and the suffix *-tʃan* is external to the foot (e.g. *keiko, keizi* – *kei-tʃan*, *taroo* – *taro-tʃan*, *yuuzi, yuuko* – *yuu-tʃan*, *gen* – *gen-tʃan*). The general LHL accent pattern in Japanese is compatible with a right-aligned trochaic foot. THs in Nootka (Stonham 1994) are also disyllabic, with a foot-internal suffix *-ʔis*.[13] The vowel in the first syllable is always long (and mid), regardless of the length (and height) of the vowel in the base name. Since stress in Nootka falls on the leftmost heavy syllable, the foot is trochaic (e.g. *hapu:ɬ* – *he:p-ʔis*, *hu:ħinkʷap* – *ho:ħ-ʔis*, *waʃtquaʔa* – *we:ʃtq-ʔis*, *ɬučħaʔaqs* – *ɬo:čħ-ʔis*).

The generalization obtained from the above mentioned languages, including Hebrew, are that the template of a TH is a binary trochaic foot, either moraic or syllabic, with or without a suffix. When the foot is moraic, the TH has an external suffix (Japanese) or does not have a suffix at all (English *sǽm*), since the moraic foot is too small to host sufficient material from the base name plus a suffix (especially when the suffix is CVC, like in Japanese). When the foot is syllabic, the TH has an internal suffix (Hebrew, English *sǽmi*, German, Serbo-Croatian, Nootka), or does not have a suffix at all (Spanish).

[13] Nootka's syllables allow a single consonant in the onset and as many as three non-moraic consonants in the coda. The first syllable of the TH corresponds to the first syllable of the base plus as many consonants as possible up to the next base vowel (subject to surface structure constraints). Nootka's hypocoristics could be viewed, like the Japanese ones, as consisting of a moraic foot and an external suffix. However, Stonham (1994) provides independent evidence for the role of the binary syllabic foot in Nootka.

4. Non-templatic hypocoristics

Non-THs are entirely faithful to their base name. There is no truncation involved, and they thus consist of the base name plus a suffix, which can be either *-i*, *-le*, or both *-i-le*. In addition, stress resides on the same syllable as in the corresponding base name (e.g. *cipóra – cipóra-le*, *mixál – mixál-i*, *mixál-i-le*).

The absence of truncation in non-THs suggests the ranking MAX >> PRWD=FT, exactly the opposite of what is found in THs (10). The preservation of stress in the same position as in the full name indicates the effect of IDENTSTRESS (4a), which requires an output syllable corresponding to a stressed input syllable to be stressed. Recall that IDENTSTRESS is also active in the stress system of Hebrew nouns (see §2.1), where it preserves lexical stress and renders its immobility.

As noted in §2.2, many names in Hebrew have variable stress, either ultimate and penultimate (e.g. *davíd* ~ *dávid*) or ultimate and antepenultimate (e.g. *mordexáy* ~ *mórdexay*). However, such a variation never appears in non-TH (and of course not in TH either). That is, although both *xaná* and *xána* are possible names, only *xána-le* is a possible Non-TH; **xaná-le* is illformed. Given that many names have variable stress, the invariable position of stress in non-THs cannot be predicted on the basis of the base name's stress, although it has to be faithful to it. Rather, stress in non-THs is predictable on the basis of the suffix: non-THs with *-i* bear penultimate stress, and non-THs with *-le* bear antepenultimate stress.[14] Notice that this generalization also holds for THs, which end in *-i* and bear penultimate stress. THs cannot take the suffix *-le*, since they must be disyllabic and *-le* requires antepentultimate stress (i.e. at least three syllables).

In terms of foot structure, the suffix *-i*, heads the weak syllable of a binary trochaic foot (as in THs), and the suffix *-le* attaches to the right edge of a binary trochaic foot. These properties define the subcategorization of the suffixes

[14] The only two counterexamples I know of are *ʔófer* - *ʔófer-i* and *tómer – tómer-i*, where *-i* behaves like *-le* in terms of foot structure.

(12) The subcategorization of the hypocoristic suffixes

a. $[\ldots[□C\text{-}i]_F]_{PrWd}$ b. $[\ldots[□□]_F\text{-le}]_{PrWd}$

$[do[rón\text{-}i]_F]_{PrWd}$ $[ci[póra]_F\text{-le}]_{PrWd}$

The structures in (12) are obligatory, but so is faithfulness to the position of stress in the base name (i.e. IDENTSTRESS is undominated). When these two requirements are in conflict, a non-TH cannot be formed. However, there are very few names that cannot have a non-TH. This is due to the two possible structures in (12) and to the variable stress in many of the names.

The examples in (13) below illustrate the various strategies that allow accommodating these two requirements, i.e. IDENTSTRESS and the subcategirizations in (12). The examples include di- and trisyllabic base names with invariable stress (a-d) and variable stress (e,f), arranged according to the position of stress and whether they end in a consonant or a vowel. The illformed hypocoristics are shaded. Notice that every hypocoristic with *-i* (second column of hypocoristics) can be followed by *-le* (rightmost column), since *-i* resides in a trochaic foot to which *-le* can attach ($[\ldots[□C\text{-}i]_F\text{-}le]_{PrWd}$). Similarly, *-le* can take a TH as a base (not exemplified here), deriving a non-templatic hypocoristic (e.g. *cipóra* ---> *cíp-i* ---> *cíp-i-le*).

(13) Possible non-templatic hypocoristics

Base names			Hypocoristics		
□□]	C]	a. ʔerán	*ʔerán-le	ʔerán-i	ʔerán-i-le
	V]	b. hilá	*hilá-le	*hilá-i	*hilá-i-le
□□]	C]	c. ʔeliézer	ʔeli(ʔ)ézer-le	*ʔeli(ʔ)ézer-i	*ʔeli(ʔ)ézer-i-le
	V]	d. cipóra	cipóra-le	*cipóra-i	*cipóra-i-le
□□] ~	C]	e. dávid ~	dávid-le	*dávid-i	*dávid-i-le
□□]		e'. davíd	*davíd-le	davíd-i	davíd-i-le
□□□] ~	C]	f. yónatan ~	*yónatan-le	*yónatan-i	*yónatan-i-le
□□□]		f'. yonatán	*yonatán-le	yonatán-i	yonatán-i-le

A name with a fixed ultimate stress can take *-i* or *-i-le* (13a), and a name with a fixed penultimate stress can take only *-le* (13c,d). Other options are not available; stress cannot shift due to the undominated IDENTSTRESS (*ʔerán* – **ʔéran-le*) and a segment (the final vowel) cannot delete due the undominated MAX (*cipóra* – **cipór-i*).[15]

However, a vowel-final name with an ultimate fixed stress (13b) cannot take any suffix. It cannot take *-le* due to its subcategorization, nor can it take *-i* (and thus *-i-le*) due to the requirement for an onset. Onsetless syllables in a non-TH are possible only if present in the full name (e.g. *ʔa.ú.va-le*), but not in derived environment (**hilá-i*). To circumvent the problem, segmental material can be added, either via reduplication (*hilá* – *hilá**l**-i*), or with the addition of *k* (e.g. *roʔí* – *roʔí**k**-i*). The power of ONSET is even stronger in THs, where hiatus in the base name is resolved by vowel deletion (e.g. *ʔa.(h)ú.va* – *ʔúv-i*, *ʔé(h)ud* – *ʔúd-i*; see §2.2). This distinction is due to the different status of MAX, i.e. undominated in non-THs, but dominated by PRWD=FT and FTBIN in THs.

The other cases in (13) manipulate the variable stress available in the base names. When the variable stress is ultimate and penultimate (13e), *-i* selects the base with the ultimate stress (*davíd-i*), and *-le* selects the base with penultimate stress (*dávid-le*).[16] When the variable stress is antepentultimate and ultimate (13f), *-i* can attach to the base with the ultimate stress (*yonatán-i*), and *-le* can attach only after *-i* (*yonatán-i-le*).

As proposed in McCarthy and Prince (1993), affixes are assigned by alignment constraints, which specify the unit to which an affix is aligned (prosodic or morphological), as well as the edge (left or right). As McCarthy and Prince indicate, alignment constraints of affixation may place the affixes in two different positions with respect to the unit to which they attach: within the unit ("align-IN-unit") or outside the unit ("align-TO-unit"). This is actually the distinction between the suffixes *-i* and *-le*, as stated by the following constraints of affixation.

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[15] It looks as if in cases such as *xána* – *xán-i*, *dáfna* – *dáfn-i* and *ʃlómo* – *ʃlóm-i* there is vowel deletion. However, only disyllabic names exhibit such vowel deletion, and therefore it is safe to assume that these are THs, and there is no vowel deletion in non-templatic hypocoristics.

[16] It should be noted that there is slight preference for hypocoristics without a coda in the penultimate syllable, which means that some speakers hesitate to accept *dávid-le* (13e) and *ʔeliézer-le* (13c).

(14) ALIGN(Aff) constraints

a. ALIGN (*i*, R, Ft, R) – Align-IN-foot
Align the right edge of *i* with the right edge of a foot (…*i*]$_F$)

b. ALIGN (*le*, L, Ft, R) – Align-TO-foot
Align the left edge of *le* with the right edge of a foot (…]$_F$*le*)

The alignment constraints state the position of the suffix with respect to the foot. The size of the foot and its prominence are determined by the undominated markedness constraints FTBIN (4a) and TROCHEE (4e). These two constraints, together with the ALIGN(Aff) constraints (14), define the subcategorization of the suffixes.[17] I assume, following Russel (1995, 1999), that the affixes are introduced only in the constraints, i.e. they are not given as part of the input.

Notice that the subcategorization is also responsible for the fixed order of the suffixes, as in *davíd-i-le*, since *-le* is attached to the foot in which *-i* resides. This order could be also attributed to ONSET, which rules out the sequence **-le-i* due to the missing onset. Actually, it may look as if the different behavior of the suffixes could be attributed to the effect of ONSET, given the prosodic distinction of vowel-initial (*-i*) vs. consonant-initial (-l*e*). However, as will be argued at the end of this section, an analysis without subcategorization fails to produce multiple outputs.

The ALIGN(Aff) constraints are violated when the subcategorization of the suffix is not met, i.e. when the suffix does not appear in its designated position with respect to the foot (e.g. **[xa[ná-le]]*, **[[dávi]d-i]*). In addition, in order to rule out the null candidate, i.e. the candidate that does not take any of the suffixes, a candidate gets a violation mark for a missing suffix. Thus, the null candidate gets two violation marks, one under ALIGN(*le*) and another under ALINE(*i*), and a candidate with one suffix gets only one

[17] The notion of subcategorization has been introduced in Chomsky (1965) to indicate the syntactic frame of lexical categories (e.g. a transitive verb is subcategorized for an NP complement). In morphology, sucategorization specifies, in lexical entries (Lieber 1980) or morphological rules (Kiparsky 1982), the category and features of the stem to which an affix can be attached (e.g. the English suffix *-ee* is subcategorized for transitive verbs; see Aronoff 1976 for further restrictions). Subcategorization can prescribe a subset of items with specific properties, and/or enforce changes such that the item will satisfy the subcategorization (see Alderete 1999). This distinction can be obtained by constraint interaction.

violation mark. However, under this system of violation marking, a candidate with two suffixes, like *davíd-i-le*, which does not get any violation marks, wins over the candidates with one suffix. Of course, this is an undesirable result, since X-*i*, X-*le*, and X-*i-le* are equally wellformed. That is, only the violation of both ALIGN(Aff) constraints is critical; otherwise, there is no difference between candidates violating only one of the constraints or none.

Such a state of affairs calls for the operation of constraint conjunction, first proposed in Smolensky (1995, 1997). This operation allows the conjoined constraint to have the power that each of its members alone does not have. I assume that the two constraints in (14) appear as the conjoined constraint ALIGN(*i*)&ALIGN(*le*), which is violated only when both its members are violated. The literature on constraint conjunction (see Itô and Mester 2003 and references therein) acknowledges that this operation is given more power than is actually attested, as not every two constraints can be conjoined. It has been thus proposed that the conjoined constraints have to be specified for a domain shared by the two constraints. In the case under consideration here, the domain is morphological, i.e. hypocoristics. The conjoined constraint is thus ALIGN(*i*)$\&_{\text{M:Hypo}}$ALIGN(*le*), where M:Hypo (M for morphology) stands for the shared domain.

The table below is designed to illustrate how the conjoined constraint operates, thus ignoring all other constraints and the candidates they rule out. There are two possible inputs for *david*, one with penultimate stress and another with ultimate stress. The violation marks for each member of the conjoined constraint are in parentheses, accompanied by an indication whether the violation is due to the absence of a suffix (A) or to an unfulfilled subcatgorization (S). The violation marks for the conjoined constraint are in the middle.

(15) *dávid ~ davíd – davíd-i*, *dávid*-le, dávid-*i-le*

dávid, davíd		Align(*i*)&Align(*le*)
a.	[dávi]d-i	$(*^{S})$ * $(*^{A})$
b. ☞	da[víd-i]	$(*^{A})$
c. ☞	[dávid]-le	$(*^{A})$
d.	da[víd-le]	$(*^{A})$ * $(*^{S})$
e. ☞	da[víd-i]-le	
f.	da[víd-le]-i	$(*^{S})$ * $(*^{S})$
g.	dávid	$(*^{A})$ * $(*^{A})$

The candidates that violate only one member of the conjoined constraint (b, c), or none (e), satisfy the conjoined constraint. The candidates that violate both members (a, d, f, g), regardless of the reason of the violation, violate the conjoined constraint. Notice that the null candidate (g) is ruled out, as it violates both members of the conjoined constraint, and that the candidate with two suffixes (e) is as good as the candidates with one suffix (b, c).

Taking into account a larger variety of candidates and constraints, the following tableau presents the selection of a non-TH from a base name with a fixed ultimate stress. To reduce cluttering, it does not include the unviolable constraint Max as well as the low-ranked violated one, PrWd=Ft.

(16) *ʔerán – ʔerán-i*, *ʔerán-i-le*

ʔerán		IdentStress	FtBin	Trochee	Align(*i*)&Align(*le*)
a. ☞	ʔe[rán-i]				$(*^{A})$
b.	[ʔéran]-i	*!			$(*^{S})$ * $(*^{A})$
c.	[ʔéran]-le	*!			$(*^{A})$
d.	ʔe[rán]-le		*!		$(*^{A})$
e.	ʔe[rán-le]				$(*^{A})$ *! $(*^{S})$
f. ☞	ʔe[rán-i]-le				
g.	[ʔerán]			*!	$(*^{A})$ * $(*^{A})$

The suffix *-le* cannot attach directly to a name with fixed ultimate stress, due to either IdentStress (c), FtBin (d), or Align(*i*)&Align(*le*) (e).

Similarly, as shown below, *-i* cannot attach to a base name with fixed penultimate stress (a, b), and therefore the candidates with *-i-le* (e, f) are also illforomed (MAX, FTBIN and TROCHEE are ignored).

(17) *ʔayélet – ʔayélet-le*

ʔayélet	IDENTSTRESS	ALIGN(*i*)&ALIGN(*le*)		
a. ʔaye[lét –i]	*!			(*A)
b. ʔay[élet]-i		(*S)	*!	(*A)
c. ☞ ʔa[yélet]-le		(*A)		
d. ʔaye[lét-le]	*!	(*A)	*	(*S)
e. ʔay[élet]-i-le		(*S)	*!	(*S)
f. ʔaye[lét-i]-le]	*!			
g. ʔa[yélet]		(*A)	*!	(*A)

The tableaux above suggest the following ranking:

(18) Ranking for non-templatic hypocoristics

MAX, IDENTSTRESS, TROCHEE, FTBIN, ALIGN(*i*)&ALIGN(*le*) >> PRWD=FT

MAX, crucially ranked above PRWD=FT, blocks truncation. IDENTSTRESS does not allow shifting stress to accommodate the subcategorization of the suffixes. Nevertheless, the subcategorization must be met given that the conjoined constraint ALIGN(*i*)&ALIGN(*le*) is also undominated. The subcategorization refers to a foot, and this foot is restricted to a binary trochaic foot by the undominated constraints TROCHEE and FTBIN.[18]

While the null candidate (without any suffix) usually loses due to the violation of ALIGN(*i*)&ALIGN(*le*), there are cases where it wins. As noted above, vowel-final names with a fixed ultimate stress lack a non-TH (e.g. *hilá*, *advá*, *naamá*, *ʔidó*, *roʔí*), although there are a few exceptions (e.g. *hiláli*, *roʔíki*). Due to the fixed ultimate stress, such names cannot take *-le*; **híla-le* violates IDENTSTRESS, **hi[lá-le]* does not meet the subcategorization of *-le*, and **hi[lá]-le* violates FTBIN. However, also *-i* cannot attach to

[18] I assume that a single syllable outside the binary trochaic is not footed, i.e. that the prosodic structure of a hypocoristic like *cipóra-le* is $[ci[póra]_F le]_{PrWd}$ rather than $[[ci]_F[póra]_F[le]_F]_{PrWd}$. Thus, the constraint requiring a syllable to be parsed into a foot should be ranked below FTBN. When the foot hosting the suffix is preceded by two syllables, another trochaic foot can be assumed, as in $[[yona]_F[tan\text{-}i]_F le]_{PrWd}$, under the exhaustive footing hypothesis.

such names (**hilá-i*), due to ONSET. As noted earlier, onsetless syllables may appear in full names (e.g. *na.a.má*, and *ʔa.ú.va*), in which case they persist in the hypocoristics (e.g. *ʔa.ú.va.-le*). However, derived onsetless syllables are not acceptable in hypocoristics.

The emergence of ONSET in derived environments and the selection of the null parse as the optimal candidate suggest that ONSET outranks ALIGN(*i*)&ALIGN(*le*). The onsetless syllable could be rescued by epenthesis or deletion, but both are impossible procedures (ignoring the exceptions noted above) since DEP and MAX are ranked above ALIGN(*i*)&ALIGN(*le*).

(19) *ʔadvá* – null parse

ʔadvá	MAX	DEP	ONSET	ALIGN(*i*)&ALIGN(*le*)
a. ʔad.[vá.-i]			*!	
b. ʔad.[vá.C-i]		*!		
c. [ʔád.v-i]	*!			
d. ☞ ʔad.vá				*

The same constraint ranking accounts for the persistence of onsetless syllables in non-derived environments, i.e. when they appear in the base name. In this case, as shown in (20) below, both the null parse (d) and the suffixed form (a), survive DEP and MAX and violate ONSET. Therefore, the lower-ranked ALIGN(*i*)&ALIGN(*le*) gets to select the optimal candidate, the one with the suffix.

(20) *ʔaúva* – *ʔaúva-le*

ʔaúva	MAX	DEP	ONSET	ALIGN(*i*)&ALIGN(*le*)
a. ☞ ʔa.[ú.va.]-le			*	
b. ʔa.[Cú.va.]-le		*!		
c. [ʔú.va.]-le	*!			
d. ʔa[úva]			*	*!

With the addition of the cases where the null parse is optimal, the following rankings are required:

(21) Constraint rankings for non-templatic hypocoristics

DEP MAX	>>	ONSET	Do not insert or delete base segments – stay with onsetless syllables
ONSET	>>	ALIGN(*i*)&ALIGN(*le*)	Avoid onsetless syllables – do not attach suffix
MAX	>>	PRWD=FT	Do not delete base segments – stay with a prosodic word larger than a foot
IDENTSTRESS	>>	ALIGN(*i*)&ALIGN(*le*)	Do not shift stress from its position in the base – stay with a base without a suffix
TROCHEE			Have a trochaic foot
FTBIN			Have a binary foot

The analysis above accounts for the simultaneous selection of several non-THs. It reflects the state of affairs in the language, where different speakers select different forms. However, it is also possible that the same speaker selects different forms on different occasions, or with respect to different people. Therefore, the simultaneous selection of non-THs must be maintained for both inter-language and inter-speaker variation.

There is an alternative analysis, which relies on the prosodic distinction between the two suffixes, vowel-initial (-*i*) vs. consonant-initial (-*le*). This analysis does without constraint conjunction and subcategorization, but it cannot maintain the simultaneous selection achieved by the analysis proposed above. This analysis, to which I will refer as the alignment analysis (as opposed to the earlier subcategorization analysis), does not assign any properties to the suffixes beyond simple suffixation, i.e. ALIGNR(Aff, Stem). The different behavior of the suffixes is derived from their different structure, V vs. CV, by two constraints of the alignment family, one being faithfulness and the other being markedness. The faithfulness constraint, ANCHOR, requires alignment between the right edge of the prosodic word in the input (base name) and a right edge of a foot in the output (hypcoristic). The markedness constraint ALIGN, which refers only to the output, requires alignment between the right edge of the prosodic word and the right edge of a foot.

(22) ANCHORR(PrWd^I, Foot^O) ALIGNR(PrWd^O, Foot^O)

Input: …□$_i$]$_{PrWd}$

Output: …□$_i$]$_F$ …□]$_F$]$_{PrWd}$

The ranking for both suffixes is ANCHORR >> ALIGNR, but for each suffix another constraint turns to select the optimal candidate. As shown below, when *-i* is added (23a), either candidate violates ANCHORR, since the final coda of the base name has to surface as the onset of the vocalic suffix, due to the higher-ranked constraint ONSET.[19] The latter, as in the subcategorization analysis, has to outrank ALIGN(Aff) in order to account for the null parse for base names with final stressed vowel (**hilá-i*). Consequently, ALIGNR gets to select the optimal candidate. When the suffix *-le* is added, there is no resyllabification, as the suffix begins with a consonant, and the dominant constraint ANCHORR selects the optimal candidate. Notice that base names with variable stress are both available as bases. The appropriate base is not selected by the suffix but rather by the constraint ranking (all candidates respect FTBIN, TROCHEE, MAX, DEP, and IDENTSTRESS; || marks the right edge of the input prosodic word).

(23) a. ONSET >> ANCHORR

[dávid]$_{PrWd}$, [davíd]$_{PrWd}$	ONSET	ALIGN(Aff)	ANCHORR	ALIGNR
a. ☞ [da[víd||-i]$_F$]$_{PrWd}$			*	
b. [[dávi]$_F$d||-i]$_{PrWd}$			*	*!
c. [[dávid||]$_F$-i]$_{PrWd}$	*!			*
d. [[dávid||]$_F$]$_{PrWd}$		*!		

b. ANCHORR >> ALIGNR

[dávid]$_{PrWd}$, [davíd]$_{PrWd}$	ONSET	ALIGN(Aff)	ANCHORR	ALIGNR
a. [da[víd||-le]$_F$]$_{PrWd}$			*!	
b. ☞ [[dávid||]$_F$-le]$_{PrWd}$				*
c. [[dávid||]$_F$]$_{PrWd}$		*!		

[19] While a syllable can be dominated directly by the prosodic word, in violation of the Strict Layer Hypothesis (Selkirk 1984), it cannot be split between two feet.

The problem with this approach is that each suffix has to be evaluated independently. Within a single evaluation, as shown below, only one of the three possible hypocoristics is selected optimal.

(24) The wrong prediction of a single evaluation

[dávid]$_{PrWd}$ / [davíd]$_{PrWd}$	ONSET	ALIGN(Aff)	ANCHORR	ALIGNR
a. √ [da[víd||-i]$_F$]$_{PrWd}$			*!	
b. ☞ [[dávid]$_F$-le]$_{PrWd}$				*
c. √ [da[víd||-i]$_F$-le]$_{PrWd}$			*!	*

Cand-c, with the two suffixes, is harmonically bound, as it violates both ANCHORR and ALIGNR; the right edge of the foot is not aligned with the right edge of the prosodic word (violation of ALIGNR), and the right edge of the input prosodic word is not aligned with the right edge of the foot (violation of ANCHORR). It thus has no chance against the other two candidates. Cand-b, with *-le*, is better than cand-a, with *-i*, due to the ranking ANCHORR >> ALIGNR, which was established in (23b).

As shown above, the alignment approach, which does away with subcategorization, fails to account for the fact that all the candidates in (23) are equally wellformed, and they are all available to the same speaker. Indeed, as noted in footnote 1, *-i* and *-le* do not have the same status in the language, and it is thus possible to assume independent evaluations. However, the speakers that use *-le* also use *-i-le*, which, as shown in (24), has no chance to win against *-le*.

Under the subcategorization analysis promoted here, it is the task of the constraint ranking to determine which suffix is attached to which forms of the base name. That is, a single ranking provides all the possible non-THs, and the basis for selecting one of them in a particular context is at most pragmatic, but certainly not phonological or morphological.

5. Conclusion

It is not at all surprising that TH are often associated with child's speech. At the Minimal Word stage, children produce words that fit the binary trochaic foot. This is true for languages such as English and Dutch (Fikket 1994, Demuth and Fee 1995 and Demuth 1995, 1996), where the binary trochaic foot is prominent. However, in Hebrew too, where there is no evidence of one specific foot (see §2.1), the acquisition path reflects the preference of the binary trochaic foot (Ben-David 2001, Adam 2002),

Hypocoristics, like the children's words at the Minimal Word stage, reflect the emergence of the unmarked binary trochaic foot. It has been shown that while FTBIN could be high-ranked in the grammar of adult speakers of Hebrew, the effect of TROCHEE is rather limited, mostly to trochaic stems. It is very unlikely that the presence of the trochaic stems in the language is the source of the structure of the hypocoristics. Rather, it is the universally unmarked status of the binary trochaic foot.

The binary trochaic foot in Hebrew hypocoristics is not limited to THs, where it affects the size and the stress pattern. It is also relevant for non-THs, where it is responsible for the stress pattern.

The distinction between templatic and non-templatic hypocoristics is thus reduced to the ranking of PRWD=FT and MAX. In THs, the ranking of these two constraints is PRWD=FT >> MAX, and therefore truncation of segmental material that does not fit into the binary foot is inevitable. In non-THs, the ranking is MAX >> PRWD=FT, and thus truncation is impossible. This limited distinction in the rankings is also responsible for the morphological difference between the two types of hypocoristic, i.e. that THs can take only *-i*, while non-THs can take *-i*, *-le*, or *-i-le*.

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