THE GRAMMATICALITY OF "EXTRAGRAMMATICAL" MORPHOLOGY

Outi Bat-El
Tel Aviv University
obatel@post.tau.ac.il

This paper is concerned with the phonological behavior blends and acronym words in Hebrew. Blends and acronym words are usually considered part of 'extragrammatical' or 'expressive' morphology. For Scalise (1984) and Spencer (1991), extragrammatical morphology seems to mean 'not relevant for a theory of morphology'. Otherwise, there is no explanation why they do not discuss blends and acronym words in their morphology textbooks.[1] However, some studies are particularly concerned with extragrammatical morphology, and how it is to be distinguished from grammatical morphology.

Recent studies devoted to extragrammatical, such as Zwicky and Pullum (1987) and several sections in Dressler and Barbaresi (1994), list the characteristics of extragrammatical morphological phenomena. Some of these characteristics are discussed in section 1. The discussion here leads to the conclusion that the notion of extragrammaticality is relevant probably to pragmatics only. In sections 2 and 3 I provide phonological evidence for the grammaticality of acronym words and blends respectively, suggesting that these phenomenon are phonologically part of the core grammar.

1. ON THE NOTION OF EXTRAGRAMMATICAL MORPHOLOGY

Arguments supporting the distinction between grammatical and extragrammatical morphology consist of lists of properties that characterize extragrammatical morphology (see Zwicky and Pullum 1987, Dressler and Barbaresi 1994, and references therein). In this section I show that properties characterizing extragrammatical morphology can be found also in grammatical morphology (this has not been done in Zwicky and Pullum 1987, although they agree that this situation is conceivable). My discussion leads to the conclusion that there is no single principle, nor even a set of principles that can distinguish between grammatical and extragrammatical morphology.

In section 1.1 below I point out some of the properties that characterize extragrammatical morphology, arguing that (i) these properties can be found in what is conventionally considered grammatical morphology, and (ii) properties characterizing grammatical morphology can be found in what is conventionally considered as extragrammatical. I then mention in section 1.2 some of the problems that arise with the notion of grammaticality continua proposed in Dressler and Barbaresi (1994), and conclude in section 1.3 by specifying the aspects of language in which the notion of extragrammaticality is relevant.

---

[1] Scalise (1984:98 fn.1) says that blends and acronym words are "minor word formation processes" and Spencer (1991:461 fn.16), in a similar fashion, dismisses blends and acronym words as not "of any importance to morphological theory". Scalise and Spencer find these footnotes sufficient to exclude from their morphology textbooks any discussion on extragrammatical phenomena. Spencer, however, provides an exercise on Russian clipped (stub) compounds (pp.346-348), where his questions, such as "[W]hat regularities, **if any**, seem to govern these constructions..." (emphasis mine), seem to suggest the conclusion that there are little or no regularities. In this context I should mention Bauer's (1983, 1988) morphology books, which unlike Scalise and Spencer, do devote an extensive discussion to this type of morphology.

1.1. Similarities between Extragrammatical and Grammatical Morphology

In section 1.1.1 I argue against the claim made in Dressler and Karpf (1995) and Dressler and Barbaresi (1994) that analogical formations and hypocoristics are extragrammatical because they are involv irregular systems. In section 1.1.2 I show that many of the properties usually associated with the notion of extragrammaticality do not characterize blends and acronym words.

1.1.1. *A different prospective on analogical formations and hypocoristics:* One of the characteristics of extragrammatical morphology is that "some principle of morphological grammar is violated" (Dressler and Karpf 1995:101).[2] Analogical formations, for example, "lie outside morphological grammar" because they do not involve morphological rules (Dressler and Barbaresi 1994:39). However, recent studies in Optimality Theory view analogy as correspondence between two surface forms (Benua 1995, Kenstowicz 1995, and McCarthy 1995). These studies are concerned with surface forms that have the same base, but they can be extended to other types of surface correspondence relations (e.g. two surface forms that have the same prosodic template). The point is that two surface forms can function as correspondents as much as underlying and surface forms (McCarthy and Prince 1995). The particular example given in Dressler and Barbaresi (1994) and Dressler and Karpf (1995) is from child language, where a 22 months Austrian boy forms *papapia* on the basis of the Italian exclamation *mamamia*, which is certainly not a common type of analogical formation in adult language.

While discussion of child language is beyond the scope of this paper, we can consider an example of analogy from adult language. In Hebrew, most nouns denoting reading material end in the suffix *-on*: *ʔiton* 'newspaper' *(ʔet* 'time'), *yarxon* 'monthly magazine' (*yerax* 'month'), *švuon* 'weekly magazine' *(šavua* 'week'). The suffix *-on* is a general nominal suffix, as well as diminutive (see Bat-El to appear c). It is clear that there is some type of analogy employed in the formation of nouns denoting reading material, which is based on the common semantic field; nevertheless I do not believe that one would claim that these nouns are extragrammatical (nor that the suffix *-on* carries the property of 'reading material', since this would require providing this general nominal suffix with a very long list of semantic properties). The point is that not only is analogy found in what is commonly considered grammatical morphology, but also that it can be accounted for within a grammatical theory, the same theory that accounts for grammatical morphology (see also Anderson 1992 for discussion of analogical compound formation).

Dressler and Barbaresi (1994:40) claim that "... *Lisa, Liz , Bet* from *Elisabeth* are excluded from grammar, because they are not formed by a rule in any predictable way. *Lizz-y, Bett-y* are included, because they are formed by rule from *Liz* and *Bet*". One may, however, try to expand the grammar beyond affixation to allow the derivation of *Lisa* and *Liz* from *Elisabeth*, probably by employing the notion of Minimal Word (McCarthy and Prince 1986), and in some cases with reference to the peak of the base. A similar example can be drawn from a large group of Hebrew hypocoristics, which consist of two syllables and end in *i*; the left edge of a output is aligned with the left edge of its base (e.g. *cipora - cipi, dan - dani*). However, when the base contains a consonant cluster there seem to be inconsistency; in some cases the cluster is maintained, as in *mordexay - mordi*, while in others it is simplified, as in *tikva - tiki*. Instead

[2] It should be noted, however, the Zwicky and Pullum (1987:338) emphasize that they are not claiming that extragrammatical phenomena "lack regularity or that they are not a proper object of study for linguistics".

of excluding the latter from grammatical morphology, we may want to seek a solution in other grammatical principles. In this case the notion of syllable contact (Vennemann 1988) would be helpful. The heterosyllabic cluster *k.v* violates the Syllable Contact Law (see section 2.2 below) and therefore it is simplified in *tiki*; the heterosyllabic *r.d* cluster in *mordi* is, however, maintained as it respects the Syllable Contact Law. This is just a simple, and obvious example which shows that reference to different universal constraints may dissolve irregularities and rescue a phenomenon from drifting out of grammatical morphology. Moreover, the fact that other hypocoristics in the language involve suffixation alone (e.g. *mixal* - *mixali*) does not render those which involve truncation and other operations extragrammatical.

1.1.2. Extragrammatical properties in blends and acronym words: Also blends are excluded from grammatical morphology because they are formed by a system which involves more irregularities than compounds (Dressler and Barbaresi 1994). This does not seem to be a sufficient reason to dismiss blends from grammatical morphology since derivational morphology is often irregular in one way or another. Moreover, as shown in Bat-El (to appear a,b), the grammar of Hebrew blends is rather regular, where the limited degree of irregularity does not go beyond the familiar degree of irregularity found in derivational morphology (see also Kubozono 1990 for the analysis of blends in English and Japanese).

An indication that acronym words are extragrammatical is that they do not change meaning (Dressler and Barbaresi 1994). This is not entirely true, since an acronym word usually refers to something much more specific than its base. For example, the acronym word *mæd* (MADD) refers to a specific organization, while its base, the phrase *mothers against drunk driving*, is more general. In this context I should compare acronym words with Vietnamese compounds (Thompson 1965), which look exactly like phrases, except that the first element of the compound often carries weak stress. The semantic change found in Vietnamese compounds is similar to that found in some acronyms; a compound refers to something more general (generalizing compounds) or more specific (specializing compounds) than the corresponding phrase. For example, the phrase *bán ghê´* means 'tables and chairs', while the generalizing compound *bàn-ghê´* means 'furniture'; similarly, the phrase *dây thép* means 'electric wire' while the specializing compound *dây-thép* means 'telegram'.

Acronym words, as well as blends, may also change the grammatical category, contrary to Zwicky and Pullum's (1987) claim that extragrammatical morphology does not change grammatical category (their example in this context is expletive infixation such as *Kalam-goddam-zoo*). Acronym words and blends allow almost anything as an input (see below). Thus, when the base is a phrase and the output is a noun the grammatical category is changed. There are also nominal blends, like the Hebrew *daxpor* 'bulldozer', whose base consists of two verbs, *daxaf* 'pushed 3rd pr. sg.' and *laxpor* 'to dig Infinitive', that is, the output does not carry the lexical category of either of the base elements (cf. the exocentric nominal compound *push-up*, composed of a verb plus a preposition).

Zwicky and Pullum (1987) claim that in ideophones "the results of expressive word formation often have special syntactic properties" (p.337). This is certainly not true for blends and acronyms. Blending and acronym word formation usually result in nouns whose function in the syntax of the language does not differ from that of other nouns. As shown in section 1.1.2 below, acronym words can even be the input of grammatical word formation rules.

Another characteristic of extragrammatical morphology listed in Zwicky and Pullum (1987) is that "[R]ules of expressive morphology usually apply quite readily to compound constructions...and even syntactic phrases..." (p. 336). This indeed cannot be accounted

within a grammatical theory that assumes that the syntactic module follows the morphological one. However, the theory should allow syntactic constructions to enter the morphological/lexical component in order to account for phenomena such as idioms and also Hebrew compounds. Hebrew has compounds, which are lexical, and constructs which are syntactic (see Borer 1989). However, as show in Berman and Ravid (1985), Hebrew constructs can drift into the morphological component and become compounds.

I should add that the base of Hebrew acronyms word is not necessarily a compound or a phrase, it can also be a list, as in *sakum* 'cutlery' (SKWM), whose base is *sakin* 'knife', *kaf* 'spoon' *u-mazleg* 'and fork' (see section 1 below). Similarly, the base of Hebrew blends is not always a compound, it can also be two semantically related words (see section 2 below). It is argued in Bat-El (to appear a) that the base of Hebrew blends does not have a head. The absence of lexical head is not necessarily a characteristic of extragrammatical morphology. Appositional compounds, such as English *deaf-mute*, do not have a head and are quite common in Vietnamese for example. Also exocentric compounds, such as English *pickpocket*, do not have a head, though exhibit some type of grammatical dependency, such as predicate-complement.

1.2. The Grammaticality Continua

The properties of extragrammatical morphology mentioned above (which do not cover all the properties that appear in the literature) cannot make a clear distinction between grammatical and extragrammatical morphology. As Zwicky and Pullum (1987) say "we have not said that the properties listed above will never be found attaching to plain morphology. ... [F]or a phenomenon to be classified as expressive morphology, it must have a significant number of the above criterial properties..." (p338).

In the same spirit, Dressler and Barbaresi (1994) assume "continua and/or prototypical differences" (p.45), which are compatible with their theoretical framework of Natural Morphology (see Dressler et al. 1990 and references therein). Consider, for example, Zwicky and Pullum's (1987) property of change in lexical category (see section 1.1.2 above), whose continuum would have at the grammatical (unmarked) edge "different lexical category" and in the extragrammatical (marked) edge "same lexical category". As Dressler and Barbaresi (1994) point out, "[M]orphological naturalness may interact with phonological or syntactic or textual naturalness either in a cooperative or in a **conflicting** way" (p. 45; emphasis mine). For example, expletive infixation is prosodically grammatical (see McCarthy 1982), but, according to Zwicky and Pullum (1987) it is extragrammatical with regard to the property of changing the lexical category (see more on "naturalness conflicts" in Mayerthaler 1981). Such conflict can in fact split one type of word formation within the same language into two, as Dressler and Barbaresi (1994) seem to suggest for English hypocoristics, where *Lizz-y*, *Bett-y* are grammatical while *Liz* and *Bet* are extragrammatical (see section 1.1 above).

What should also be taken into consideration is the naturalness or markedness of a language as a whole. For example, a prototypical morphological property is concatenative word formation (Dressler and Barbaresi 1994:41). Therefore, languages with dominant nonconcatenative morphology, such as Hebrew and some other Semitic languages, are, to begin with, relatively marked. If we then take Hebrew acronym words, which reflect the nonconcatenative nature of the language's morphology (see section 2 below), they would seem

to be more extragrammatical than, say, English acronym words, just because English acronym words do not involve ablaut.[3]

One may suggest that in order to circumvent naturalness conflicts it is necessary to state the properties that characterize naturalness in a universal hierarchy. This will allow us to determine the relative naturalness of morphological phenomena. However, I do not see any independent principle which would determine the hierarchy, that is, why, for example, pragmatic naturalness should outrank phonological naturalness? As for Zwicky and Pullum's (1987) proposal that an extragrammatical phenomenon should have "a significant number" of the listed properties, one may simply ask what constitutes a significant number.

1.3. Conclusion

As can be seen from the discussion above, the distinction between grammatical and extragrammatical morphology is not straightforward. However, before searching for further support for this distinction we may want to ask a very basic question: Is the distinction between grammatical and extragrammatical morphology is relevant for the grammar? That is, are there phonological rules which affect only extragrammatical forms?[4] Are there affixes which are attached only to extragrammatical forms? Are there syntactic structures which are found only with extragrammatical forms?

It is possible that the notion of extragrammaticality is relevant only to pragmatics. Dressler and Barbaresi (1994) are concerned with morphopragmatics, and Zwicky and Pullum's (1987) criteria are mostly pragmatic in nature. It is probably the restricted context in which these forms are used, and the specific population that manipulates them that characterize blends, acronym words, ideophones, clipped compounds etc. as extragrammatical. Thornton (1993), for example, points out that blends represent between 0.5-1% of Italian neologisms. She believes that "the reason for coining blends is semantic rather than morphological" (p. 148), since most Italian blends refer to names of companies, associations, synthetic textiles and chemicals, etc. Similarly, Hebrew acronym words are very common in army and banking vocabulary, though they are used in other contexts as well.

What I believe to be a true extragrammatical phenomenon, or more precisely a non-grammatical phenomenon, is language games, which although they manipulate grammatical structures, employ morphological operations which do not exist in natural languages (e.g. shifting a word final syllable to the beginning of the word, or inserting a phonological unit after every syllable in a word). In their study of Japanese reversing argot, Itô, Kitagawa, and Mester (1996) emphasize that the constraint which accounts for the reversal operation "is responsible for the fact that argot formation in some respects steps beyond the formal options otherwise encountered in the phonologies of natural languages ... by extending the parameters

---

[3] It is not that the same phenomenon cannot be grammatical in one language and extragrammatical in another. In the distinction between inflection and derivation, Anderson (1982, 1992) shows that diminutives in Fula are inflectional, since they are relevant to the syntax, while they are derivational in other languages. However, the apparent grammaticality distinction between acronym words in Hebrew and English does not seem to follow from an independent principle, as in the case of the distinction between inflection and derivation (see also Borer 1984).

[4] It seems that the fact that the vowels *e:* and *o:* in Nootka (Vancouver Island) appear only in hypocorystics, may suggest that this word formation is extragrammatical. However, as shown in Stonham (1994), these vowels appear also in vocatives (p. 119) and in particular in loan words (p. 89). It is very unlikely that adjustment of the vowels of the source language would result in vowels that are not part of the system of the borrowing language.

of a certain grammatical constraint **beyond its natural-language limitations**" (pp.29-30; emphasis mine).

I argue in the rest of the paper that phonological (and some morphological) properties of two alleged extragrammatical phenomenon suggest that the notion of extragrammaticality is not relevant to the phonological component. The argument is supported by some phonological properties of Hebrew acronym words and blends, which reveal that the phonology of these word formation types is part of the core grammar, much more so than many other words in the language about which there is no doubt that they are part of the grammatical morphology.

1. ACRONYM WORDS

Acronym words (AWs) are acronyms pronounced as words. They should be distinguished from acronyms (abbreviations), which are pronounced by their letters (e.g. FBI and CIA). Every AW has corresponding base and acronym, but not every acronym has a corresponding AW (e.g. FBI). The base of an AW can be a compound, a phrase, or a list. Some examples from English are given below:

(1)

AW	Acronym	Base elements
pɪn	PIN	Personal Identification Number
neyto:	NATO	North Atlantic Treaty Organization
vat	VAT	Value Added Tax
wɪkfl̩/wɪkfʊl/wɪkfɪl	WCCFL	West Coast Conference on Formal Linguistics
fʊlsm	FLSM	Formal Linguistic Society of Mid-america

The discussion in this section presents some phonological phenomena which appear in Hebrew AWs (see Bat-El 1994b for a detailed analysis of Hebrew AWs). In section 1.1 I argue that AWs behave phonologically and morphologically like other words in the language: Phonologically, the distribution of glides and high vowels in Hebrew AWs is consistent with their distribution elsewhere in the language (1.1.1). Morphologically, AWs can function as input to word formation rules (1.1.2). In section 1.2 I discuss the emergence of the NoComplex constraint in Hebrew AWs, showing that in this respect the phonology of AWs is less marked than that of other words.

1.1. Acronym Words are Words

1.1.1. The distribution of glides and high vowels: The phonology of Hebrew AWs is not inconsistent with the phonology of the language. For example, the distribution of glides and high vowels in Hebrew AWs is identical to that in other words.

Orthographic glides usually appear as consonants in word initial position, and as vowels elsewhere: orthographic front glide (Y) appears as *y* in word initial position and as *i* elsewhere, and orthographic back glide (W) appears as *v* in word initial position and as *o* or *u* elsewhere (I am not concerned here with the distinction between *o* and *u* as a reflection of W).

(2)

	Orthography	Word	
a. Word initial:	YLD	yeled	'boy'
	WRD	vered	'rose'
b. Word medial:	KYR	kir	'wall'
	XWT	xut	'string'
	KWL	kol	'voice'

c. Word final:	DLY	dli	'bucket'
	BNW	banu	'they built'
	ŠMW	šmo	'his name'

Exactly the same distribution is found in Hebrew AW (see Appendix 1 for the acronym's base).

(3)

	Acronym (orthography)	AW	
a. Word initial:	YXB	yaxab	'construction unit'
	WXK	vaxak	'commission of inquiry'
	WLTM	valtam	'army reserves coordination committee'
b. Word medial:	CYM	cim	'Israeli commercial fleet'
	SKWM	sakum	'cutlery'
	YWŠ	yoš	'Judah and Samaria'
c. Word final:	RŠY	raši	'a name of a rabbi'
	?XY	?axi	'a navy ship'
	BYLW	bilu	'a name of a pioneer group'

The examples in (3) show that AWs are phonologically indistinguishable from other words. Apparently, since AWs do not have any phonological idiosyncrasy, speakers may occasionally perceive an AW as a non-AW. For example, the word *samal* "sergeant" is originally an AW, but it has a morphological and phonological behavior typical to a non-AW (and it is also written as a non-AW, i.e. without a single quote).

Moreover, the generalization regarding the distribution of glides and vowels has some counter-examples in non-AW words (where the front glide surfaces as a glide in some constructions); there are, however, no such counter-examples in AWs. This is a case of the emergence of the unmarked which will be further discussed in section 1.2 below.

1.1.2. AWs as bases in word formation:: Also morphologically AWs behave like non-AWs. The examples below demonstrate that AWs can host suffixes.

(4)

Acronym	AW		Suffixed AW	
XK	xak	'parliament member ms.'	xak-it	'parliament member fm.'
PLMX	palmax	'shock troops'	palmax-nik	'a member of the Palmax ms.'
			palmax-nik-it	'a member of the Palmax fm.'
MXT	maxat	'brigadier ms.'	maxat-it	'brigadier fm.'
			maxat-im	'brigadier ms.pl.'
?WM	?um	'United Nations'	?um-nik	'a member of 'United Nations ms.'
?BM	?abam	'UFO'	?abam-im	'UFO pl.'

An AW can function as an input in word formation also in the formation of other AWs and of denominal verbs. An AW can participate as one of the elements in an acronym base. For example, the base of the AW *galac* 'the army radio station' (GLC) is *GaLey Cahal*, where *cahal* 'Israeli Defense Army' (CHL) is itself an AW. Similarly, an AW can function as a base of a verb (see Bat-El 1994a for the formation of denominal verbs in Hebrew). For example, the AW *dox* (or *du^{a}x*) 'report' (DWX) is the base of the verb *dive^{a}x* 'to report' and *bablat* 'baloney' (BBLT) is the base of the verb *biblet* 'to talk baloney'.[5]

[5] The diphthong *V^a* in *du^{a}x* and *divi^{a}x* is not related to the formation of AWs; it appears before *x* which corresponds to the historical *ħ*.

Thus, discussion above shows that the structural properties of AWs are indistinguishable from those of other words in the language; they look like words and behave like words. Also their syntactic behavior does not distinguish them from other words; they can be inserted in any lexical position which matches their lexical category, and, as Elizabeth Ritter (p.c.) pointed out, they are specify for gender as any other noun in the langauge.

1.2. The Emergence of the UNMARKED: NO COMPLEX ONSET

An AW in Hebrew consists of the minimal number of CV(C) syllables that can accommodate all the acronym's consonants.

(5)

Acronym	AW	
XK	xak	'parliament member'
MTX	matax	'foreign currency'
BBLT	bablat	'baloney'
RMTKL	ramatkal	'chief of general staff'

As shown in section 1.1.1 above, when the acronym includes a medial or final glide, the nucleus dominates a high vowel (though the back glide may surface as either *u* or *o*). Other AWs usually include the vowel *a*, and sometimes *e* (e.g. *ʔešel* 'food and lodging' (ʔŠL). It should be noted that *a* and *e* are of the highest frequency in Hebrew. The fact that AWs tend to involve these vowels can also be viewed as the emergence of the unmarked (where markedness here is not necessarily related to underspecification). The appearance of only *a* or *e* in the nucleus position in Aws (where no glide is involved) coincides with the morphological nature of Hebrew, where the vocalic pattern of a word is restricted. However, the vocalic patterns of AWs is much more limited than that of other nouns, and even than that of verbs (whose vocalic pattern is more restricted than that of nouns). This is, again, the emergence of the unmarked: restrictions on vocalic patterns, which are typical of Hebrew morphology, are even stronger in AWs.

The strongest case of the emergence of the unmarked in AWs is manifested in the syllable onset. Modern Hebrew nouns allow complex onsets, and thus violate the universal constraint NOCOMPLEX, which prohibits more than one element in a syllabic position (Prince and Smolensky 1993).

(6)

tšuva	'answer'
tguva	'response'
kfica	'jump'
psantran	'pianist'
stira	'slap'

Hebrew AWs, however, **do not** allow complex onsets even when the potential onsets exist elsewhere in the language.

(7)

Acronym	AW			Non-AW	
KLB	kalab	'close to home'	*klab	klavim	'dogs'
GLC	galac	'the army radio station'	*glac	glida	'ice-cream'
TGM	tagam	'very high frequency'	*tgam	tguva	'response'
BGC	bagac	'high court of justice'	*bgac	bgadim	'cloths'
PLMX	palmax	'shock troops'	*plamax	plada	'steel'

SMXT	samxat	'deputy brigadier'	*<u>sm</u>axat	<u>sm</u>alot	'dresses'
SMNKL	samankal	'deputy director general'	*<u>sm</u>ankal		

The term "natural" in Natural Morphology is roughly equivalent with the term "unmarked" (Dressler and Barbaresi 1994:45). NoComplex is a universal constraint, which states the unmarked structure (every language that allows a complex onset also allows a simple onset, but not vice versa). The prohibition of complex onsets in Hebrew AWs suggests that AWs are phonologically more "natural" than many other words in the language.

It is thus argued that not only that AWs are phonologically and morphologically indistinguishable from other words, they may also obey universal constraints to a greater extent than many other words.

2. BLENDS

Blending involves merging two elements into one word, where the inner parts of the base elements are often truncated (see Bat-El to appear a,b for a detailed analysis of Hebrew blends, and Appendix 2 for complete information regarding the data).

(8)

mošav	kibuc	--->	mošbúc	'cooperative and collective settlement'
demokrat	diktator	--->	demoktátor	'a democrat who behaves like a dictator'
sal	kal	--->	sálkal	'baby car-seat'

The base elements in Hebrew blends are not restricted to particular lexical categories. The semantic head (indicated by X'), in case there is one, is not in a fixed position. This should be compared with Hebrew compounds, which can be either $[N\ N]_N$ or $[Adj\ N]_{Adj}$, where the head is always on the left.

(9)

		Blend	Base elements	
a.	NN':	prígurt 'fruit yogurt'	prí 'fruit'	yógurt 'yogurt'
	N'N:	maxanófeš 'holiday camp'	maxané 'camp'	nófeš 'holiday'
b.	N'A:	maškár 'cold drink'	maške 'drink'	kár 'cold'
	AN':	kalcéfet 'easy-to-make whipped cream'	kál 'easy, light'	kacéfet 'whipped cream'
c.	N'V:	sukrazít 'saccharin'	sukár 'sugar'	razít 'you fm. lost weight'
	VN':	tačtoním 'underwear'	táč 'to touch (English)'	taxtoním 'underpants'
d.	NN:	maxazémer 'musical'	maxazé 'play, show'	zémer 'song'
e.	AA:	šmanmúx 'chubby'	šmanmán 'plump'	namúx 'short'
f.	VV:	mištaxcéf 'to be boastful and insolent'	mištaxcén 'to boast'	mitxacéf 'to be insolent'

It is thus argued in Bat-El (to appear a) that the order of the elements in the base of the blend is not determined by principles referring to lexical categories or to the notion of head (as in compounds); rather, independently motivated phonological constraints have the effect of determining the optimal order. It will not be at all surprising if studies on appositional compounds (e.g. *deaf-mute*) and freezes (e.g. *knife and fork*) would reveal that also in these cases is word order determined by phonological constraints.

In section 2.1 below I discuss two phonological phenomena manifested in Hebrew blends, stress pattern (2.1.1) and vowel deletion (2.1.2), showing that blends are consistent with the core phonology of the language. The discussion on the Syllable Contact Law in section 2.2 reveals, again, the emergence of the unmarked in the so called extragrammatical morphology.

2.1. Blends are Words

2.1.1. Stress: Main stress in Modern Hebrew usually falls on the rightmost foot (see detailed analysis in Bat-El 1993).

(10) a. Main stress in simple words is in most cases either ultimate or penultimate:

Ultimate stress		Penultimate stress	
xavér	'friend'	néfeš	'soul'
yeladím	'children'	miklédet	'keyboard'
leʔumiyút	'nationalism'	telefónim	'phones'

b. Main stress in compounds falls where the main stress of the rightmost element is:

Base elements		Compounds	
rofé	yeladím	rofe-yeladím	'pediatrician'
pikúªx	néfeš	pikuªx-néfeš	'saving an endangered life'

Main stress in Hebrew blends falls on the rightmost stressed syllable that surfaces. That is, when the two stressed syllables of the two base elements surface, main stress falls on the rightmost one (obviously, when one of the stressed syllables is truncated, main stress falls on the remaining one).

(11)

Blend	Base elements	
prigúf 'low fat fruit yogurt'	prígurt 'fruit yogurt'	gúf 'body'
tapugán 'fried potato'	tapúªx 'potato'	metugán 'fried'
kalorína 'low fat margarine'	kalórya 'calorie'	margarína 'margarine'
kadurégel 'football'	kadúr 'ball'	régel 'foot'

The position of stress in blends conforms to the stress system of the language. As in compounds, the stressed vowel in a blend must correspond to one of the stressed vowels in one of the base elements (see Alderete 1995 for discussion on faithfulness to stressed vowels). Out of the two stressed syllables, the rightmost one is selected, in accordance to the tendency of the language to place stress at the rightmost foot of the word.

2.1.2. Vowel Deletion and the Sonority Sequencing Generalization: Affixation in Hebrew is often accompanied by vowel deletion, either in the penultimate or the ultimate syllable of the stem. The deletable vowels are in most cases either *a* or *e*.

(12) a. Vowel deletion in the penultimate syllable of the stem

i.

Singular	Plural	
g**a**dol	gdol-im	'big'
k**a**ved	kved-im	'heavy'
g**a**mal	gmal-im	'camel'
pit**a**ron	pitron-ot	'solution'

ii.

Base elements					Compound	
d**a**vár	'thing'	séter	'hiding place'	--->	dvar séter	'secret'
z**a**náv	'tail'	sús	'horse'	--->	znav sús	'ponytail'

b. Vowel deletion in the ultimate syllable of the stem

i.

3rd ms.sg.	3rd fm.sg.	
xal**a**m	xalm-a	'dreamed'
kib**e**l	kibl-a	'received'

ii.

Singular	Plural	
mekab**e**l	mekabl-im	'is receving'
kot**e**v	kotv-im	'is writing'
xiv**e**r	xivr-im	'pale'
ʔil**e**m	ʔilm-im	'mute'

The function of vowel deletion is to minimize the number of syllables by elimination an open syllable. Vowel deletion is found in some of the blends as well. Also in this case its function is to minimize the number of the syllables, but in addition, the blend must adjusted into a disyllabic foot size (there are two counterexamples, where the output of vovel deletion is a trisyllabic blend). The imposition of a syllabic foot in Modern Hebrew is obligatory in verbs (see Bat-El 1994a), but can be found in quite a few nouns. In this respect, the blends that undergo vowel deletion conform to a subsystem of the language.

(13)

i.	šmartáf 'baby-sitter'	**š**amár 'to guard'	táf 'baby'
ii.	kcardáš 'combine'	**k**acár 'to harvest'	dáš 'to thrash'
iii.	ramzór 'traffic light'	ramáz 'to hint'	ór 'light'
iv.	xamšír 'limerick'	xaméš 'five'	šír 'song'
v.	ʔarpíᵊx 'smog'	ʔarafél 'fog'	píᵊx 'soot'
vi.	rašamkól 'tape recorder'	rašám 'to register'	kól 'sound'

Notice that as in the words in (12), the deleted vowel in blends is either *a* or *e* in the ultimate or penultimate syllable of the stem.

All the blends in (13) are trisyllabic before vowel deletion, and it thus takes deletion of one vowel only to fit them into a syllabic foot. The selection of the vowel is determined by the

output cluster, where the crucial universal constraint is the Sonority Sequencing Principle (SSP), which states that "[B]etween any member of a syllable and the syllable peak, only sounds of higher sonority rank are permitted" (Clements 1990:285). Hebrew does not require sonority rise within a complex margin (e.g. *bgadim* 'cloth'), but prohibits sonority fall (with the exception of sibilant fricatives). In (14) below I present for each input three possible outputs: (a) where no vowel is deleted, (b) where the vowel in the first syllable is deleted, and (c) where the vowel in the second syllable is deleted (I do not consider deletion of the vowel in the last syllable since complex codas are highly marked in Hebrew, and therefore such forms are very unlikely to surface).

(14) The optimal blend - conforms to a foot-size template without violating SSP

i. a.	*šamartaf	not a foot
b.	šmartaf	šm, r.t - possible clusters
c.	*šamrtaf	m.rt / mr.t - SSP violation
ii. a.	*kacardaš	not a foot
b.	kcardaš	kc - possible cluster
c.	*kacrdaš	c.rd / cr.d - SSP violation
iii. a.	*ramazor	not a foot
b.	*rmazor	rm - SSP violation
c.	ramzor	m.z - possible cluster
iv. a.	*xamešir	not a foot
b.	*xmešir	xm - does not exist in Hebrew for historical reasons
c.	xamšir	m.š - possible cluster
v. a.	*ʔarapiᵃx	not a foot
b.	*ʔrapiᵃx	ʔr - SSP violation (glottals in Hebrew are glides)
c.	ʔarpiᵃx	r.p - possible cluster
vi. a.	rašamkol	not a foot
b.	*rašmkol	š.mk / šm.k - SSP violation
c.	*ršamkol	rš - SSP violation

Attention should be drawn to (vi) in (13/14), where there is no vowel deletion, and the blend thus remains trisyllabic. Deletion of either the first of the second *a* would result in SSP violation, and therefore vowel deletion is suppressed.

Vowel deletion is an irregular phenomenon in Modern Hebrew, as there are cases where it does not occur. This is demnostrated by the contrast between *gamál - gmalím* 'camel sg.-pl.' where the first *a* is deleted, and *gamád - gamadím* 'dwarf sg.-pl.' where the vowel is preserved.[6] Moreover, the compound *znav sus* 'ponytail' (12a) appears as *zanav sus* in spoken Hebrew, where vowel deletion is suppressed. The same irregularities can be found in blends. The *a* in *kaduregel* 'football' and *ʔatarok* 'rock concert site' is not deleted (**kduregel* and

[6] This is due to the loss of length distinction in Modern Hebrew (in both consonants and vowels). In Tiberian Hebrew, only vowels in an open syllable are subject to deletion, which obviously excludes vowels which are followed by a geminate. The form of *gamad* in Tiberian Hebrew is *gammad*, where the first vowel is in a closed syllable and therefore it is not deleted when a suffix is added. The form of *gamal* in Tiberian Hebrew is *gaamal*, where the first vowel is in an open syllable and therefore deleted when a suffix is added.

* *ʔatrok*), nor is the second *e* in *televidyo* 'pay-per-view' (**telvidyo*). Moreover, *maxazemer* and *maxzemer* 'musical' seem to be in free variation, as is typical of an irregular phenomenon.

The discussion in this section thus reveals that the phonology of blends does not deviate from the phonology of the prototypical grammatical forms in the language.

2.2. The Emergence of the Unmarked: The Syllable Contact Law

The Syllable Contact Law is a universal constraint which may trigger a phonological process when violated, or block the application of a phonological rule whose output would violate it (see Vennemann 1988, Clements 1990 and and reference therein). In Sidamo (Ethiopian), for example, this constraint triggers metathesis, as in */gud-nonni/* ---> *gundonni* 'they finished', */duk-nonni/* ---> *dunkanni* 'they carry', */has-nemmo/* ---> *hansemmo* 'we look for'. The Syllable Contact Law can be roughly stated as follows:

(15) Syllable Contact Law (Vennemann 1988)
The degree of sonority of the onset must be lower than that of the preceding coda, and the greater the slope in the sonority scale the better.

The Syllable Contact Law is massively violated in Hebrew in all morphological contexts.

(16)

šakran	'liar'
tafrit	'menu'
hit-labeš	'he got dressed' (derivational prefix)
rakad-nu	'we danced' (inflectional suffix)

In addition, as can be seen in (17a), the Syllable Contact Law does not block vowel deletion. This should be compared with the effect of the Obligatory Contour Principle in (17b), which does blocks vowel deletion (or alternatively, triggers epenthesis after vowel deletion).

(17)

a.	šamar-a	šamra	'she guarded'	b.	kilel-a	kilela	'she cursed'
	gadal-u	gadlu	'they ms. grew'		ximem-u	ximemu	'they warmed'
	xatam-a	xatma	'she signed'		xagag-a	xagega	'she celebrated'

Although massively violated in the language, the Syllable Contact Law has **a crucial role** in the grammar of blends. There are several disyllabic blends which are formed from two monosyllabic elements. In such cases there is no truncation, otherwise the output blend would be smaller than the Minimal Word (every blend in Hebrew is minimally disyllabic). The question is then what determines the order of the elements in the blend, assuming that the notion of head is irrelevant to blends (see section 2 above, and notice in (18) below that *salkal* is $[N\ A]_N$ while *ramkol* is $[A\ N]_N$). It appears that in these cases it is the Syllable Contact Law that determines the order of the elements in the blend. The last example in (18) shows that the Syllable Contact Law emerges also in blends that undergo truncation.

(18)

Blend		Base elements	
xaydák 'bacterium'	*dakxay	xáy 'alive'	dák 'thin'
sálkal 'baby car-seat'	*kalsal	sál 'basket'	kál 'light'

rámkol 'loudspeaker'	*kolram	rám 'loud'	kál 'sound'
kálkar 'polystyrene'	*karkal	kál 'light'	kár 'cold'
mošbúc 'cooperative and collective settlement'	*kibšav	mošáv 'cooperative settlement'	kibúc 'collective settlement'

Violation of Syllable Contact Law is evaluated by subtracting the sonority degree of the onset from that of the adjacent coda. I assume the following sonority scale (a more, or less, detailed scale may be required for other languages):

(19) Sonority scale: Vowels > Glides > l >[7] r > Nasals > Fricatives > Stops
6 5 4 3 2 1 0

As can be seen from (20) below, the sonority distance in the optimal blends is always greater than that in the corresponding non-optimal blends.

(20)

Optimal blend	Sonority distance	Non-optimal blend	Sonority distance
xaydák	5-0=5	*dakxay	0-1=-1
sálkal	4-0=4	*kalsal	4-1=3
rámkol	2-0=2	*kolram	4-3=1
kálkar	4-0=4	*karkal	3-0=3
mošbúc	1-0=1	*kibšav	0-1=-1

The Syllable Contact Law is a universal constraint which reflects the unmarked heterosyllabic clusters. It is massively violated in the prototypical grammatical words in the language, but it emerges to be crucial for the so called "ungrammatical" words. In this respect, blends reflect the unmarked representation much more so than many other morphological classes in the language.

3. Conclusion

I have shown in this paper that acronym words and blends, which are usually considered as extragrammatical, are consistent with the phonology of the language. Moreover, universal phonological constraints, which have little or no effect on grammatical morphology, emerge in the so called extragrammatical morphology. Hebrew extragrammatical morphology is thus phonologically grammatical, and in some respects even more grammatical (i.e. less marked) than what is considered as the prototypical grammatical morphology (i.e. basic nouns and verbs formed by the core morphology of the language).

In order to support the view that blends and acronym words are indeed extragrammatical, it would be necessary to argue that phonological criteria are not relevant for the distinction between grammaticality and extragrammaticality. However, I do not see any a priori reason to exclude phonological considerations; I believe that the fact that acronym words and blends structurally resemble the prototypical grammatical forms in the language allow speakers to perceive them as part of the grammatical component of the language.

---

[7] Within the liquids, *l* is more sonorous than *r*, as Hebrew *ṛ* is a uvular approximant which often alternates with a fricative.

Notice also that the morphological operations, such as ablaut (in acronym words) and truncation (in blends, as well as acronym words) are found in other phenomena in natural languages. In particular, truncation is not associated only with blends, acronym words, hypocoristics etc., but also in reduplication (where part of the copied material is truncated). There is also truncation in English *nominate - nominee* (Aronoff 1976), and in Alabama *kolof-li* 'cut once' - *kol-li* 'cut repeatedly' (Broadwell 1987, Martin 1988). That is, the morphological operations invovled in blending and acronym word formation are not beyond the limitation of natural langauges (cf. the note on langauge games in section 1.3).

I thus suggest to limit the notion of extragrammaticality as pragmatic characteristic of contrived word formation phenomena, which are limited to specific population. Only in this respect can blends and acronym words can be viewed as extragrammatical. This, however, does not imply that they are not part of natural language, and we thus do not expect them to exhibit any structural peculiarities which are not found elsewhere in natural language. Further study may lead to similar conclusions with respect other morphological phenomenon which are considered extragrammatical.

APPENDIX 1: **Acronym Words**

Acronym	AW	Base elements	
?BM	?abam	?ecem Bilti Mezuhe	'UFO'
?ŠL	?ešel	?oxel, Štiya, Lina	'foot and lodging'
?XY	?axi	?oniyat Xeyl haYam	'a navy ship'
?WM	?um	?Umot Me?uxadot	'United Nations'
BBLT	bablat	Bilbul Beycim Lelo Ta?am	'baloney'
BGC	bagac	Beyt Din Gavoha leCedek	'high court of justice'
BYLW	bilu	Beyt Yisra?el Lexu Venelxa	'a name of a pioneer group'
CHL	cahal	Cva Hagana Leisrael	'israeli defence army'
CYM	cim	Ci Yisra?eli Misxari	'Israeli commercial fleet'
DWX	dox/d"ax	Din VeXešbon	'a report'
GLC	galac	GaLey Cahal	'the army radio station'
KLB	kalab	Krov LaBait	'close to home'
MTX	matax	MaTbea Xuc	'foreign currency'
MXT	maxat	Mefaked XaTiva	'brigadier'
PLMX	palmax	PLugot MaXac	'shock troops'
RMTKL	ramatkal	Roš MaTe KLali	'chief of general staff'
RŠY	raši	Rabi Šlomo Yicxaki	'a name of a rabbi'
SKWM	sakum	Sakin, Kaf, UMazleg	'cutlery'
SMNKL	samankal	Sgan MeNahel KLali	'deputy director general'
SMXT	samxat	Sgan Mefaked XaTiva	'deputy brigadier'
TGM	tagam	Teder Gavoha Me?od	'very high frequency'
WLTM	valtam	Va?ada LeTeum Milu?im	'army reserves coordination committee'
WXK	vaxak	Va?adat XaKira	'commission of inquiry'
YWŠ	yoš	Yehuda VeŠomron	'Judah and Samaria'
YXB	yaxab	YeXidat Binuy	'construction unit'
XK	xak	Xaver Kneset	'parliament member'

APPENDIX 2: **Blends**

Blend	Truncated material (in <>)	Base elements	
?arpí^{a}x 'smog'	?ar(a)<fel•>pi^{a}x	?arafél 'fog'	pí^{a}x 'soot'
?atarók 'rock concert site'	?ata<r•>rok	?atár 'site'	rók 'rock'
demoktátor 'a democrat who behaves like a dictator'	demok<rat•dik>tator	demokrát 'democrat'	diktátor 'dictator'
kadurégel 'football'	kadur<•r>egel	kadúr 'ball'	régel 'foot'
kalcéfet 'easy-to-make whipped cream'	kal<•ka>cefet	kál 'easy, light'	kacéfet 'whipped cream'
kálkar 'polystyrene'	kal•kar	kál 'light'	kár 'cold'

kalorína 'low fat margarine'	kalo<rya•marga>rina	kalórya 'calorie'	margarína 'margarine'
kcardáš 'combine'	k(a)car•daš	kacár 'to harvest'	dáš 'to thrash'
maškár 'cold drink'	maš<ke•>kar	maške 'drink'	kár 'cold'
maxanófeš 'holiday camp'	maxa<ne•>nofeš	maxané 'camp'	nófeš 'holiday'
maxazémer 'musical'	maxa<ze•>zemer	maxazé 'play, show'	zémer 'song'
mištaxcéf 'to be boastful and insolent'	mištax<cen•mitxa>cef	mištaxcén 'to boast'	mitxacéf 'to be insolent'
mošbúc 'cooperative and collective settlement'	moš<av•ki>buc	mošáv 'cooperative settlement'	kibúc 'collective settlement'
prigúf 'low fat fruit yogurt'	pri<gurt•>guf	prígurt 'fruit yogurt'	gúf 'body'
prígurt 'fruit yogurt'	pri<•yo>gurt	prí 'fruit'	yógurt 'yogurt'
rámkol 'loudspeaker'	ram•kol	rám 'loud'	kól 'sound'
ramzór 'traffic light'	ram(a)z•or	ramáz 'to hint'	ór 'light'
rašamkól 'tape recorder'	rašam•kol	rašám 'to register'	kól 'sound'
sálkal 'baby car-seat'	sal•kal	sál 'basket'	kál 'light'
sukrazít 'saccharin'	suk(a)<r•>razit	sukár 'sugar'	razít 'you fm. lost weight'
šmanmúx 'chubby'	šman<man•na>mux	šmanmán 'plump'	namúx 'short'
šmartáf 'baby-sitter'	š(a)mar•taf	šamár 'guard'	táf 'baby'
tačtoním 'underwear'	tač<•tax>tonim	táč 'to touch (English)'	taxtoním 'underpants'
tapugán 'fried potato'	tapu<x•metu>gan	tapú^{a}x 'potato'	metugán 'fried'
televídyo 'pay-per-view'	tele<vizya•>vidyo	televízya 'television'	vídyo 'video'
xamšír 'limerick'	xam(e)<š•>šir	xaméš 'five'	šír 'song'
xaydák 'bacterium'	xay•dak	xáy 'alive'	dák 'thin'

REFERENCES

Alderete, John. 1995. Faithfulness to Prosodic Heads. Ms., University of Massachusetts, Amherst.

Anderson, Stephen. 1982. Where's Morphology. *Linguistic Inquiry* 13:571-612.

---. 1992. *A-Morphous Morphology*. Cambridge: Cambridge University Press.

Aronoff, Mark. 1976. *Word Formation in Generative Grammar*. Cambridge, MA: MIT Press.

Bat-El, Outi. 1993. Parasitic Metrification in the Modern Hebrew Stress System. *The Linguistic Review* 10: 189-210.

---. 1994a. Stem Modification and Cluster Transfer in Modern Hebrew. *Natural Language and Linguistic Theory* 12:571-596.

---. 1994b. The Optimal Acronym Word in Hebrew. Koskinen (ed.) *Proceedings of the Annual Conference of the Canadian Linguistic Association*. Toronto Working Papers in Linguistics. pp.23-37.

---. to appear a. Selecting the Best of the Worst: The grammar of Hebrew Blends. *Phonology*.

---. to appear b. Phonologically-based Word Formation: Modern Hebrew Blends. Bierwisch and Kleinhenz (eds.) *Interfaces in Phonology* (series Studia Grammatica). Berlin: Akademie Verlag.

---. to appear c. On the Visibility of Word Internal Morphological Features. *Linguistics*.

Bauer, Laurie. 1983. *English Word-Formation*. Cambridge: Cambridge University Press.

---. 1988. *Introducing Linguistic Morphology*. Edinburgh: Edinburgh University Press.

Benua, Laura. 1995. Identity Effects in Morphological Truncation. Beckman, Urbanczyk, and Walsh (eds.) *University of Massachusetts Occasional Papers In Linguistics: Papers in Optimality Theory* 18. Amherst: Graduate Linguistic Student Association. pp. 77-136.

Berman, Ruth and Dorit Ravid. 1985. Lexicalization of Compounds in Hebrew. *Hebrew Computational Linguistics Bulletin* 24:5-22. (in Hebrew).

Borer, Hagit. 1984. The Projection Principle and Rules of Morphology. Jones and Sells (eds.) *Proceedings of NELS 14*. Amherst: University of Massachusetts. pp. 16-33.

---. 1989. On the Morphological Parallelism between Compounds and Constructs. *Morphology Yearbook* 1:46-65.

Broadwell, Aaron. 1987. Subtractive Morphology in Southwest Muskogean. A paper presented at the 40th Annual Kentucky Foreign Language Conference.

Clements, George. 1990. The Role of the Sonority Cycle in Core Syllabification. Kingston and Beckman (eds.) *Papers in Laboratory Phonology I: Between the Grammar and Physics of Speech*. Cambridge: Cambridge University Press. pp.283-333.

Dressler, Wolfgang and Levinia Barbaresi. 1994. *Morphopragmatics: Diminutives and Intensifiers in Italian, German, and Other Languages*. Berlin: Mouton de Gruyter.

Dressler, Wolfgang and Annemarie Karpf. 1995. The Theoretical Relevance of Pre- and Protomorphology in Language Acquisition. Booij and van Marle (eds.) *Yearbook of Morphology 1994*. Dordrecht: Kluwer Academic Publishing. pp. 99-122.

Dressler, Wolfgang, Willi Mayerthaler, Oswald Panagl, and Wolfgang Wurzel (eds.) 1987. *Leitmotifs in Natural Morphology*. Amsterdam: Benjamins.

Itô, Junko, Yoshihisa Kitagawa, and Armin Mester. 1996. Prosodic Faithfulness and Correspondence: Evidence from a Japanese Argot. To appear in Journal of East Asian Linguistics 5.3.

Kenstowicz, Michael. 1995. Base-Identity and Uniform Exponence: Alternative to Cyclicity. Ms., MIT, Cambridge MA.

Kubozono, H. 1990. Phonological Constraints on Blending in English as a Case for Phonology-Morphology Interface. *Yearbook of Morphology* 3:1-20.

Martin, Jack. 1988. Subtractive Morphology as Dissociation. *Proceedings of the West Coast Conference on Formal Linguistics* 7.

Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit.* Wiesbaden: Akademische Verlagsgesellschaft Athenaion.

McCarthy, John. 1982. Prosodic Structure and Expletive Infixation. *Language* 58:574-590.

---. 1995. Extensions of Faithfulness: Rotuman Revisited. Ms., University of Massachusetts, Amherst.

McCarthy, John and Alan Prince. 1986. *Prosodic Morphology.* Ms., University of Massachusetts, Amherst and Brandeis University.

---. 1993. *Prosodic Morphology I: Constraint Interaction and Satisfaction.* Ms., University of Massachusetts, Amherst and Rutgers University.

---. 1995. Faithfulness and Reduplicative Identity. Ms., University of Massachusetts, Amherst and Rutgers University.

Prince, Alan and Paul Smolensky. 1993. *Optimality Theory: Constraint Interaction in Generative Grammar.* Technical Report #2 of the Rutgers Center for Cognitive Science.

Scalise, Sergio. 1984. *Generative Morphology.* Dordrecht: Foris Publication.

Spencer, Andrew. 1991. *Morphological Theory.* Cambridge, MA: Basil Blackwell.

Stonham, John. 1994. *Combinatorial Morphology.* Amsterdam: John Benjamins Publishing Company.

Thompson, Laurence. 1965. *A Vietnamese Grammar.* Seattle: University of Washington Press.

Thornton, Anna. 1993. Italian Blends. Tonelli and Dressler (eds.) *Natural Morphology.* Padova: Unipress.

Vennemann, Theo. 1988. *Preference Laws for Syllable Structure.* Berlin: Mouton de Gruyter.

Zwicky, Arnold and Geoffrey Pullum. 1987. Plain Morphology and Expressive Morphology. Aske, Beery, Michaelis anf Filip (eds.) *Proceedings of the Thirteenth Annual Meeting of Berkeley Linguistic Society.* Berkeley: Berkeley Linguistics Society. pp. 330-340.

Outi Bat-El
Department of Linguistics
Tel Aviv University
Tel Aviv 69978
Israel
e-mail: obatel@post.tau.ac.il