Idiomatic Root Merge in Modern Hebrew blends

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Abstract

In this paper I use the Distributional Morphology framework and semantic Locality Constraints proposed by Arad (2003) to look at category assignments of blends in Modern Hebrew, as well as blends, compounds and idioms in English where relevant. Bat-El (1996) provides an explicit phonological analysis of Modern Hebrew blends, and argues against any morphological process at play in blend formation. I argue, however, that blends and compounds must be accounted for within morphology due to category assignments. I first demonstrate that blends are unquestionably formed by blending fully inflected words rather than roots, and then subsequently reject an analysis that accounts for weakened Locality Constraints by proposing the formation of a new root. Instead, I propose a hypothesis of Idiomatic Root Merge where a root can be an n-place predicate that selects at least an XP sister and a category head. This proposal also entails that there is a structural difference between two surface-similar phrases that have respectively literal and idiomatic meanings.[1]

1 Introduction

Blending is a word-formation process that is highly productive in certain languages, such as Modern Hebrew and English, and much like compounding, involves combining multiple words into a form that behaves as a single syntactic and semantic unit. There can be varying levels of how these base words are incorporated into the meaning of resultant word: endocentric compounds, such as *seashore*, have meanings that are compositionally formed, with one base acting as the semantic head. Exocentric compounds, however, such as *white-collar* do not have a semantic head, and their meanings appear to be idiomatic rather than compositional. The goal of this paper is to examine blends as a special case of idioms, and give a morphological account for their idiosyncratic meanings.

In section §2, I first review some background on different key concepts that I am using as part of my theoretical framework. This includes a brief background on traditional approaches to Hebrew and Semitic morphology before giving an overview of Stem Modification from Bat-El (1994), which

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looks at cluster transfers in Modern Hebrew in order to reject the idea of consonantal roots in denominal verbs, and by extension all of Hebrew. Looking at Arad (2003), I give background on Locality Constraints and the morphosyntactic framework that I assume in this paper. In section §3, I give evidence that Modern Hebrew blends must have words as bases, rather than consonantal roots. Section §4 then outlines the crucial problem of this paper: if blends are the results of word-derivations, we expect them to adhere to the semantic Locality Constraints defined by Arad (2003), but we see instead that these semantic constraints are significantly weakened at best, if not totally overridden. I also reject an analysis positing a new root being formed.

In section §5, I propose Idiomatic Root Merge (IRM) as an analysis for phrasal idioms, and extend this analysis to blends, which behave similarly in comprising constituents (potentially phrasal), while having idiosyncratic meaning. IRM is an alternative to Locality Constraints, eliminating the idea that a syntactic phase is formed by Merging a root and a category head, and proposing instead that idiosyncratic meaning can only be introduced by Merging a root with a node. This fixed meaning can be later overridden by another Idiomatic Root Merge. I argue that a root's selectional features include not just what category heads it can Merge with, but that it can select what appears to be the phonological form of a sister α, as well as simultaneously selecting syntactic heads that c-command it in a seemingly unconstrained way.

By proposing differing morphosyntactic structures for identical surface forms to account for idiomatic and compositional meaning, Idiomatic Root Merge resolves the issue of idiosyncratic meaning in idioms structurally. Idiomatic meaning is simply created by Merging a root, which is underspecified in its meaning, with a node α – an assumption that is independently supported by Arad (2003)'s theory of Multiple Contextual Meaning – without creating a restrictive meaning domain.

2 Background

2.1 Blending as a word-formation process

Bat-El (1996) describes blends as such: "Blends, also called portmanteau words, are formed by fusing two words into one new word, where internal portions of the base words are often subtracted (one segmental string from the right part of the first word and another from the left part of the second word)" (p. 283). I take this quote to mean that the phonological material that remains after subtraction does not have to correspond to a morpheme, and that the boundary between the two words is not a site for morphological affixation.

The crucial difference between blends and compounds using this definition is that blends involve some phonological deletion at the boundary between the two base words. Consider the following English examples:

(1) a. coffee + shop = coffeeshop
    b. breakfast + lunch = brunch

In (1a), a compound, we can see that there is no deleted material and the base words are intact, implying that they have been combined through a derivational process that Merges and preserves two base words. However, in (1b), the portions of the base words that remain in the surface form of the blend, *brunch*, do not correspond to any productive morpheme in English: neither *br-* or *-unch* are morphemes corresponding respectively to 'breakfast' and 'lunch' anywhere else in the language.

However, Hebrew data presents morphological differences between compounds and blends. Not only does the head noun of a noun-noun compound get genitive case in Hebrew, but the boundary between base words in compounds is a site for morphological attachment, while the boundary in blends is not. For example, in a noun-noun compound the definite determiner *ha-* only appears prefixed to the right noun, and the plural morpheme (*-ey* in the following masculine examples) only appears suffixed to the left noun. This is opposed to non-compound DPs, where the modifiers must agree with the head noun in definiteness and plurality, also taking the respective affixes. Consider first an ordinary Hebrew DP, with a head noun and an adjectival modifier:

(2) (a) šir tov
song good
'a good song'

(b) šir-im tov-im
song-PL.MASC good-PL.MASC
'good songs'

(c) ha-šir ha-tov
the-song the-good
'the good song'

(d) ha-šir-im ha-tov-im
the-song-PL.MASC the-good-PL.MASC
'the good songs'

Now the following example of a noun-noun compound DP with an adjectival modifier:

(3) (a) [šir ahava] tov
song.GEN love good
'a good [love song]'

(b) [šir-ey ahava] tov-im
song-GEN.PL.MASC love good-PL.MASC
'good [love songs]' [2]

(c) [šir ha-ahava] ha-tov
song.GEN the-love the-good
'the good [love song]'

(d) [šir-ey ha-ahava] ha-tov-im
song-GEN.PL.MASC the-love the-good-PL.MASC
'the good [love songs]'

Now consider the following Hebrew blend *mošbuc*, meaning 'collective and cooperative settlement', with special attention to sites for morphological attachment:

(4) a. [$_N$ mošav] + [$_N$ kibuc] = [$_N$ mošbuc]
'cooperative settlement' 'collective settlement'

(5) (a) mošbuc-im xadš-im
mošbuc-PL.MASC new-PL.MASC
'new cooperative, collective settlements'

[2] It should be noted that (3a) and (3b) can also technically have the respective clausal meanings:
(3a): 'A love song is good.'
(3b): '(Some) love songs are good.'

(b) ha-mošbuc ha-xadaš
the-mošbuc the-new
'the new cooperative, collective settlement'

(c) ha-mošbuc-im ha-xadaš-im
the-mošbuc-PL.MASC the-new-PL.MASC
'the new cooperative, collective settlements'

As we can see in (7), noun-noun blends in Hebrew behave as single words, rather than as noun-noun compounds; the internal boundary between base words is not a site for morphological affixation. These morphological affixation diagnostics classify examples such as the following as a blends, despite there being no subtracted phonological material:

(6) a. $[_N$ kadur] + $[_N$ sal] = $[_N$ kadursal]
'ball' 'basket' 'basketball'

(7) (a) kadursal-im xadaš-im
basketball-PL.MASC new-PL.MASC
'new basketballs'

(b) ha-kadursal ha-xadaš
the-basketball the-new
'the new basketball'

(c) ha-kadursal-im ha-xadaš-im
the-basketball-PL.MASC the-new-PL.MASC
'the new basketballs'

Given these data, Hebrew blends can be defined by their morphological properties, and that any phonological subtraction in blending is secondary in nature, and not a crucial definition of blends. This is a somewhat different analysis than the one offered by Bat-El (1996), who believes that the blending as a process of derivational morphology is not so much one of morphosyntactic operations, but one of strictly phonological nature: "Hebrew blending [. . .] is governed by hierarchically ordered well-formedness constraints, all phonological in nature" (p. 284). I interpret this to mean that while phonological constraints may govern which and how two base words can be phonologically combined to create a new word, it is still morphological properties that define blends, and not these phonological ones.

Furthermore, a phonological explanation cannot fully account for the category assignment of these blends. While the phonological story can derive the correct phonological output form given base word inputs, it says nothing about how the categories of base forms can be different from each other and/or the resultant output word. Consider the following English compounds, which also demonstrate this phenomenon:

(8) a. $[_N$ road] + $[_V$ kill] = $[_N$ roadkill]
b. $[_V$ take] + $[_P$ out] = $[_N$ takeout]
c. $[_V$ must] + $[_V$ have] = $[_N$ must-have]

As can be seen, there do not seem to be constraints on the category of bases in English compounds. This also holds for Hebrew blends, which are shown to have no lexical category restrictions on base elements by Bat-El (1996).

In (8a), we might propose that the nominal base *road* is a morphosyntactic head, which projects its n features onto the resultant blend. However, this analysis cannot fully account for the data either, as we can see in (8b) that neither base is of the same category as the resultant idiomatic compound: a verb and a preposition have combined to form a noun. Even if it is argued that *takeout* is a clipped form of *takeout food*, it would still be neither a verb or preposition. This point of English compounds having a different lexical category than their bases is further borne out by (8c), in which *must* and *have* are both verbs, yet a *must-have* is a noun.

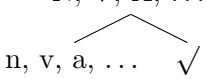
Now consider some Hebrew blends that behave similarly in regards to a derived blend sharing category with one or none of its base words:

(9)	a.	[$_V$ zarak]	+	[$_N$ or]	=	[$_N$ zarkor]
		'throw.PST.3S.MASC'		'light'		'spotlight'
	b.	[$_V$ shala]	+	[$_N$ dag]	=	[$_N$ shaldag]
		'pull out of a liquid.PST.3S.MASC'		'fish'		'kingfisher'
	c.	[$_V$ daxaf]	+	[$_V$ laxpor]	=	[$_N$ daxpor]
		'push.PST.3S.MASC'		'dig.INF'		'bulldozer'
	d.	[$_V$ kacar]	+	[$_V$ daš]	=	[$_N$ kcardaš]
		'harvest.PST.3S.MASC'		'thresh.PST.3S.MASC'		'a combine'

It appears that neither base in English compounding and Modern Hebrew blending is a morphosyntactic head projecting category features; category is being assigned some other way.

In this paper, I assume the Distributed Morphology framework used by Arad (2003) and Marantz (1997), which proposes that syntactic processes operate on a sub-word level. In this framework of Distributed Morphology, roots lack categorical assignment, which they then get by Merging with a categorical head, a feature bundle that derives a lexical item from the root. This can be simply represented in the following diagram:

(10)



The existence of roots in Modern Hebrew is hardly a new idea, but it is the nature of these roots that has been controversial in the literature.

2.2 Traditional approaches to Hebrew roots

Traditional approaches to Hebrew roots, even in modern linguistics, have assumed that the roots are consonantal in nature: roots are an ordered string of consonants that must be inserted into template patterns in order to create a lexical word. Indeed, this is the approach initially proposed by McCarthy (1981) to account for Classical Arabic, another Semitic language, which shares a similar grammar relative to roots.

This analysis, based on Autosegmental Phonology is a multi-tier approach, where each morpheme occupies a different tier, with the consonantal root associating with the empty slots in a template pattern, commonly referred to as a *binyan* (plural: *binyanim*), from the Hebrew term for

verbal template patterns. This approach was adopted in other analyses, such as Yip (1988) and Hammond (1988), and adapted by McCarthy himself in McCarthy (1993).

According to McCarthy (1981), the formation of a Semitic verb involves three tiers: the consonantal root morpheme, the binyan morpheme (including vowel melody and affixes), and a list of canonical patterns that serve as a 'skeleton' for the root and binyan morphemes to be associated with. Thus, the Hebrew verb *katav* 'write.3.SG.MASC' involves the following tiers:

(11) **McCarthy's analysis**

CONSONANTAL ROOT:	k t v
PATTERN:	CVCVC
BINYAN:	a a

At this point the verb derivation becomes a matter of associating the morphological segments into the skeleton in a manner that derives the attested form. The vowels of the binyan, for example, associate with the vowel slots in the skeleton. There has been some debate in this analysis regarding the direction of association in order to get the consonants of the root and affixes of the binyan to appear in the right place in surface structure, but these arguments are largely inconsequential to this paper.

Other traditional analyses that don't make explicit use of Prosodic Morphology/Template Morphology, including most literary grammars outside of modern linguistics, also tend to view Hebrew roots as consonantal in nature, being inserted into various binyanim to form words. These grammars tend to incorporate the pattern tier directly into the binyan itself, thus giving us a basis for derivation of *katav* as such:

(12) **traditional analysis**

CONSONANTAL ROOT:	k_1 t_2 v_3
BINYAN:	$C_1aC_2aC_3$ (Pattern 1[3])

These traditional grammars that simply list paradigms get around the issue of association by simply co-indexing the consonantal slots in the binyan with the root consonants. As I am more concerned with the fact that binyanim make words from roots, I will use this shorthand of Hebrew verbal morphology for the rest of this paper, but will give a more detailed structure of Hebrew verbs according to Arad (2003) in §2.4.

The explanation for new or borrowed word-formation strategies in Modern Hebrew in this type of analysis assumes that a base word is parsed for consonants, which are then extracted, forming a new consonantal root. This newly formed consonantal root can then be treated as a new root morpheme with consonants to be inserted back into a binyan. Thus, the derivation of *tilfen* 'telephone.3.SG.MASC' from the noun *telefon* 'telephone' would look like the following:

[3]I borrow the following binyan pattern classification from Arad (2005):

Pattern	Morphological Form	Traditional binyan name
1	$C_1aC_2aC_3$	pa?al
2	$niC_1C_2aC_3$	nif?al
3	$C_1iC_2C_2eC_3$	pi?el
4	$C_1uC_2C_2aC_3$	pu?al
5	$hiC_1C_2iC_3$	hif?il
6	$huC_1C_2aC_3$	huf?al
7	$hitC_1aC_2C_2eC_3$	hitpa?el

(13) CONSONANT EXTRACTION: telefon → tlfn
NEW CONSONANTAL ROOT: $\sqrt{}$tlfn
BINYAN: $C_1iC_2C_3eC_4$ (Pattern 3)
NEW VERB: tilfen

This analysis of word-formation in Modern Hebrew involves consonantal roots, and the binyan specifically indexing its consonantal slots to the ordered consonants of a root. Derivational morphology in this view, then, is a matter of extracting consonants from a word (typically a noun), and then creating a new consonantal root from these extracted consonants.

2.3 Cluster Transfer and Stem Modification

Bat-El (1994) provided crucial insight into Hebrew verb-formation that would call into question the existence of the consonantal root in Modern Hebrew by looking at denominal verbs. These data show that the consonant extraction analysis is ill-equipped to account for consonant cluster transfers.

Bat-El (1994) notices that in certain denominal verbs, or verbs derived from borrowed words, consonant clusters were preserved: *flirt*, a loan word for example, has the clusters /fl/ and /rt/. If we were to simply extract consonants from this word, we get the putative root $\sqrt{}$flrt. Using this hypothetical root, there are multiple output forms that are permissible by the phonotactics of Modern Hebrew. For example, the form **filret* is phonologically acceptable, as it would match the P3 binyan's consonantal slots, CiCCeC. This unattested form could be derived, hypothetically, as such:

(14) CONSONANT EXTRACTION: flirt → flrt
NEW CONSONANTAL ROOT: $\sqrt{}$flrt
BINYAN: $C_1iC_2C_3eC_4$ (Pattern 3)
NEW VERB: *filret

However, the only attested form is *flirtet*, in binyan P3. The obvious explanation is that the speaker favors a form that is more faithful to the original input form: *flirtet* more accurately preserves the original form *flirt* than **filret*, due to having preserved the consonant clusters of the base word.

This favoring of one acceptable output form over another is impossible under the root to-template analysis, though. If consonants are simply extracted as an ordered string of consonants, then cluster information is not transferred. That is, with the string *$\sqrt{}$flrt, we have the right consonants in the right order, but there is nothing in that ordered set to tell us which consonants should be adjacent to each other in output form. If that is the case, then, there is no way to have the putative root *$\sqrt{}$flrt carry the information that allows for the clusters /fl/ and /rt/ to be transferred. Bat-El (1994)'s conclusion, then, is that this disproves the theory of consonantal root extraction from these word-derived verbs.

Instead, Stem Modification is adopted. To quote Bat-El (1994), "In Stem Modification all the relevant changes are made on the base itself, as opposed to the consonants being extracted from the base and then associated with a pattern. The major advantage of Stem Modification is that anything in the base that is not affected by the pattern remains intact." So Stem Modification works via the following procedure, also quoted from Bat-El (1994):

(15) (a) Syllabification (edge-in): Impose a bisyllabic template over the segmental material.

(b) Melodic Overwriting: Substitute the syllabified vowels with the designated vocalic pattern

(c) Stray Erasure: Eliminate unsyllabified segments

Thus, the segmental input /telegraf/ gets bisyllabified edge-in as /tel.(e).graf/, where the *(e)* here simply indicates that the /e/ segment is not associated with any syllable. The vowel melody is then overwritten with the vowel melody corresponding to binyan P3, <i, e>, in this case. Thus /tel.(e).graf/ becomes /til.(e).gref/. Finally, unsyllabified segments are deleted, yielding the attested form /til.gref/. Stem Modification does not affect anything beside the vowel melody, preserving consonant clusters.[4]

From this analysis, Bat-El (1994) concludes that Modern Hebrew contains no consonantal roots at all, on account of these data. Instead she posits that Stem Modification is all that is required, and that the morphology of Modern Hebrew has no consonantal roots. While this point will be argued against in Arad (2003), by looking at cluster transfers Bat-El (1994) provides a good diagnostic for determining whether or not words are derived from consonantal roots, which I also employ in section §3 to show that Hebrew blends cannot be formed by creating a new consonantal root from base roots, and applying a pattern.

2.4 Root Hypothesis and Locality Constraints

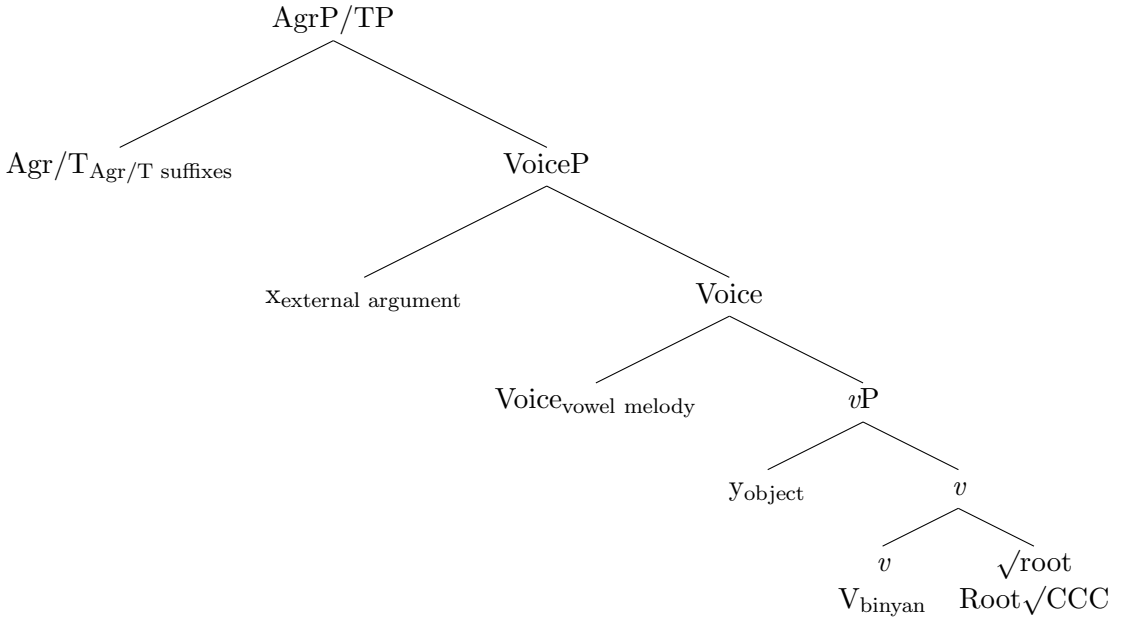
Arad (2003) introduces the Root Hypothesis, an attempt to defend the notion of a consonantal root within Modern Hebrew. Arad argues that Bat-El (1994)'s conclusion is too strong: whereas it was demonstrated that Stem Modification must occur with word-derived words, Arad argues that there is no reasonable basis to extend that reasoning universally, claiming that there are still words that are root-derived. The paper argues this point by pointing out semantic correlations between derived words and their putative bases, introducing the concept of Multiple Contextual Meaning.

MCM is based heavily on the framework proposed by Marantz (1997), which argues against the case of Lexicalism within generative grammars of syntax. In his paper, Marantz rejects the idea that the syntax does not operate on a sub-lexical level, and instead offers a new rough structural alternative to the Lexicon. Within this Distributed Morphology framework, the Lexicon is replaced by three lists: List 1 contains the atomic roots and feature bundles; List 2 is the Vocabulary, which includes connections between sets of grammatical and phonological features, and determines connections between terminal nodes and their phonological realization; List 3, termed the Encyclopedia, lists the special meanings of roots with respect to their syntactic context. It is this third list that Arad (2003) makes heavy use of.

MCM posits that different binyanim or *miškalim* (nominal patterns, parallel to binyanim for verbs) are category heads that provide the context that fix a specific meaning to roots, which are not only acategorical, but semantically underspecified, entailing that only root-derived words can have multiple meanings. Under the theory of Hebrew morphosyntax proposed by Arad (2005), the proposed basic Hebrew verb structure looks as such:

[4]It should be noted that though Bat-El (1994) rejects the Root-to-Pattern Association, she still uses a phonological framework of autosegmental phonology, with multi-tiered association of elements. Ussishkin (1999) provides an analysis of Stem Modification utilizing Optimality Theory, which seems well suited to the type of input-output faithfulness that cluster transfers exhibit.

(16)



Roots select for their category heads (to account for the fact that a single root is rarely, if ever, realized in all possible binyanim). The little *v* category head inserts the binyan 'skeleton' that was proposed by McCarthy (1981), with vowel melody being inserted at VoiceP (where active and passive alternations occur), and agreement and tense affixes inserted above VoiceP.

Here Arad (2003) builds upon the idea of locality domains proposed by Marantz (1997), which I quote from: "The syntactic head that projects agents defines a locality domain for special meanings. Nothing above this head may serve as the context for the special meaning of any root below this head." That is to say, as soon as a root is Merged with *v, n, a, ...* to become a word, a phase is formed and the meaning is fixed. Any further Merge operations using this semantically fixed word has no access to the semantically underspecified root.

Arad (2003) takes this to be the explanation for how roots realized as words in different binyanim and miškalim have a loose meaning relation to each other. A semantically underspecified root gets categorical assignment from a syntactic head, which also carries the phonological pattern to make the consonantal root pronounceable, and this Merge operation fixes its meaning semantically. Consider the following data from Arad (2003), where *C* represents an empty slot in the binyan or miškal for a root consonant:

(17) $\sqrt{}$sgr

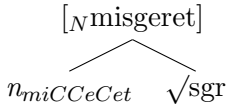
a.	CaCaC (v)	*sagar*	v, 'close'
b.	hiCCiC (v)	*hisgir*	v, 'extradite'
c.	hitCaCCeC (v)	*histager*	v, 'cocoon oneself'
d.	CeCeC (n)	*seger*	n, 'closure'
e.	CoCCayim (n)	*sograyim*	n, 'parentheses'
f.	miCCeCet (n)	*misgeret*	n, 'frame'

Based on this example, we can see that the root $\sqrt{}$sgr is underspecified with respect to meaning, having a meaning roughly involving some kind of containment. However, as predicted by MCM, it gets an idiosyncratic meaning when it gets category assignment through Merge, which via a binyan or a miškal also makes the root pronounceable.

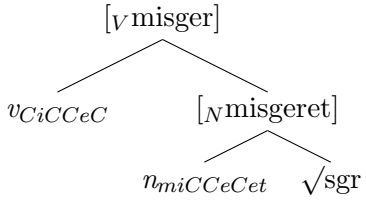
These fully formed words can also be used as bases for further word-derivations, of course, and it is in these cases of word-derived words that Arad (2003) claims Stem Modification happens. The paper also makes the crucial observation that MCM cannot apply in words that are word-derived (Arad focused specifically on denominal verbs). This is in observance of the locality domains as proposed in Marantz (1997), referred to in this paper as Locality Constraints.

Thus, from *misgeret*, 'frame', one can derive the verb *misger*, 'to frame', by Merging the noun with binyan Pattern 3, in the process treating the prefixal *mi-* as a part of the lexical stem rather than as a separate morpheme. The following diagrams demonstrate the following structure for *misgeret* from (17) and the respective denominal verb *misger*, meaning 'to frame (a picture)':

(18) Root-derived noun: *misgeret*



(19) Noun-derived verb: *misger*



The important thing to note about these two different derivations, is that in the case of the root-derived noun in (18), the word is formed from Merging directly with the semantically underspecified root. In doing so, it exhibits MCM, and can take on an idiosyncratic meaning.

However, in (19), with the denominal verb, *misger* is derived from the application of a verbal pattern to an already fully formed word with a fixed meaning[5] . According to Arad (2003) this intermediate word, *misgeret* forms a phase, and is a boundary to any nodes beneath it. As such, *misger* cannot exhibit MCM, as its base is not a root, but a word that has already been semantically fixed. The meaning of *misgeret* must be a part of the meaning of *misger*. *misger* can only mean 'to frame (a picture)', being derived from the word for 'frame'. It can never see the root to take an idiosyncratic meaning such as 'to write parentheses', which is plausible given (17e).[6]

This correlation between root-derived words exhibiting MCM, and word-derived words having a tight semantic relationship to their derivational base word, is Arad (2003)'s adaptation of Marantz (1997)'s locality domains into Locality Constraints. However, in the rest of this paper, I demonstrate that these correlations are severely weakened by the case of Modern Hebrew blends. Indeed, if the notion of Locality Constraints is to be kept at all, something else will need to be said to account for the blend data.

[5]It might be noteworthy to mention that /misgeret/ is either not just strictly analyzed edge-in as Bat-El (1994) proposes, as the final /-et/ is dropped in the syllabification and deleted by stray erasure. However, /-et/ here is a feminine singular nominal suffix, which makes it appear that some morphemes, *-et*, are truncated by Stem Modification, while others, *mi-* are considered to be part of the stem and are carried into the denominal verb. Arad (2005) acknowledges that this has yet to be explained.

[6]Arad (2003) also extends this analysis to English zero-related nouns, which exhibit the same correlation.

3 Blends are word-derivations, not root-derivations

Before looking at the apparent weakening, and possible violation, of Locality Constraints in the case of Modern Hebrew blends, we must first establish that these blends are derived from words and cannot be derived from consonantal roots. This needs to be definitively established as the apparent weakening of Locality Constraints in blends is only significant if they are derived from base words, in which case Arad (2003) makes the prediction that the fixed meanings of these base words should carry through to the derived blend.

Let us look at an attested Modern Hebrew blend:

(20) a.

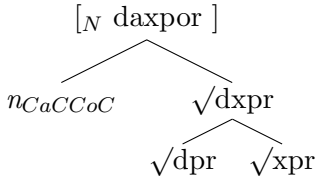
[$_V$ daxaf]	+	[$_V$ laxpor]	=	[$_N$ daxpor]
'push.PST.3.SG.MASC'		'dig.INF'		'bulldozer'

The primary fact to notice about (20) is that the resultant word 'bulldozer' does not seem to have the same tight meaning relation to its base words as we saw in (19) with *misgeret* and *misger*. While still retaining some of the meaning, the connection is weaker than that of non-blend word-derived words. I return to this later in §4.1.

For now, simply observe how the analysis in (20) involves the creation of a blend from two base words, *daxaf* and *laxpor*, making *daxpor* by definition an example of a word-derived word.

We could have offered instead an alternative analysis, which I argue is an incorrect analysis:

(21) Alternative blend analysis[7]:



According to this alternative analysis, two consonantal roots are combining to create a new root √dxpr, which then Merges with a miškal-carrying categorical head n in order to receive its voweling and become pronounceable. The appeal of this approach is that we could simply attribute any weakened semantic relation between a blend and its bases using the same Locality Constraints proposed by Arad (2003). The new root is itself underspecified with respect to meaning, and only has its meaning fixed when it Merges with a categorical head to become a lexical item. We would expect then, that the blend could show MCM, and only has a weak meaning relation to its base roots.

However, this analysis cannot be correct because of cluster transfers and vowel correlations in blends, as well as the fact that examples such as (20) have inflected words as base forms. The conclusion then, as is assumed in Bat-El (1996), is that blends fuse two words, and not two roots.

3.1 Input-Output Correspondences in Hebrew blends

3.1.1 Consonant cluster transfers

Bat-El (1994) used the data from consonant cluster transfers to show that Stem Modification cannot

[7]Hebrew has phonological spirantization of certain obstruents in certain environments, resulting in the allophonic pairs /b/ and /v/; /p/ and /f/; /k/ and /x/. Note, however, that historic /ħ/ has become /x/ in Modern Hebrew, but is not the result of spirantization. The /x/ in the *daxpor* examples is this historic /ħ/.

involve an extraction of consonantal roots. Likewise, we can apply this method to the case of blends, to provide evidence that blending must operate on words rather than any kind of consonantal root.

If this assumption that blend bases being words is true, then we expect to find that blends preserve consonant clusters where they exist in base words. Observe the following data (from Bat-El (1996)):

(22)	a.	[$_A$ šmanman][8]	+	[$_A$ namux]	=	[$_A$ šmanmux]	
		'plump'		'short'		'dumpy'	
	b.	[$_N$ pri][9]	+	[$_N$ yugurt]	=	[$_N$ prigurt]	
		'fruit'		'yogurt'		'fruit yogurt'	(brand name)'
	c.	[$_N$ cfarde?a]	+	[$_N$ xargol]	=	[$_N$ cfargol]	
		'frog'		'grasshopper'		'pin in shape of a frog or grasshopper'	

As predicted, when there is a consonant cluster in the base word, this cluster is transferred to the blend as well. All of the examples in (22) contain a left base word (B1; B2 for right base word) that has a complex onset—/šm/ in (22a), /pr/ in (22b), and /cf/ in (22c)—that shows up on the left edge of the blends as well. (22b) also has the additional cluster /rt/ on the right edge of B2 that is preserved in the blending process. If we are to employ the argumentation provided by Bat-El (1994), then the conclusion is that this consonant cluster transfer from bases to blend is evidence that the bases are indeed words and not consonantal roots.

A root based derivation of blends cannot completely explain (22b). Extracting the consonants from each base word and then concatenating them gives us the putative root $\sqrt{}$prgrt (orthographic 'y' is phonological semi-vowel /j/; semi-vowel root radicals behave in nuanced ways in Hebrew, and for simplicity's sake here, I treat /j/ as a vowel). As the line of argument in Bat-El (1994) goes, this putative consonant root does not contain any information regarding the original consonantal clusters, and does not allow us to account for how these clusters are transferred. Concretely speaking, the unattested forms **pirgurt* and **pirgrut* are acceptable by Modern Hebrew phonotactics and maximally preserve the vowel melody of the base words, and yet remain unrealized. Similarly, adapting the mišqal miCCeCet – which gave us *misgeret* from the root $\sqrt{}$sgr – to the putative root $\sqrt{}$prgrt would produce unattested forms such as **mipregret* and **mipregeret*.

As such, consonant cluster transfers are compelling evidence that blends cannot involve a process of rebuilding a word from some putative consonantal root that is the result of extracting consonants from the base words, establishing a Designated Identical Segment[10] , and then subtracting material in both base forms relative to the Designated Identical Segment (rightwards in B1 and leftwards in B2). Such an approach cannot account for the consistent correspondences in base clusters reappearing in the output blend, especially when other phonologically valid cluster options are available.

[8] A reduplicated form of *šamen*, 'fat', from the root $\sqrt{}$šmn

[9] Not all nouns in Hebrew are a combination of a consonantal root and a mšqal. Arad (2005) writes that "syllabic roots do not need to be altered so as to be made a into [sic] a string, and therefore do not take mišqal morphology." This is the equivalent to little *n* heads in English that have a null phonological value.

[10] Bat-El (1996) establishes what she calls the Designated Identical Segment (DIS) constraint, which I paraphrase as such:

(23) *The Designated Identical Segment constraint*: Both base words must independently have the same consonant, and this consonant must also appear in the blend

3.1.2 Vowel correlation

Aside from simply looking at the consonants of bases and blends, we can also notice that there is a perfect vowel correlation between bases and blends. Any hypothesis of blends being root-derived would have a hard time capturing this relation between base word vowels and blend vowels, due to the vowel melodies of various blends not corresponding to any type of morphological vowel melody.

So to once again look at *prigurt*, let us assume again a putative new root √prgrt. Assuming we want to make a nominal, we might expect that this root could Merge with a *n*, with some phonological mišqal: for example, miCCeCet, which we saw in the case of *misgeret* from the root √sgr. Also assuming that we can 'squeeze' a phonologically acceptable consonant cluster into one C slot, we might predict the form **mipregert*, which is unattested.

Furthermore, this type of analysis would predict a vast number of mišqalim, one for each putative new root and its output form. Take for example the following blend:

(24)	a.	[$_N$ demokrat]	+	[$_N$ diktator]	=	[$_N$ demoktator]
		'democrat'		'dictator'		'democrat behaving like a dictator'

The putative new root in (24), √dmkttr would need to Merge with an *n* that had the mišqal CeCoCCaCoC. This seems slightly absurd to posit, as the form would be so specific that it would probably not apply to any other roots, as the root would need to be composed of six consonants – which is unheard of as far as I know in Hebrew – and the mišqal would also involve a four-segment vowel melody that probably does not show up many other places. These vowels would also correspond perfectly with the unclipped vowels of the base words, a generalization that would be totally be missed by this type of new root approach.

It would be much simpler to posit that the form that the nominal head *n* Merges with is a fully syllabic form, complete with vowels. At that point, one nominal head *n* that assigns category to this form would have null phonological value could do all the work instead of large set of hypothetical mišqalim that might only appear once. And in fact, Arad (2005) also acknowledges the need for a nominal head *n* with null phonological value.

As a result, the perfect vowel correlation between bases and their blends provides further evidence for believing blends are word-derived rather than root-derived.

3.2 Inflected base words

In order to demonstrate that blend bases must be words, we can also look data where the bases are inflected. This is most apparent in verbal bases. Observe the following blend, which is the masculine singular participle meaning 'be boastful and insolent':

(25)	a.	[$_V$ mištaxcen]	+	[$_V$ mitxacef]	=	[$_V$ mištaxcef]
		'boast.PRT.SG.MASC'		'be insolent.PRT.MASC'		

In (25) above, an analysis of the base words using consonantal roots identifies the roots of B1 as √šxcn and B2 as √xcp. The *mit-* [11] is a prefixal element that is part of the P7 binyan (*hit-*CaCCeC) agreeing with tense and agreement features, and neither of the consonants /m/ or /t/ in this prefixal element would be analysed as part of the consonantal root in any analysis of Hebrew verbs.

[11] For the purposes of this paper, it doesn't really matter that there is metathesis occurring in the case of *mištaxcen*.

If that is the case, and blends were truly a process of combining roots rather than words, then we might expect the derived blend to lack this prefixal element. The fact that *mištaxcef* contains the prefixal element implies that it is words being blended rather than roots.

An argument against this reasoning might be that consonantal roots are being combined, and the resultant new consonantal root is applied to a templatic binyan, where the *mit-* prefixal element can show up again.

(26)	NEW CONSONANTAL ROOT:	$^*\sqrt{}$šxcf
	BINYAN:	hit-CaCCeC (P7)
	TENSE/AGR:	mit-CaCCeC
	NEW VERB:	mištaxcef

However, this analysis does not allow us to capture the fact that the resultant blend corresponds to the identical binyan, P7, as the base elements. If only consonantal roots were being blended into a new consonantal root, there would be no constraint on this putative root locally selecting for any v head and corresponding binyan, especially since we have established that via MCM, it could get the intended meaning in any binyanim. The fact that the blend's binyan correlation is identical to that of the base word's implies that a root blending analysis is insufficient.

Furthermore, we can look at data points in which at least one of the base words has an inflected form that would not be considered 'default'. By default here, I am referring loosely to a viewpoint such as the one used by Ussishkin (2005), in which the conclusions of Bat-El (1994) are borne through, and it is assumed that no Hebrew verbs are derived from consonantal roots, but rather that "one binyan – taken as morphologically underived – serves as the base of affixation for the others and that prosodic constraints govern this relation." Ussishkin (2005) assumes that this one morphologically underived binyan is P1(CaCaC), inflected for past tense 3rd person singular masculine.

I make this point about blend bases being fully inflected words in order to counter the potential argument that a morphologically underived verb in binyan P1 is in fact a non-consonantal root in the construction of blends. That is, if we are to believe the argument of Ussishkin (2005) that there are no consonantal roots in Modern Hebrew, and that there is instead a morphologically underived form that serves as a base of affixation for further derivations, we might posit that this form is a morphological root in Modern Hebrew in the Distributed Morphology sense I have been talking about up to this point (though this generalization is likely to miss the form/meaning correlations that Arad (2003) captures).

However, even if we are to assume that these underived P1 forms are roots, there are blends in Modern Hebrew wherein the bases are not these putative underived root forms, but rather fully inflected verbs. If this is the case, then it shows that even under an analysis where Modern Hebrew roots are non-consonantal and have the form of P1 verbs, blends must still take words as bases for derivation and not these putative roots. Consider again the reproduced example of *daxpor* in (20), as well as another data point from Bat-El (1996):

(27)						
	a.	[$_V$ daxaf]	+	[$_V$ laxpor]	=	[$_N$ daxpor]
		'push.PST.3.SG.MASC'		'dig.INF'		'bulldozer'
	b.	[$_N$ sukar]	+	[$_V$ razit]	=	[$_N$ sukrazit]
		'sugar'		'lose weight.PST.2.SG.FEM'		'saccharin' (brand)

Looking at *daxpor*, we see that B2, *laxpor*, is the infinitive form of the verb, and that in (27), B2 is a finite verb inflected fully for tense, person, gender and number. Assuming that only words can have these inflectional features, the data implies that these bases are words rather than roots. That is, while Ussishkin (2005) might propose that a morphologically underived P1 form *raza* is a root, there is no reason to believe that *razit* in (27b) is also a root. This analysis is not consistent either with the assumption that inflectional features are properties of words rather than roots, or the arguments of Ussishkin (2005), which argues that only the P1 form is the morphologically underived base of affixation. This implies that *razit* must be an inflected verb regardless of the analysis[12] .

Thus, the data here show that blend bases must be words rather than roots, on account of certain verbal base forms showing inflectional morphology. A consonantal root blending analysis has no way of explaining how these non-root morphemes are transferred from base to blend. Furthermore, the presence of specific inflections, such as in (27), give further evidence that no matter what we decide the nature of the root is in Modern Hebrew, the base of the blend cannot be a root, as it exhibits the inflectional morphology consistent with verbs.

4 Do Locality Constraints apply to blends?

Now that we have seen several reasons to believe that Modern Hebrew blends involve a process combining full words and not roots, consonantal or otherwise, we must consider how they behave with regards to the Locality Constraints proposed by Arad (2003). Blending is a means of deriving a word from other words within the language, and indeed, Bat-El (1996) makes the following comment: "blending is part of derivational morphology, a component of the grammar which is known for a certain degree of idiosyncrasy".

4.1 Category assignment of blends

Other than phonetic subtraction, the idiosyncrasy that is specifically addressed by Bat-El (1996) is that blending does not have any categorical restrictions on its bases, nor does it specify the order of its base words with respect to category; rather, the paper demonstrates that it is the Designated Identical Segment that constrains base word ordering.

Similarly, and with more relevance to this paper, blending's ignorance to syntactic category of its base words allows for the category of the blend to be arbitrary with respect to that of the bases. Generally, the category will overlap with that of at least one of the bases', but unlike the case of Hebrew noun-noun compounds, this overlap is not consistent. Consider again the reproduced paradigm of *šir ahava* in (3)

(28) (a) [šir ahava] tov
song.GEN love good
'a good [love song]'

(b) [šir-ey ahava] tov-im
song-GEN.PL.MASC love good-PL.MASC
'good [love songs]'

[12]There is a slight vowel alternation in the case of this verb, with a consonantal root analysis $\sqrt{}$rzh. Verbs where the final consonant is /h/ demonstrate a /a/→/i/ vowel alternation for various inflections in the P1 binyan paradigm.

(c) [šir ha-ahava] ha-tov
song .GEN the-love the-good
'the good [love song]'

(d) [šir-ey ha-ahava] ha-tov-im
song-GEN.PL.MASC the-love the-good-PL.MASC
'the good [love songs]'

The left word in the compound is the semantic head of the compound, as a love song is a kind of song. Predictably, then, the semantic head also appears to be the syntactic head, giving the compound the same categorical features as it has.

However, we cannot clearly see this in (28), as both base words are nouns. Consider, then, the following compound in Hebrew:

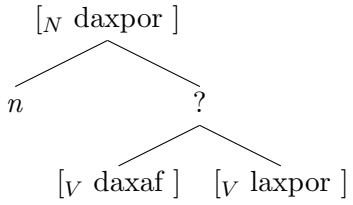
(29) a. [$_A$ kal] + [$_N$ raglaim] = [$_A$ kal raglaim]
'light' 'legs.DUAL' 'fleet-footed'

As the example in (29) demonstrates, a compound from an adjective and noun is not only semantically headed once again by the left word, but that it also seems to get its category features from this word. Thus, *kal* is the semantic head, as well as the morphosyntactic head, and *kal raglaim* is the same category, regardless of B2's category.

However, as soon as we look at Modern Hebrew blends, and English compounds like *must have*, we can see that categorical features do not get passed on in all cases. Considering once again the example of *daxpor*, we see that both B1 and B2 of the blend are verbs, while the blend itself is a noun. This shows that in the case of blends (and certain English compounds), we cannot analyse either base word as a morphosyntactic head of the blend; that is, the blend cannot be a projection of either of its base words.

It seems then in the case of *daxpor*, B1 and B2 must first be combined in what I will refer to for now as bMerge. The node that is created from bMerge can then Merge with little n to produce the nominal blend *daxpor*:

(30)



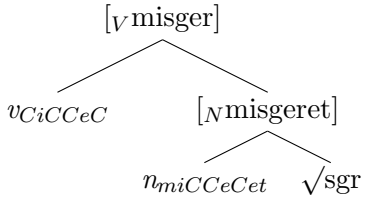
If the structure in (30) is the structure that the data lead us to analyse, then the question at hand is the nature of the node created by bMerge, represented by the question mark in the tree. Before I hypothesize on the nature of this bMerge operation, let me first point out the semantic problem this structural analysis presents with respect to Locality Constraints.

4.2 Weakened semantic correlations

One observation should be becoming increasingly apparent: in blends such as *daxpor*, the meaning correlation between the blend and its base words appears to be far weaker than in other word-derived words we have seen. The Locality Constraints of Arad (2003) do not appear to apply in the same way to blends as they do to denominal verbs.

So while a bulldozer can push and dig (and push to dig), it does not seem to be as tightly constrained in meaning as we might expect by Locality Constraints. The meaning correlation between 'bulldozer' and 'push' and 'dig' intuitively feels weaker than the meaning correlation between '(a) frame' and 'to frame' in (19) reproduced here.

(31) Noun-derived verb: *misger*



According to the Locality Constraints proposed by Arad (2003) we expect any word derived from another word to inherit the meaning that has been fixed at that phase of derivation, as was demonstrated with *misgeret* and *misger*. However, blends show that the fixed meaning of the base words are not fully inherited by the blend. This severely weakens the correlations that Arad (2003) bases her theory of Locality Constraints upon.

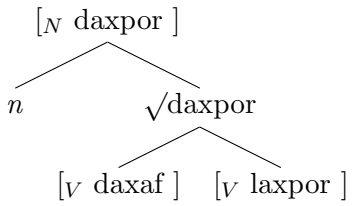
Bat-El (1996) writes "many blends are compositionally exocentric (semantically similar to appositional compounds such as *deaf-mute*), where the notion of a semantic head is irrelevant" . The following examples, including *šmanmux*, which I will reproduce from (22a), demonstrate this exocentricity:

(32)	a.	[$_N$ pomela]	+	[$_N$ ʔeškolit]	=	[$_N$ pomelit]
		'pomelo'		'grapefruit'		'hybrid fruit of pomelo and grapefruit'
	b.	[$_A$ šmanman]	+	[$_A$ namux]	=	[$_A$ šmanmux]
		'plump'		'short'		'dumpy'
	c.	[$_A$ kal]	+	[$_A$ kar]	=	[$_N$ kalkar]
		'light'		'cold'		'polystyrene'
	d.	[$_N$ ʔafarsek]	+	[$_N$ šezif]	=	[$_N$ ʔafaršezif]
		'peach'		'plum'		'nectarine'

In these examples, we see that the meaning of the blend has some meaning relation to its base words, but it is by no means as tight as we see in the cases of other derivational processes, such as denominal verbs. Rather, we essentially see idiosyncratic meaning that is more consistent with Arad (2003)'s theory of MCM. As mentioned before, however, MCM should only apply to root-derived words. Given that I have given sufficient evidence to show that the bases of a blend are words, though, any putative new root must be a derivation from these base words.

Given the structure proposed for *daxpor* in (30), this conclusion motivates an analysis where the node formed by bMerge is a root. This would allow us to allow for the weakened meaning correlation between the blend and its bases without violating Locality Constraints. The putative structure would look like the following:

(33)



This, however, looks troubling in multiple respects: it is first of all unclear how a root, as a theoretical primitive in the syntax, is created by the syntax itself. Furthermore, it is unclear what the nature of the operation combining the two base words really is. This does not seem to be an instance of Merge, as I have provided evidence that the resultant node is a projection of neither daughter.

If there is a Merge operation on the two base words, then one of them must necessarily be the head of projected node. This clearly does not seem to be the case, as examples such as *daxpor*, where the blend is of a different category than either base, demonstrate. In order for this intermediate node to be a root created via Merge, we expect the root features – whatever those might be – to be in one of the daughters, and then projected upwards.

However, even if we were to take this approach, this analysis would not provide any insight on other problems. For example, allowing root features to be projected does not resolve the apparent morphosyntactic headlessness of bMerge. Even if root features could project in the putative bMerge operation, it is unclear which base they would be projecting from, if not both. This is due to the independent reasons in the literature to believe that blends can be exocentric with respect to having neither syntactic nor semantic heads.

If what I have been calling bMerge is to be proposed as another operation altogether, then the inventory of Minimalist operations must be expanded. This would ideally require more independent motivations, as well as, perhaps more importantly, a more precise formal definition of what bMerge actually is.

4.3 Reification Operation

Turning to some of the work done on compounding in Distributed Morphology might help us with making an analysis. Harley (2008) writes the following regarding an XP that behaves syntactically like a root, in what she refers to as part of the reification process: "in order for the XP's denotation to compose with the reifying n° [what I have been referring to as little *n*] head, [...] the LF of the XP has to be accessed by the conceptual-intentional system, and fully interpreted. The XP itself is then not able to enter into further computation *as itself*; rather, it becomes a symbol, a Saussurean sign, for the concept which it evokes." As an example, she cites such phrases as *bikini-girls-in-trouble genre*, where she claims that it appears that a phrase XP has undergone a zero-derivation to become a nominal: [[XP] *n*].

The next sentence from Harley (2008) states, "we could propose that the XP is created in a separate derivational workspace from a separate Numeration, sent off to LF for interpretation, and then 'renumerated' as a Root." This analysis, then, looks a lot like the new root hypothesis above, except that the formation of the new, or renumerated, root is not a process of Merge. Instead, the reification operation proposed involves the XP being interpreted in LF separate from that of the matrix clause, allowing the internal meaning to be calculated. At that point, the XP form gets reanalyzed as a root, with the idiosyncratic meaning provided by its LF interpretation, and can be Merged with a category head, such as little *n*.

This does not entirely solve the problem of blends, however. Primarily, this reification operation would have to assume that the two base words compositionally form an XP which can be sent off to LF for interpretation. In order for this reification operation to happen, it still requires some constituent structure of the two base words in a blend, in order for a meaning to be calculated. This causes us to run into the same problems we saw before of apparent headlessness in bMerge, both syntactically and semantically. Thus, while the reification operation mentioned in Harley (2008)

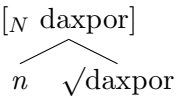
gives a non-formulaic explanation of how an XP can be renumerated as a root, it does not give any insight onto the problem of what the XP comprising the base words actually is in the case of blends.

However, perhaps this reification operation can be adapted to the case of blends. A potential analysis might propose that the blending process consists of two steps. The first step is strictly phonological, and creates a phonological form from two base words. Crucially, this step would not involve any derivational combination in the morphology; it only creates a phonological form. This phonological form has no morphosyntactic features until it gets renumerated as a root, which then allows for the further derivation of the blend. Thus, a derivation of *daxpor* might look something like the following:

(34) (a) daxaf + laxpor = /daxpor/

(b) /daxpor/ → √daxpor (via a reification operation)

(c)



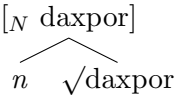
This analysis presents further complications. First of all, it offers little insight into how the meaning of the new root is established. If only the phonological form is carried over in the derivational step in (34a), then we expect that all meaning must also be lost. However, while the meaning of the blend is not tightly related to its base words, there is a sense in which the meaning is related to these words in the same way that we see idiosyncratic meaning in MCM in Arad (2003) and Arad (2005). Put another way, if the step in (34a) only transfers phonological information, then there is no constraint on the step in (34b) from having an arbitrary – as opposed to idiosyncratic – meaning such as 'rocket ship'. The problem with an analysis like (34) is that it completely obliterates any correlation in meaning between base words and derived blend, chalking the loose relatedness in meaning to chance.

A solution to this could be to say that it isn't the phonological form of the base words being phonologically blended that is renumerated as a root, but the base words themselves. That is to say, while I have given evidence to believe that blend bases are roots, perhaps these base words are renumerated as roots before the blend's derivation occurs. As such, blends may in fact combine roots rather than words, but the roots that are combined are not the daughters of the base words, but rather the base words themselves renumerated as roots:

(35) (a) daxaf → √daxaf
laxpor → √laxpor

(b) √daxaf + √laxpor = √daxpor

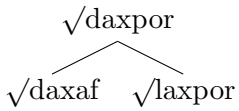
(c)



The structure in (35c) is proposed in order to allow for the seemingly idiosyncratic meaning of blends, which doesn't appear to be entirely compositional from the structure of its base. However, we can see that it doesn't really solve the issue any better than the derivation in (34). There is not formal description for the step of the derivation in (35b): what are the mechanisms behind this step?

Clearly this is the stage of the derivation where the phonological blending occurs, as well as the semantic composition of the new root. Whereas the latter may be analyzed by Bat-El (1996), it is unclear how the semantic composition of two semantically underspecified roots into a new semantically underspecified root occurs, especially if we want to assume that semantic composition in LF is based on syntactic structure. Such an assumption would cause us to assume that (35b) has the structural analysis in the following tree, which presents all the problems with headlessness seen above:

(36)



As I have said before, if the blending process involves an analysis like (36) at some point in its derivation, either we must reconsider how Merge operates, or propose a new syntactic operation altogether. As it stands, then, it does not appear as if a new root analysis is a viable option to account for the Hebrew blend data.

As such, I offer an alternative analysis that can account for the data without directly rejecting the assumed morphosyntactic framework.

5 Meaning Idiosyncracies in Idiomatic Root Merge

One way to account for these data on blends and their idiosyncratic meanings is to look towards idioms, such as *kick the bucket*, which clearly have syntactic structure, while having idiosyncratic meaning. My claim is twofold: first that the definition of Locality Constraints in terms of phases must be abandoned in favour of an Idiomatic Root Merge (IRM) approach; and second that the structure of an expression with idiomatic meaning must be different than that of the same expression with a literal expression. So *kick the bucket* meaning to 'die' has a different structure than *kick the bucket* meaning to literally 'kick the bucket'. This approach to idioms also applies to blends, and accounts for the idiosyncratic meanings generated by them, while still accounting for the semantic correlations observed by Arad (2003).

5.1 Idiomatic Root Merge

Consider the following simple structure:

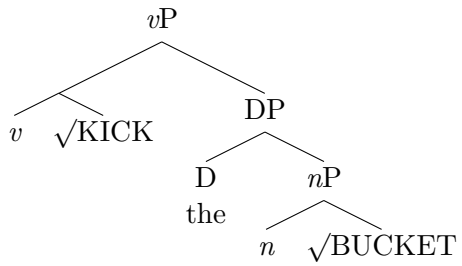
(37)

The claim that Arad (2003) and Marantz (1997) want to make is that a node xP formed by Merging a root with the category head x is a phase, meaning essentially that the structure of that node is sent off to LF to be interpreted, and that anything dominating xP can no longer modify the internal meaning of xP. This is to account for the idiosyncratic meanings of xP that depend on what x specifically is, such as with the binyanim in Hebrew verbal morphology.

However, as the data with blends have shown, fixed meanings at xP seem to be capable of being overridden at some higher node that dominates xP. We also see this with idiomatic expressions, where roots that have been Merged with category heads to form fixed meanings seem to have their

fixed meanings overridden at some higher node. Consider the standard structure for an expression such as *kick the bucket*:

(38)

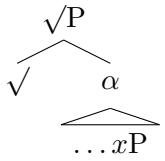


In (38), *n*P should be a phase, according to Arad (2003) and Marantz (1997), fixing the meaning of the root √BUCKET to the noun *bucket*. This fixed meaning should then be inherited by all nodes that dominate *n*P. However, this is clearly not the case when *kick the bucket* is used idiomatically to mean 'die', which does not involve a bucket at all.

Instead of using phases, then, I propose that idiosyncratic meaning at *x*P is only introduced because a root is Merged with *x*. While this analysis of idiosyncratic meaning looks similar to the idea of Locality Constraints discussed in this paper, the crucial distinction is that *x*P *does not* form a phase in my analysis.

As a result, while *x*P fixes an idiosyncratic meaning of the root, if another root is Merged with a node α that dominates *x*P, then anything dominated by α, including *x*P, can have idiosyncratic meaning; any meaning that has been 'fixed' can thus be overridden. Consider the following schematic and definition of Idiomatic Root Merge:

(39)



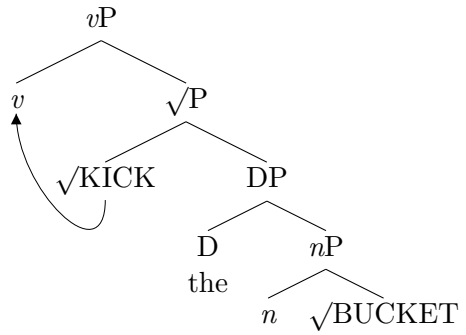
(40) **Idiomatic Root Merge:** Idiosyncratic meaning can only be created by Merging a root with a node α, and this meaning need not be compositional of any fixed meanings dominated by α.

To reiterate, I claim that Idiomatic Root Merge assigns an idiosyncratic meaning to √P, but that this node is not a phase, and can be recursively assigned an idiosyncratic meaning as many times as there is a new Idiomatic Root Merge. And while this definition accounts for how idiosyncratic meaning is created, more must be said regarding the structure of IRM when the root's sister is something other than a category head. Specifically, it is necessary for the idiom created to include structures above the root that is Merged.

5.2 IRM structure

Given my analysis of Idiomatic Root Merge, I reanalyse the canonical structure of idiomatic *kick the bucket* as given in (38). While that analysis can account for the literal meaning, I make use of IRM to account for the idiomatic reading.

(41)



In (41), the root √KICK Merges directly with [$_{DP}$ the bucket], which allows for an idiosyncratic meaning 'die' to be formed at √P. √P is where the idiosyncratic meaning of the idiom gets fixed. Like Richards (to appear), then, I am also making the claim that "elements of idioms may include not just words, but parts of words": the elements of the idiomatic *kick the bucket* do not include the verb *kick* at all, but only the root √KICK.

This root must then undergo head movement up to v in order to get its category assignment and become a word. This is crucial for my analysis of Modern Hebrew blends, in which consonantal roots are unpronounceable, and demonstrate inflectional properties.

First, however, more must be said about the structure of IRM in idioms. The root in (41) is selecting for its sister α. This is not unusual, and in fact, in order to account for the vast majority of roots not appearing in every possible binyan Arad (2005) makes this claim that Hebrew consonantal roots select their v sisters.

Having √KICK simply select a DP sister, however, cannot account for the fact that the idiom depends specifically on the form "the bucket". So in contrast to a root normally selecting a category head, which is a syntactic feature bundle, in the case of an idiom the root selects the specific form itself, including phonology. As such, √KICK is not selecting for DP, but for "the bucket". This matches the data that idioms are relatively specific in how they are constructed, and alternative constructions with identical syntax and semantics do not create the same idiom:

(42) *John kicked the pail.
(cannot mean 'John died.')

For all relevant purposes that I see, *pail* has the same syntax and semantics as *bucket*, and in any non-idiomatic context are interchangeable. However, (42) does not have the idiomatic meaning of *John kicked the bucket*, implying that what the root √KICK selects for is more than just the syntactic and semantic features of its sister.

At the same time, it is not simply the phonological form that is selected either:

(43) *John kicked the buck it.

Assuming that *bucket* and *buck it* are phonologically identical in this context, (43) should be a grammatical idiom meaning 'John died' if the root √KICK were only selecting for phonological form. However, this is clearly not the case, and phonology is cannot be the lone factor at play in the root's selectional requirements. Rather, combined with the data from (42), it is clear that the root must be selecting for the entire specific form of its sister, including syntax, semantics and phonology.

Assuming that a root can select a specific form as its sister, we must also constrain the category head that c-commands the root. In (41), there is currently no constraint on the category head where v is. In theory, there could just as easily have been an n there, and via head movement, we would have an idiomatic nominal expression **(a) kick the bucket*. This is of course, unattested, and we must constrain which category heads c-command the IRM root.

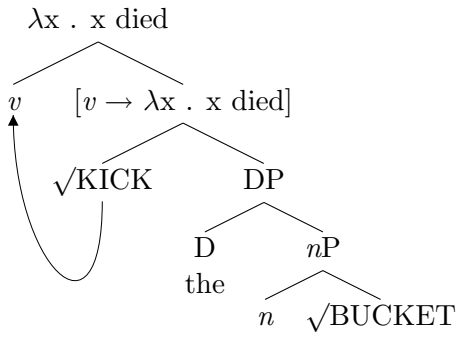
This can be done by making the IRM root a two-place predicate which selects for its sister first, and then for the specific category head that it will move to in head movement. Roughly speaking, then, the semantics of the idiomatic $\sqrt{}$KICK would look something like the following:

(44)

$$\sqrt{\text{KICK}} = \begin{bmatrix} v \rightarrow \lambda \text{x . x is kicked} \\ \text{"the bucket"} \rightarrow [v \rightarrow \lambda \text{x . x died}] \\ \dots \end{bmatrix}$$

Thus, if $\sqrt{}$KICK simply selects for a v category head, then we get the literal verb *kick*. However, if $\sqrt{}$KICK selects for "the bucket", as in the idiomatic reading, then it must also Merge with v afterwards in order to get the intended idiomatic meaning of λx . x died. Simply Merging with "the bucket" does not yield any semantic meaning that can take an argument, but by making $\sqrt{}$KICK a two place predicate in the idiomatic reading, we can ensure that it can assign idiosyncratic meaning via IRM, but also show up as a verb. So to reproduce the tree in (41) with some semantic nodes:

(45)

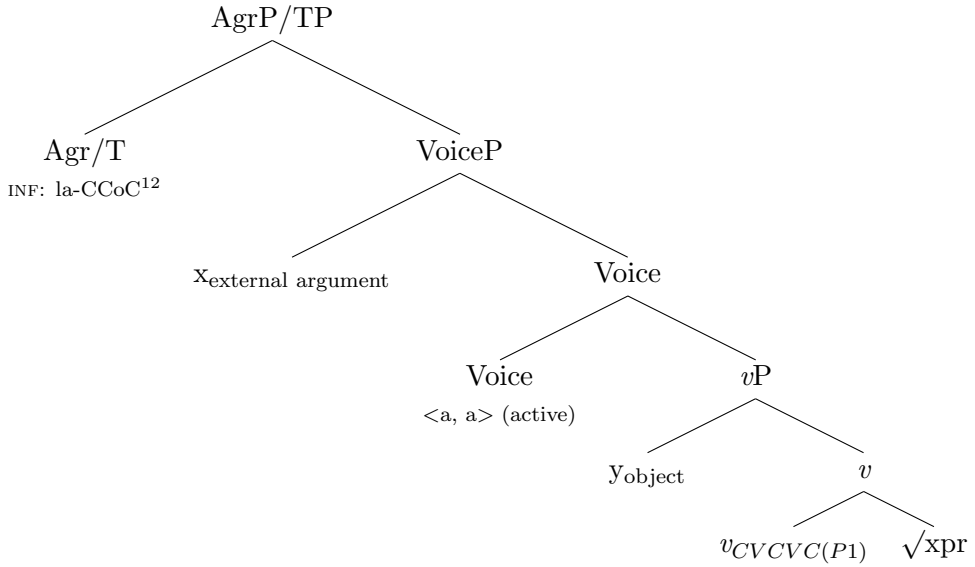


Using IRM, and the analysis that idiomatic expressions have different morphosyntactic structure than their non-idiomatic counterparts, we can account for idiosyncratic meanings in a compositional manner, which will need to be further refined semantically, as well as tested with a greater variety of idiomatic expressions.

5.3 IRM and Modern Hebrew Blends

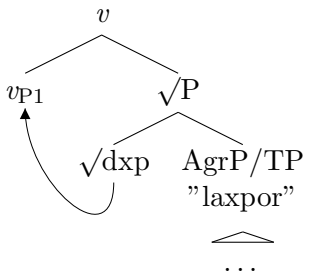
Turning back to Modern Hebrew Blends, we are now equipped to provide an analysis of their idiosyncratic composition using IRM. Let us look again at the example *daxpor*, a blend of *daxaf* and *laxpor*. Using the basic verb schematic given by Arad (2005), we can derive *laxpor*, omitting non-crucial parts:

(46)



At this point the B1 root √dxp selects the form "laxpor" via IRM as well as the P1 *v* category head:

(47)



Because of IRM, there can be an idiosyncratic meaning 'bulldozer' created when √dxp Merges with AgrP/TP.

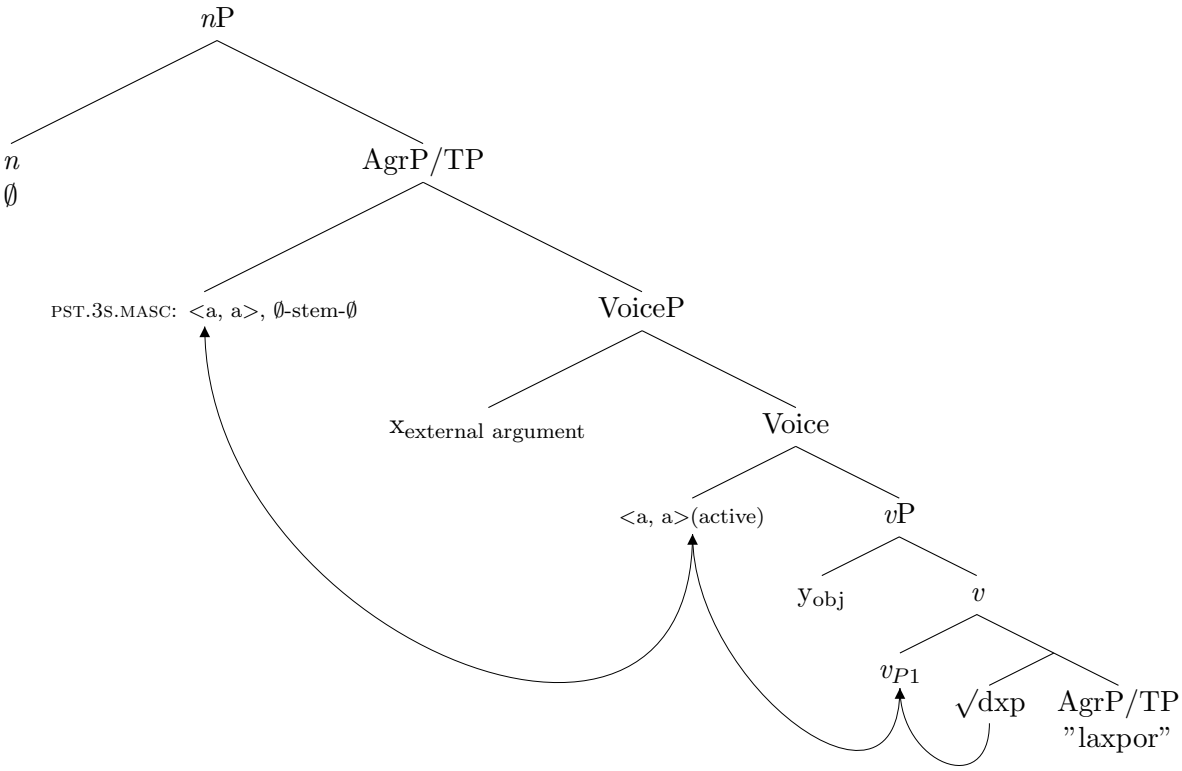
However, it is at this point that my analysis makes a powerful claim: because *daxaf* is fully inflected, the idiomatic root √dxp cannot select only for *v*, as we saw with idiomatic *kick the bucket*, but it must also select every subsequent head in the Hebrew verb structure in order to get the inflection required for phonological blending. Not only that, but because *daxpor* is an *n*P, idiomatic √dxp must also select for the *n* category head that Merges with the AgrP/TP node that forms the inflected verb *daxaf*. This makes the claim that idiomatic √dxp is not a two-place predicate, but at least a six-place predicate.

And while there is nothing to directly refute this analysis, having an idiomatic root be a six-place predicate is an extraordinary claim and opens the door to having potentially unbounded idiomatic roots that are *n*-place predicates. Even more problematic is the fact that this idiomatic root is selecting for syntactic heads that are beyond its Spec position.

These potential problems aside, if we assume that the idiomatic root √dxp can be a six-place predicate, an analysis of *daxpor* arises:

[12]This is a bit of a shorthand for various phonological processes involved with Hebrew infinitives in P1, which in this case first add the allomorphic prefix *la-* (in complimentary distribution with *li-* and *le-*). Then there is presumably some process similar to Stem Modification in which the vowel melody is overwritten to <a, o> edge-in, deleting the medial vowel in the process to make a bisyllabic form.

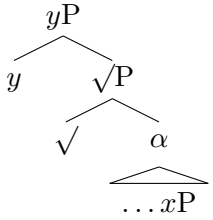
(48)



The tree above presents a further minor complication: what do we make of the external argument and object in the AgrP/TP of √dxp? They do not seem to manifest in any way in the meaning of the noun *daxpor*. And unlike the arguments of *laxpor*, there is no Idiomatic Root Merge with any node dominating the AgrP/TP of √dxp that might override any meaning.

If, then, we are to include blending within the realm of derivational morphology, then the structure in (48) provides an analysis for how idiosyncratic meaning can be created in the combination of two words. If the notion of Locality Constraints in terms of phases is abandoned, and redefined in terms of IRM, then it is possible for an idiosyncratic meaning of a node √P to be fixed without inheriting the fixed meaning of a daughter node xP. To reproduce a schematic structure of IRM and updated definition:

(49)



(50) **Idiomatic Root Merge:** Idiosyncratic meaning can only be created by Merging a root with a node α, and this meaning need not be compositional of any fixed meanings dominated by α. If the root specifically selects a phrase as its sister instead of a category head, it must also select at least one category head in a position that c-commands the root. The root will then undergo head movement to each c-commanding category head it selects to be assigned the idiosyncratic meaning of the idiom.

Beside the form of α, the idiomatic root that merges in IRM must also select, at the least, a category head y, as well as moving up to y via head movement. This analysis applied to my data also seems to imply that the idiomatic root can be an n-place predicate, selecting for as many heads as necessary to create an idiosyncratic meaning. This paper leaves it unresolved whether or not there are constraints on how large n can be, and what the implications of the idiomatic root selecting beyond its Spec position are.

6 Conclusion

The data presented in this paper have shown that blends in Modern Hebrew must necessarily be a result of combining words, rather than roots. If this is the case, however, we would expect to see Locality Constraints as defined by Arad (2003) to apply, forcing the meaning of the blend to incorporate the specific, fixed meanings of its base words. And while there is clearly some relation between base word meanings and blend meanings, it is not as tight of a correlation as Locality Constraints predicts.

This overriding of seemingly fixed meanings occurs in idioms as well, and thus an analysis of idioms can shed light on the analysis of blends. By doing away with Locality Constraints in terms of phases, and accounting for idiosyncratic meaning in terms of Idiomatic Root Merge, we do not lose the generalizations captured by Locality Constraints, but are also able to account for the overriding of fixed meanings. By having a root arbitrarily select for the specific form of its sister and create a new idiosyncratic meaning, this overriding can be explained structurally. Ensuring that the root in IRM becomes a word of the correct category is then a matter of making the root an n-place predicate that also selects for the necessary heads to properly inflect the idiomatic root. Phonological blending, as outlined in Bat-El (1996), would then occur at PF if there is a Designated Identical Segment.

Thus, by proposing IRM, the idiosyncratic meaning of blends and idioms can be accounted for in a somewhat compositional manner. The precise denotations and nature of the IRM operation must still be refined, of course, and the best course of action in that regard would be to examine more examples of phrasal idioms with varying internal structures to see if my IRM proposal holds. The issue of external arguments within base words that don't manifest must also be resolved.

If it turns out that Idiomatic Root Merge holds up to these situations, it would allow us to keep an analysis of Hebrew morphology that preserves the traditional fully consonantal root, and concomitantly provide an account of how idiosyncratic meanings are created within Distributive Morphology.

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