CHAPTER 3

MORPHEME OVERLAPPING IN WORD-BLENDING

3.0 Introduction

Compounding is a morphological process that combines two free morphemes to create a new word. In regular compounds, the two formatives appear in strict linear order such that the second morpheme begins where the first one ends.

(1) [m e d i a] [n o ch e] *Source Forms*

'half' 'night'

m e d i a n o ch e *Compound*

'midnight'

Blends are a type of compound where morphemes break that strict linear order by overlapping. A two-to-one correspondence relationship may be established between two segments in the source forms and a single segment in the blend. In (2) below, the segments *s, c, i* in the source form *sucio* and *s, c, i* in the source form *sociedad* share a single correspondent in the blend *suciedad*.

(2) [s u c i o][s o c i e d a d] *Source Forms*

'dirty' 'society'

s u c i e d a d *Blend*

'dirty society'

This type of correspondence relationship results in morpheme overlapping given that the segments in the source forms sharing a single correspondent in the blend belong to different morphemes.

Known as *blends, amalgams, portmanteaux* (or *cruces,* in the Spanish literature), this word-formation process has been attested in languages such as English (as early this century as Bergstrom 1906, Wood 1911 and more recently in Hockett 1967, Soudec 1970, Adams 1973, Devereux 1984, Cannon 1986, Janda 1986), Spanish (García de Diego 1922, Urrutia 1978, Meier 1983, Pharies 1987), Japanese (Kubozono 1989, 1990), Arabic (Bat-El 1996), French, German and Russian (Berman 1961). Despite their being crosslinguistically attested, it was not until recently that blends began to be seen as the result of a true word-formation process and not just as an oddity arising from some slip of the mind. From this viewpoint, blends are a challenging type of morphological process whose functioning has not yet been totally understood.

I propose to account for morphological blending through the interaction of the constraints NO-PWd* and ALIGN(M⇔P). NO-PWd* bans prosodic word recursion whereas ALIGN(M⇔P) demands that each edge of a morphological word match the corresponding edge of a prosodic word. Under the ranking NO-PWd* >> ALIGN(M⇔P), the two morphological words that are being combined must do so under a single prosodic word. By beginning or ending at the same point, the two formatives manage to align the greatest number of word edges possible, so that ALIGN(M⇔P) is violated minimally. Morphological blending is presented here as another piece of evidence in support of the claim that Spanish word formation is not exclusively concatenative.

The organization of this chapter is as follows: Section 3.1 describes the properties of blending. Section 3.2 reviews previous analyses that are representative of the standard approaches to blends. Section 3.3 presents a new analysis that explains essential traits of word-blending such as (i) the amalgamation of the two source forms under a single phonological form, (ii) the ambimorphemic character of certain segments, and (iii) the locus of blending. Such results are consequential upon acknowledging the fact that phonological constraints may condition certain morphological processes. Section 3.4 closes the chapter with a summary of the findings.

3.1 The properties of blending

The main feature of blending is that the source forms do not simply combine, they amalgamate. The following examples are representative of Spanish blends. [1]

(3) *Source Forms* → *Blend*

a. dedo + democracia → dedocracia
'finger' 'democracy' → 'arbitrary system of election by pointing with the finger'

b. sucio + socialista → sucialista
'dirty' 'socialist' → 'dirty socialist'

c. caca + cocaína → cacaína
'excrement' 'cocaine' → 'filthy cocaine'

d. analfabeta + bestia → analfabestia
'illiterate' 'beast, idiot' → 'dumb illiterate person'

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[1] Some of the examples used in this chapter come from Lang (1990). A greater number of them come from Pharies (1987), who presents an abundant sample of blends from the Castilian dialect. The examples I provide are forms I heard in use during my college years in Colombia. All data are presented in Spanish orthography except when clarity demands a phonemic transcription. Glosses are mine.

e. inocente + gente → inogente
'ingenuous, naive' 'people' 'a nobody'

f. paradoja + joda → parajoda
'paradox' 'bother' 'a particularly irritating paradox'

These data also show that the source forms of a blend usually have one or more segments in common. This is clearly a factor that contributes to form the amalgam. In (3a), the source form *dedo* has the elements *d, e, o* in common with the source form *democracia*. In (3b), the source form *sucio* has the elements *s, c, i* in common with the source form *socialista* and, similarly, all other examples in (3) display some degree of segmental affinity. It should be formally and not just intuitively explained why this type of affinity between source forms facilitates blending.

Blends would not be totally explained if precise criteria to determine the locus of blending were not provided. For example, why the source forms *dedo* and *democracia* amalgamate in such a way as to yield the blend *dedocracia* and not any of many other logical combinations (e.g. *dedomocracia*, *democradedo, demodedo*, etc)? If blending were just about clipping the input words and putting their remains together, then **dedomocracia*, **democradedo, *demodedo* should be as wellformed as *dedocracia*. The fact that they are not requires the postulation of some principle(s) that rule(s) out such illformed combinations.

Uncovering the principles responsible for these properties of blends is not an easy task. Bauer (1983) points out that there is a high degree of unpredictability inherent to blending. The more syllables the source forms have, the more possibilities arise for their combination in a blend. He proposes that some combinatorial possibilities could be ruled out through blocking, in the case that the resulting form happens to coincide with an already existing lexical item. Nevertheless, his claim is that narrowing all possible combinations down to only one is something practically impossible to do without making an arbitrary choice among equally good competing forms. Such a strong claim does not seem an exaggeration when one considers a more puzzling set of data like the following.

(4)	a.	muñeco	'puppet'	*Source forms*
		dedo	'finger'	
		dedoñeco	'finger-puppet'	*Blend*
		*dedeco		
	b.	soponcio	'faint'	*Source forms*
		kilo	'kilogram'	
		kiloponcio	'a great deal of'	*Blend*
		*kiloncio		

There appears to be no explanation as to why the blended forms in (5) should be *dedoñeko* and *kiloponcio* and not the alternative forms **dedeco* and **kiloncio*. The first set of forms does not appear to respect any consistent principle(s) determining how much segmental material from each source form should be preserved. Actually, if one assumes that what the speaker intends to do in blending is to have one of the source forms replace a part of the other one, then the latter set of output forms should be better than the former. This type of data led Bauer (1988) to conclude that blends are often created ‘with no apparent principles guiding the way in which the two original words are mutilated’ (p. 59). Also, based on the fact that most blends can not be analyzed into clear-cut morphs, Bauer expresses doubt that they could even ‘form a real part of morphology’. The position I assume here is that there are different types of blended forms. Bauer is probably right in affirming that forms like those illustrated in (4) are synthetic creations that obey no guiding principles. Nonetheless, the data in (3) represent a type of blended forms governed by consistent principles. Note that in (3), the source forms are not arbitrarily clipped. On the contrary, there is a strong tendency to maximize the elements in the source forms through overlapping. Furthermore, the locus of blending is always oriented towards one of the peripheries of the word, as illustrated in (5).

(5) a. Left-edge blending:

d e m o c r a c i a	*Source form 1*
d e d o	*Source form 2*
d e d o c r a c i a	*Blend*

b. Right-edge blending:

i n o c e n t e	*Source form 1*
g e n t e	*Source form 2*
i n o g e n t e	*Blend*

This is the type of blend that is relevant for this dissertation and which I present as an alternative to concatenative morphology. In the following section, I review the proposals of two scholars who have undertaken the task of explaining this kind of words.

3.2 Previous approaches to morphological blending

Most of the works devoted to blends have been limited to presenting the data and making general observations concerning their behavior (Urrutia 1978, Bauer 1983, 1988, Devereux 1984, Lang 1990 and several others like these). There are not many formal analyses proposed in the literature in order to account for blends. Although they are not the only formal analyses on blending, in this section, I will focus on the proposals made in Pharies (1987) and Janda (1986) because they are representative of the standard approaches to blends. Pharies (1987) reflects the traditional treatment of blends within a linear model. Janda (1986) is representative of the view of this phenomenon within an autosegmental framework. The main difference between the linear and the autosegmental approaches is that the former precludes the possibility of morpheme overlapping, whereas the latter allows that a single segment be associated with more than one morpheme.

3.2.1 Blending as shortening and concatenation

Pharies (1987) is the first formal account of Spanish blends. It is a significant contribution to give blends a place in the morphological component of the language. Pharies argues for the character of morphological blending as a true word-formation process that should be distinguished from cases of associative interference or contamination, where two different items might get mixed due to some slip of the mind. Blends are the result of a conscious process as evinced by the fact that the meanings of the two source forms have been intentionally combined to create a new concept. Blends are driven by a conscious force that responds to the speaker's intention to make a clever semantic association between two lexical items.

Pharies proposes that blends result from the application of two operations: (i) shortening of at least one of the source forms, either through simple clipping or through haplologic shortening and (ii) concatenation of the shortened source forms. He does not provide any illustrations of the application of these operations but according to the lines of his account the derivation of a blend such as *jetabulario* would be as in (6).

(6) *Source Forms* *Blend*

jeta	+	bocabulario	→	jetabulario
'mouth of an animal'		'vocabulary'		'bad speech characterized by the use of cuss words'

shortening concatenation

(a) jeta + vocabulario ========> jeta bulario ==========> jetabulario

(b) jeta + vocabulario ========> jet abulario ==========> jetabulario

As it becomes clear from (6), one of the problems of this analysis is that the shortening operation can apply in more than just one way. In (6a), the first source form has not been affected by the shortening and only the source form *vocabulario* has been clipped to yield *bulario*. In (6b), both source forms have been clipped resulting in the shortened forms *jet* and *abulario*. It is true that the correct result is obtained in both cases and so, the approach appears to work. Both (6a) and (6b) yield the desired *jetabulario* and since the results are equally as good, a decision between one or the other is not necessary. However, unless the shortening process is constrained in some way, nothing makes the derivations in (6) any better from those in (7), which are totally deviant.

(7) shortening concatenation

(a) jeta + bocabulario =======> je cabulario =========> *jecabulario

(b) jeta + bocabulario =======> j ocabulario =========> *jocabulario

Under the shortening analysis, there is more than one way in which the source forms could be clipped (6a,b). But crucially, this approach lacks a mechanism able to rule out illformed candidates like (7a,b). A substantial problem of the cut and paste approach is that it overgenerates because of its lack of a precise criterion to determine how the shortening operation should take place and how much should be shortened. More importantly, the shortening process is not supported by any morpho-phonological principle(s). There is no explanation as to why the source forms should be clipped. Why is it that some segments must be sacrificed in the generation of a blend? Under this view, it only happens because it is necessary to derive the attested form but there is no principled motivation. Clearly, the explanatory power of this account is minor because it is concerned only with the procedures necessary to produce a blend and it overlooks the morpho-phonological principles at play.

The operation that concatenates the clipped source forms is also unprecise. Pharies offers no criterion to determine how it should be implemented. Because of this, not only are the concatenations illustrated in (6a) and (6b) possible, those presented in (8a) and (8b) should be equally as good since nothing in the analysis would rule them out.

(8) shortening concatenation

(a) jeta + bocabulario =======> jeta bulario ==========> *bulariojeta

(b) jeta + bocabulario =======> jet abulario ==========> *abulariojet

The closest device in Pharies (1987) applicable to this issue is SEQUENTIAL ORDERING of the source forms, which says that the second source form begins where the first one leaves off. This condition is able to rule out forms in which the segmental strings of the two source forms appear interspersed as in **jebutalario*. However, for both examples in (8), the second source form begins where the first one leaves off and the amalgams are still ill-formed. In sum, the cut-and-paste analysis does not provide an explanation for the locus of blending either.

Finally, even though Pharies considers overlapping of phonemes, overlapping of distinctive features and even overlapping of CV-structure as one of the factors at large in morphological blending, all of these kinds of overlapping are incompatible with the shortening approach. Note that once the segmental contents of one of the source forms have been clipped, there is nothing left for the other source form to overlap upon.

(9) *Source Forms* *Blend*

analfabeta + bestia → analfabestia
'illiterate' 'animal, idiot' 'dumb illiterate'

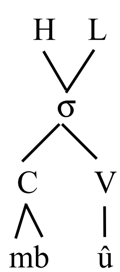
shortening concatenation
analfabeta + bestia ========> analfa bestia ==========> analfabestia

The overlapping of morphemes involving the source forms *analfabeta* and *bestia* is realized on the segments /b, e, t, a/. However, when the string *beta* is clipped off the source form *analfabeta*, the segments /b, e, t, a/ of the source form *bestia* have nothing upon which to overlap. Put in a nutshell, shortening precludes overlapping. This result is especially undesirable given that a distinguishing property of blends is that two words dwell within a single phonological form. It is precisely this peculiarity that makes blends different from regular compounds and that gives them their character of amalgams. All these flaws of a cut-and-paste analysis point towards the unsuitability of a linear approach to account for morphological processes such as blending, where the generation of new lexical items is not accomplished through morpheme concatenation.

3.2.2 Blending as an instance of morpheme overlapping

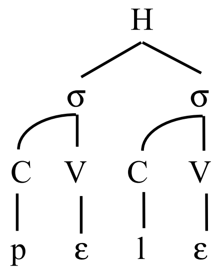
Within the autosegmental model, Stemberger (1980) first advanced the proposal that a segment may be associated with more than one morpheme. The idea was originally put forward to account for morpheme fusions (e.g. English *betcha* /beca/ < bet + you) and morphological haplology (e.g. English -s' as in *boys'* realizing both the plural and the possessive morphemes). Janda (1986) elaborates on Stemberger's proposal and applies it to other phenomena. He establishes a parallelism between Autosegmental Phonology and Morphology, which shows that in the same way that a prosodic constituent such as the syllable may be associated with more than one tone: Mende *mbû* 'owl'.

(10) <u>Phonological many-to-one association</u>:



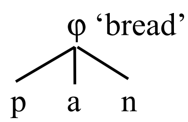
Or a tone may be associated with more than one syllable: Mende *pɛlɛ* 'house'.

(11) Phonological one-to-many association:



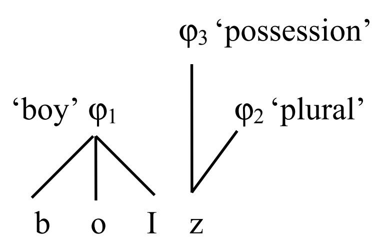
A morpheme may be associated with more than one segment: Spanish *pan* ‘bread’.

(12) Morphophonological one-to-many association:[2]



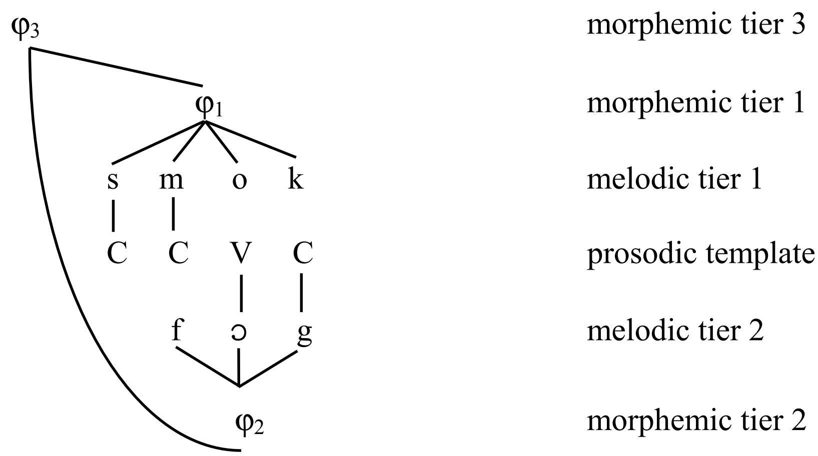
Or one segment may be associated with more than one morpheme: English *-s’*, ‘plurality’ and ‘possession’.

(13) Morphophonological many-to-one association:



Whereas the association of a morphological constituent with more than one segment is quite common (12), the association of one segment with more than one morpheme is rather rare. In support of the claim that the type of association illustrated in (13) is indeed possible, Janda presents phenomena such as phonesthemes (*sn*- ‘related to the nose' as in *sneeze, snore, sniff,* etc.), blends (*motel* < *motor* + *hotel*) and puns (*can* 'to put in a can' and 'to be able to'), where two morphemes converge on the same segmental string. Relevant to the current work is Janda's formal account of blends. Using the Autosegmental Framework, he relies on association lines to account for the preservation/loss of segmental material from the source forms.

(14) <u>Formation of the English blend *smog*:</u>



The melodemes /s, m, o, k/ from melodic tier 1 are associated with morpheme φ_1 through association lines. Similarly, the melodemes /f, ɔ, g/ from melodic tier 2 are associated with morpheme φ_2. The morphological operation that combines morphemes φ_1 and φ_2 is formalized by the creation of the new morpheme φ_3, to which φ_1 and φ_2 are associated. The two melodic strings associated with φ_1 and φ_2 are mapped onto the prosodic template. But notice that some melodemes are left unassociated. These are stray segments that are removed from the representation by Stray Erasure before reaching surface level. In (14), the melodemes /o, k/ from melodic tier 1 and the melodeme /f/

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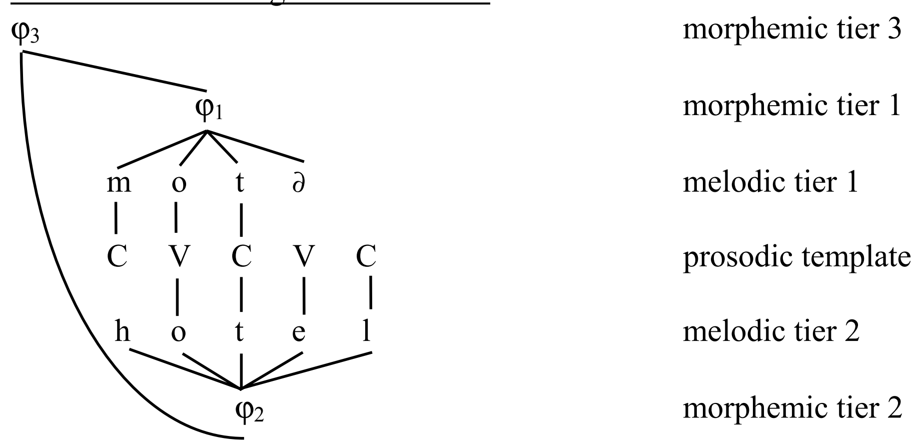
[2] I use the symbol φ to represent the morpheme.

from melodic tier 2 are not linked to the skeleton. These segments may not surface because they are not structurally licensed. Under this approach, the presence or absence of an association line is what determines the preservation or deletion of segmental units.

This analysis tries to capture the fact that two words dwell within a single form by assuming that they share a single prosodic template. This is particularly relevant for the representation of ambimorphemic segments, which arise when the source forms have certain segments in common. Consider the English blend *motel* created from the source forms: /mot∂/ and / hotɛl /. The fact that the segments /o, t/ are contributed by both source forms can be captured as a property of the blend if these melodemes are allowed to link to the prosodic template from both melodic strings.

(15) <u>Formation of the English blend *motel*:</u>



This double-linkage signals morpheme overlapping. The second and third slots of the template are ambimorphemic by virtue of their double association. Note that since the source forms are not clipped, this representation-based account is perfectly compatible with the notion of morpheme overlapping. Clipping is only apparent. In actuality, if some segments do not surface in the output it is due to the fact that two non-identical melodemes may not link to the same prosodic slot. In such case, one of the two segments has to be sacrificed.

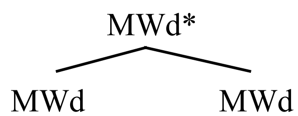
Janda's autosegmental approach to blends offers the following answers to the issues related to morphological blending. A blend is an amalgam because the two source forms combine under a single prosodic template. Second, the segments lost in morphological blending are those that can not be associated with a slot of the prosodic template. Third, since two featurally-identical melodemes belonging to different morphemes are allowed to link to the same prosodic slot, two morphemes may overlap upon the same segments. A many-to-one relationship between morphemes and segments is possible in both directions: a single morpheme may be associated with more than one segment or a single segment may be associated with more than one morpheme. Finally, even though it is not formalized, Janda claims that the locus of blending and the sequential, uninterrupted ordering of the source forms with respect to one another responds to the need of ensuring the recoverability of the input. The intuition is that the source forms of a blend would be too hard to recover if the blend looked too different from them.

Despite all the insights of this approach, some issues still remain unresolved. Like most authors, both Pharies and Janda agree that morphological blending is a type of compounding, but no explanation has been offered yet as to why the two formatives should squeeze into a single form (a single prosodic template in Janda' analysis). Why are blends not just like regular compounds? Janda does mention a factor of economy in motivating overlapping morphemes. He claims that overlapping morphemes help reduce articulatory effort, but the argument is not formally developed. Another shortcoming of this proposal is that the linking of certain segments to the prosodic template is ad hoc. The representations in (14) and (15) above make it visually rather clear which segments are preserved in the blend and which ones are not. What remains unclear is why the preservation of one of two competing segments is better than the preservation of the other one. In (15), there are two segments competing for the first C-slot of the prosodic template: /m/ and /h/. That it should be /m/ and not /h/ that gets associated with the first C-slot of the prosodic template has to be stipulated since there is no criterion proposed to give /m/ priority over /h/. Additionally, even though this approach formally recognizes that overlapping is a factor that bears on the felicity of blends, nothing reflects how the affinity between the source forms facilitates blending. It is good if the source forms have one segment in common, but the more segments they have in common the better the blend. Despite its relevance, no attempt has been made yet to formally explain this gradient character of the felicity of blends. In the following section, I propose a constraint-based analysis that answers these unresolved issues in terms of the interaction between prosodic and faithfulness constraints.

3.3 Morphological blending as prosodically-governed compounding

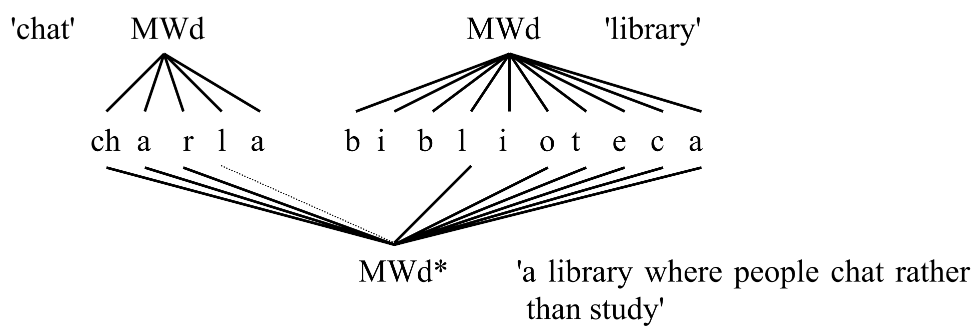
It has been argued that blends are a subcategory of compounding (Adams 1973, Algeo 1977, Hansen 1983, Pharies 1987, Janda 1986, among others) because the morphemes that participate in morphological blending, just like those that participate in compounding, are free or potentially-free morphemes. Since a free morpheme is equivalent to a morphological word (MWd), it follows that both compounding and blending combine MWd's to generate a new lexeme. This new lexeme constitutes a complex MWd, which will be represented as MWd*.

(16) Morphological Compounding and Blending:



In addition to their morphological structure, blends also share with compounds the property of having a unity of meaning that an NP lacks. Consider for example, the semantic contrast between the blend *charloteca* 'a library where people chat rather than study', denoting a type of library; and the NP *biblioteca para charlar* 'a library for chatting', which is a bare description.

(17) Two free morphemes combine to yield a third one:



Assuming that a morpheme is a unit of meaning, one can clearly identify three morphemes in a blend. *charloteca* does not only convey the meaning 'a library where people chat rather than study', it also reveals the meanings 'chat' and 'library'. In other words, the meanings of the two input MWd's combine in a blend to form a new unified concept. Although the boundaries between the MWd's are blurred due to overlapping, blends do have a compositional morphological structure. I specifically claim that the two input MWd's remain in the blend according to the analysis MWd* → MWd MWd, which applies to both blends and compounds. Only so is it possible to maintain that blends contain ambimorphemic segments since no segment in a blend could be ambimorphemic if there were only one morpheme.

3.3.1 Compounding without recursion of prosodic words

Despite their semantic and morphological similarities, there is a crucial difference between compounds and blends as far as their prosodic structures are concerned. Blends differ from compounds in the fact that one of the source forms is contained within the prosodic structure of the other one. To appreciate this feature of blends, note from the examples in (18) below that a blend replicates the prosodic structure of one of its source forms. The prosodic word (PWd) that subsumes the blend is equivalent to the PWd that subsumes its longer source form. This is evinced by the fact that they have the same number of syllables and the same foot structure. Through blending, the shorter source form is fit into the prosodic structure of the longer one. Nonetheless, the blend has a single primary stress, which indicates that the two source forms dwell in it under a single PWd.

(18) <u>Blending: two source forms dwell within a single PWd</u>:

a.	$[(\text{sú.cio})]_{\text{PWd}}$	$[\text{so.cie.(dád)}]_{\text{PWd}}$	*Source forms*
		$[\text{su.cie.(dád)}]_{\text{PWd}}$	*Blend*

b. [(dé.do)]$_{PWd}$ [de.mo.(crácia)]$_{PWd}$ *Source forms*

[de.do.(crá.cia)]$_{PWd}$ *Blend*

c. [(gén.te)]$_{PWd}$ [i.no.(cén.te)]$_{PWd}$ *Source forms*

[i.no.(gén.te)]$_{PWd}$ *Blend*

In compounding, on the other hand, each formative projects its own PWd. As a consequence of this, there is no need for one of the source forms to 'jump' into the PWd of the other one.

(19) <u>Compounding: each formative is associated with its own PWd</u>:

a. [kon.tes.ta.(dór)]$_{PWd}$ [au.to.(má.ti).co]$_{PWd}$ 'answering machine'

[(cuén.ta)]$_{PWd}$ [ban.(cá.ria)]$_{PWd}$ 'bank account'

b. [[(càm.po)]$_{PWd}$ [(sán.to)] $_{PWd}$]$_{PWd*}$ 'cemetery'

[[(pùn.ta]$_{PWd}$ [(pié)] $_{PWd}$]$_{PWd*}$ 'kick'

Spanish compounds of the type illustrated in (19a) are known as *syntagmatic compounds* because they originate from a syntactic phrase. They are analyzable as an NP whose head N takes a complement AP. Here, I follow Lang (1990) in his analysis of this type of formation as a case of compounding based on the fact that they represent a cohesive semantic unit referring to a new concept or object. Prosodically, they do not behave like a unit since they contain two primary stresses. This constitutes sound evidence that they are associated with two independent PWd's. In morphological terms, they are not true compounds either because the two formatives constitute two independent MWd's. This claim is confirmed by the fact that the plural morpheme, which is the outermost suffix on a MWd, attaches to both formatives when such forms are pluralized (e.g. *kontestadóres automáticos*). If these forms actually became a single MWd, then they would contain a single instance of the plural morpheme (e.g. **contestadór automáticos*). Based on this observation, I claim that the forms in (19a) do not undergo morphological compounding. They are NP's that have acquired cohesion of meaning but their morphological structure does not include a MWd*.

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(20)       MWd           MWd                      MWd            MWd
            |             |                        |              |
     [kontestadór]   [automátiko]          [kontestadóres]   [automátikos]
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Since such forms are instances of compounding only in the sense that they exhibit cohesion of meaning, I will refer to them as SEMANTIC COMPOUNDS. Semantic compounds contrast with the type of compounds illustrated in (19b), which are known as 'perfect compounds' because they do behave like a true unit prosodically (e.g. they are subsumed by a single PWd* with a single primary stress) morphologically (e.g. they form a single MWd* to which the plural morpheme attaches: *puntapies* ~ **puntas pies* 'kick') and semantically (e.g. they exhibit cohesion of meaning). For clarity, I will refer to 'perfect compounds' as MORPHOLOGICAL COMPOUNDS, which are characterized by the projection of a new MWd*.

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(21)            MWd*
               /    \
            MWd    MWd
             |      |
        [ [càmpo]  [sánto] ]
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In sum, there are two types of compounds in Spanish (20 and 21). Their different morphological composition is actually mirrored in the phonology - specifically, in their prosodic structures. (i) semantic compounds respond to the prosodic form: **$[...]_{PWd}$ $[...]_{PWd}$**. It is true that they denote a unified concept, but they are neither a morphological nor a prosodic unit because their formatives form independent morphological and prosodic words. (ii) morphological compounds, on the other hand, respond to the prosodic configuration: **$[\ [...]_{PWd}\ [...]_{PWd}\ ]_{PWd*}$**. They are a morphological unit because they behave like a single morphological word: MWd* (e.g. *camposantos* ~ **campos santos* 'cemeteries'). They are also a prosodic unit because, even though each formative projects its own PWd, both formatives are encompassed by a PWd* constituent. Blends, which obey the prosodic form: **$[\ (...)\ ...\ ]_{PWd}$** , are similar to morphological compounds in that they also behave like a semantic, morphological and prosodic unit. But blends differ from morphological compounds in the fact that one of the source forms is contained within the prosodic structure of the other one[3].

Interestingly, the input for compounds and blends is the same: two morphological words, MWd + MWd.

(22)	Input Form of Compounds:		Input Form of a blend:	
	MWd	+ MWd	MWd	+ MWd
	(i) contestador	automático	sucio	sociedad
	(ii) campo	santo		

[3] Notice that blends are actually a type of morphological compound because a new lexeme MWd* is created as a result of morphological blending. What makes blends different is their prosodic configuration.

But their corresponding output forms differ in prosodic structure:

(23) Output Form of Compounds: Output Form of a blend:

(i) [con.tes.ta.(dór)]$_{PWd}$ [au.to.(má.ti).ko]$_{PWd}$ [su.cie.(dád)]$_{PWd}$

(ii) [[(càm.po)]$_{PWd}$ [(sán.to)]$_{PWd}$]$_{PWd*}$

It seems rather clear then that, although compounds and blends are subject to the same morphological operation: MWd + MWd → MWd*, they obey different prosodic principles. Particularly, the source forms of a blend appear to be required to save prosodic structure by avoiding recursion of the constituent PWd. In terms of Optimality Theory, some constraint **C** must be demanding satisfaction of this prosodic configuration. I propose that blends are subject to the constraint NO-PWd*.

(24) NO-PWd*: *No Prosodic Word Recursion*

Prosodic words do not compound.

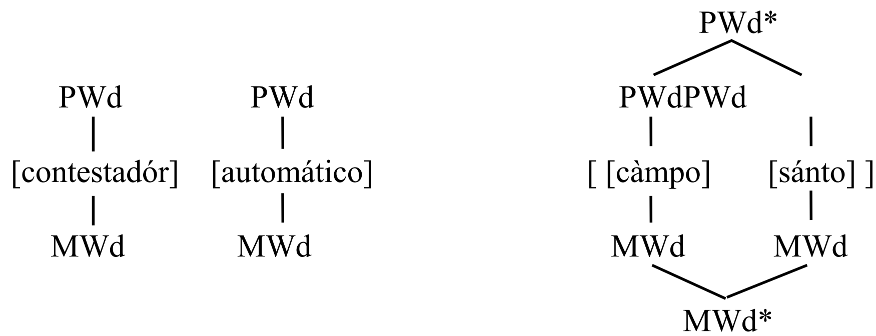
It has been noticed that recursion of prosodic constituents is not possible, except for the category PWd. McCarthy and Prince (1993b : 5) claim that 'recursion of the categories foot and syllable is impossible, not because of some special stipulation, but because the independently justified foot and syllable theories of Universal Grammar bar it. Through their various principles, foot and syllable theories license a very limited set of expansions of foot and syllable, and recursion is simply not among these options.' McCarthy and Prince point out that phonological theory only permits recursion of prosodic words because there is no upper bound on the length of that prosodic constituent. Nonetheless, even if prosodic word recursion is tolerated by phonological theory, it is not freely granted. Through NO-PWd*, I intend to formalize the fact that recursion of PWd does come at a cost. My claim is that the resulting constituent, PWd*, is marked with respect to PWd since a new layer of prosodic structure is added. Additionally, the stress of the leftmost PWd has to be downgraded, so that the rightmost PWd becomes prominent as the head of PWd*. The constraint NO-PWd* favors prosodic unmarkedness by penalizing this additional complexity in prosodic structure.

Despite its cost, PWd recursion is necessary in the combination of two MWd's provided that every morphological constituent is subject to prosodic licensing. Specifically, every MWd must be licensed by a PWd. Prince and Smolensky (1993) formalize this condition as the constraint LX ≈ PR.

(25) LX ≈ PR: *A Lexical Word equals a Prosodic Word*
A member of the morphological category MWd corresponds to a PWd.

The effect of LX ≈ PR is to ensure that for every MWd there is a PWd that licenses it. According to this, violations of LX ≈ PR are to be expected when the output contains fewer PWd's than MWd's. In compounding, the two MWd’s that stand for the two formatives are licensed by a PWd each (see 26a,b). Additionally, in true morphological compounding, the new MWd* is licensed by a new PWd* (26b). These patterns are illustrated by the representations in (26) below.

(26) a. Semantic Compounds: b. Morphological Compounds:



This consistent behavior of compounds suggests that LX ≈ PR outranks the constraint NO-PWd*. Dominance of LX ≈ PR ensures that there will be a PWd for every MWd no matter if additional prosodic structure needs be projected. Tableau (27) illustrates the selection of an optimal semantic compound with the example *cuénta bancária* 'bank account'. (Square brackets [ ] indicate the left and right edges of PWd and { } indicate the respective edges of MWd). LX ≈ PR favors (27a) over the rest of candidates because it is the only one that provides two PWd's, one for each MWd. Candidates (27b) through (27d) leave one of the two MWd's unlicensed.

(27) LX ≈ PR >> NO-PWd*

Input:[4] kOnta bankaria	LX ≈ PR	NO-PWd*
a. ☞ [{kwénta}] $_{PWd}$ [{bankária}] $_{PWd}$		
b. [{kwénta}] $_{PWd}$ {bankaria}	* !	
c. {kuenta} [{bankária}] $_{PWd}$	* !	
d. [{kuenta} {bankária}] $_{PWd}$	* !	

[4] The segment / O / in the input form stands for a diphthongizing mid-back vowel.

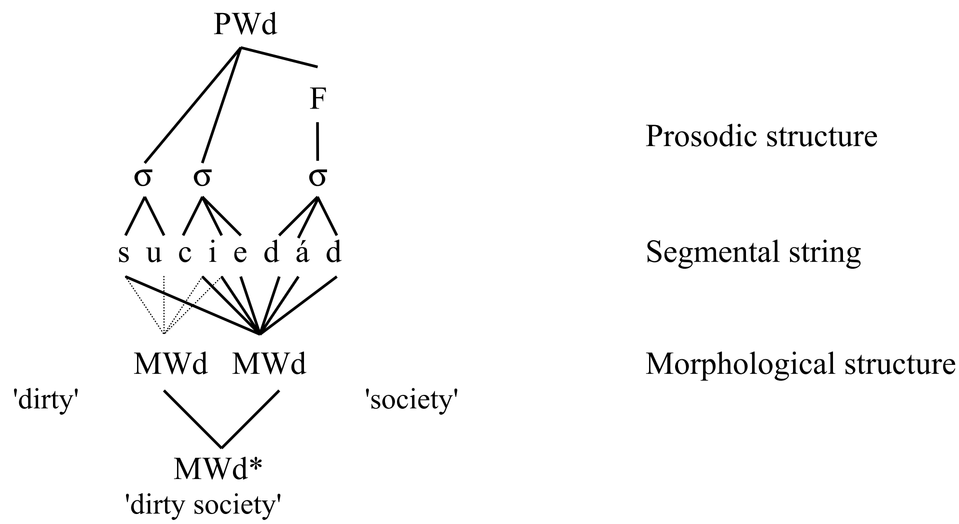
The optimal form, (27a), need not incur recursion of the constituent PWd because semantic compounds like *cuénta bancária* do not yield a MWd*. Since there is no MWd*, there is no need of a PWd* to license it. The upshot is that semantic compounds do not have to violate No-PWd* in order to satisfy the constraint Lx ≈ Pr. A different situation arises in the formation of morphological compounds. The reader is reminded that, in the generation of a morphological compound, a new MWd*, which is also subject to prosodic licensing, is created. Consider tableau (28).

(28) Lx ≈ Pr >> No-PWd*

Input: kampo santo	Lx ≈ Pr	No-PWd*
a. { [{ kámpo }]$_{PWd}$ [{ sánto }]$_{PWd}$ }	* !	
b. ☞ [{ [{ kàmpo }]$_{PWd}$ [{ sánto }]$_{PWd}$ }]$_{PWd*}$		*

Candidate (28a) is ruled out by Lx ≈ Pr for it leaves the new MWd* unlicensed. Note how the two inner MWd's are shelled within a PWd each, but MWd*, the outermost MCat, is not. Candidate (28b), on the other hand, opts to violate lower-ranking No-PWd* so that it can provide a new PWd* that licenses the category MWd*. The ranking Lx ≈ Pr >> No-PWd* reflects the fact that, in compounding, licensing MWd's is preferred over avoiding the addition of a new layer of prosodic structure. In other words, projecting a PWd* is not as bad as leaving a morphological word unlicensed. This is what distinguishes candidate (28a) from candidate (28b). In blending, however, the order of these principles is reversed.

(29) MWd outnumbers PWd in blending:



The data consistently show that a blend contains a single PWd despite the fact that there are three MWd's in it. This behavior of blends indicates that LX ≈ PR is outranked by NO-PWd*. Under the ranking NO-PWd* >> LX ≈ PR, the optimal blended form must find a way to license the three MWd's without projecting a PWd*. To show how this is accomplished, I point out a consistent pattern followed by Spanish blends. In general, the source forms of Spanish blends are not the same size. The shorter source form of a blend may start at the same point as the longer one, so that the left edge of its initial syllable matches the left edge of the initial syllable of the longer source form.

(30) Both source forms start at the same point:

a. p i e d r a — 'stone'
p e d a g o g i c a — '(Universidad) Pedagogica (Nacional de Colombia)'

➢ p i e d r a g o g i k a — 'UPNC, whose students have a reputation for confronting the police by throwing stones at them'

b. s u c i o 'filthy'
s o c i a l i s t a 'socialist'

➢ s u c i a l i s t a 'filthy socialist'

c. b u rr o 'donkey'
b u r o c r a c i a 'bureaucracy'

➢ b u rr o c r a c i a 'stupid bureaucracy'

Alternatively, the shorter source form of a blend may end at the same point as the longer one, so that the right edge of its final syllable matches the right edge of the final syllable of the longer source form.

(31) <u>Both source forms end at the same point</u>:

a. p e rr o 'dog'
m o s qu e t e r o 'musketeer'

➢ m o s qu e p e rr o 'dog-musketeer'

b. j o d a 'bother'
p a r a d o j a 'paradox'

➢ p a r a j o d a 'an irritating paradox'

c. g o l 'goal'
f u t b o l 'football'

➢ f u t g o l 'football (soccer) magazine published in Spain'

These patterns are obviously related to alignment. By starting or ending at the same point, the source forms of a blend manage to get a greater number of MWd-edges aligned with PWd-edges. To capture this fact, I propose to reformulate the LX ≈ PR in terms of alignment. ALIGN-(M⇔P) accomplishes the same effect as LX ≈ PR, plus it has the advantage of allowing finer distinctions among competing candidates because prosodic licensing is measured edge by edge rather than category by category.

(32) ALIGN(M⇔P): *Align MWd-edges with PWd-edges*

Given MWd_i, MWd_j, … and PWd_i, PWd_j, …

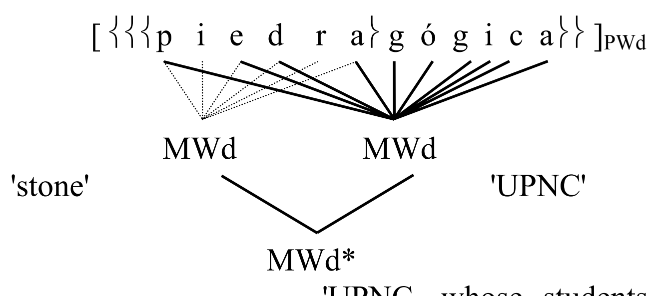
Align (MWd_α, E, PWd_α, E)

Edge E of category MWd_α is aligned with the corresponding edge of category PWd_α.

This constraint quantifies over the two edges of a MWd. When both edges of MWd_α match the corresponding edges of PWd_α, MCat is fully-licensed. When only one edge of MWd_α matches the corresponding edge of PWd_α, it is not that MCat is unlicensed. Rather, it is partially-licensed.

With three MWd's but only one PWd to license them, the source forms of a blend must array in such a way that they can maximize the use of the two PWd-edges that are available. This explains the patterns exhibited by the examples in (30) and (31), which are illustrated in (33) and (34) below.

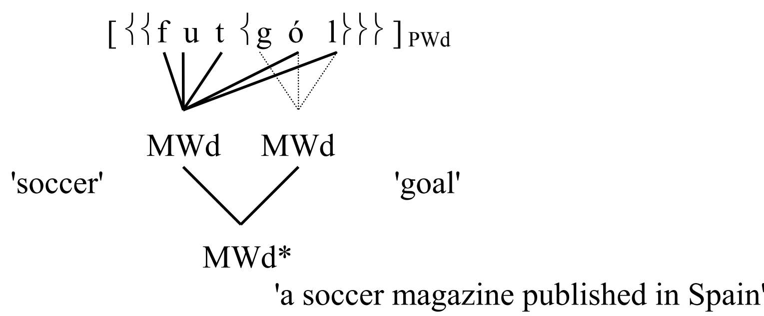
(33) Left Alignment:



'UPNC, whose students have a reputation for confronting the police by throwing stones at them'

In (33), only one of the six MWd-edges is misaligned. Note how the left edges of the three MWd's match the left edge of the PWd since all three MWd's dominate the segment /p/. At the right periphery, two MWd-edges match the right edge of the PWd. Only the right edge of the MWd {piedra} is caught in the middle of the blend. The mirror-image of this situation arises for blends whose source forms end at the same point. In (34), it is the left edge of the MWd {gól} that is misaligned. The reader can confirm that all other MWd-edges match a PWd-edge.

(34) Right Alignment:



These patterns suggest that the locus of blending is determined by ALIGN(M⇔P). Although this constraint is dominated by NO-PWd*, the optimal blended form must minimize the number of ALIGN(M⇔P) violations. Only if both source forms start or end at the same point can ALIGN-(M⇔P) be optimally satisfied. In this way, five out of six MWd-edges get to be aligned with PWd-edges. In tableau (35) below, candidate (35a) achieves perfect compliance with ALIGN(M⇔P) by projecting a PWd* whose edges match the edges of MWd*. This, however, runs afoul of top-ranking NO-PWd*, which puts (35a) out of competition. Candidate (35b) keeps from projecting a PWd* in order to satisfy NO-PWd*, but this gives rise to two violations of ALIGN(M⇔P) because the edges of the category MWd* are not abutted by the edges of a PWd*. Candidate (35c) attempts to maximize the use of PWd-edges to achieve better alignment, but still two MWd-edges remain misaligned as a consequence of the fact that the two source forms do not start or end a the same point. Candidate (35d) is the winner because it maximally exploits the use of the PWd-edges available for alignment. By having the two source forms end at the same point, this candidate achieves the best alignment possible. Despite the fact that ALIGN(M⇔P) has to be violated to a certain degree so that the higher-ranking constraint NO-PWd* is respected, its role is decisive in the selection of the optimal candidate for blending. The minimal violation of this constraint makes the difference between the winner, (35d), and the most serious competing candidates (35b,c).

(35) NO-PWd* >> ALIGN(M⇔P)

Source forms: futbol gol	NO-PWd*	ALIGN(M⇔P)
a. [{ [{ fùtbol }] [{ gól }] }]	* !	
b. { [{ fútbol }] [{ gól }] }		* ! *
c. [{ { futbol } { gól } }]		* ! *
d. ☞ [{ { fut{ gól } } }]		*

ALIGN(M⇔P) is also involved in the emergence of ambimorphemic segments (see section 3.3 below). Under the ranking NO-PWd* >> ALIGN(M⇔P), one of the source forms is forced to overlap upon the other one. This is because with six MWd-edges to be aligned but only two PWd-edges available, MWd-edges must share PWd-edges (33, 34). In this way several MWd-edges may get aligned with a single PWd-edge at a time. But for this to be possible, the segments associated with one source form must overlap upon the segments associated with the other one.

The choice between ALIGN(M⇔P) and LX ≈ PR is not a trivial one. ALIGN(M⇔P) is able to distinguish between two candidates that do not provide a PWd for every MWd, but whereas one of them maximizes the use of the PWd-edges available, the other one does not. Such is the case of candidates (35c) and (35d) above, which are reintroduced below as (36a) and (36b), respectively. Compare the marks given to these candidates when evaluated by LX ≈ PR with the marks they receive when evaluated by the alignment constraint ALIGN(M⇔P).

(36) ALIGN(M⇔P) vs. LX ≈ PR

Source Forms: piedra pedagoxika	LX ≈ PR
a. [{ {piedra} {pedagóxika} }]	* *
b. [{ { {piedra}góxika} }]	* *

Source Forms: piedra pedagoxika	ALIGN(M⇔P)
a. [{ {piedra} {pedagóxika} }]	* * !
b. ☞ [{ { {piedra}góxika} }]	*

According to LX ≈ PR, candidates (36a) and (36b) are equally as bad because both of them provide only one PWd for the three MWd's contained in these output forms. ALIGN-(M⇔P), on the other hand, says that candidate (36b) is better than candidate (36a) because the former has a greater number of MWd-edges that are properly aligned with a PWd-edge. In other words, the three morphological words are better licensed in (36b) than they are in (36a). The advantage of ALIGN(M⇔P) is that it evaluates output forms edge by edge. This enables it to make finer distinctions between candidates. The problem with LX ≈ PR is that it looks at two edges at a time to be able to identify one PWd per MWd. Consequently, LX ≈ PR can not be as precise as ALIGN(M⇔P). This justifies my choice to use ALIGN(M⇔P) rather than LX ≈ PR when accounting for blending.

Summing up, the ranking of the constraints NO-PWd* and ALIGN-(M⇔P) with respect to one another determines whether the optimal output form of an input containing two MWd's will be a compound or a blend.

(37) a. ALIGN(M⇔P) >> NO-PWd* = Compounding

b. NO-PWd* >> ALIGN(M⇔P) = Blending

These two possible rankings can occur in the same language yielding different results in the combination of free morphemes. The fact that compounding is a lot more productive than blending indicates that (37a) is the most common ranking, whereas (37b) is less productive crosslinguistically. One reason for the lower productivity of morphological blending in comparison to compounding may be the damage to faithfulness constraints entailed by the blending of the two source forms under a single PWd. This point is developed in the following sections. Faithfulness constraints are as violable as all other constraints, but they are never totally bottom-ranking because languages promote input/output faithfulness so that output forms are not extremely opaque but rather a reflection of their input that is as transparent as possible. The fact that morphological blending can impinge greatly on the faithfulness that an output should maintain with respect to its input may well be one reason why the ranking in (37a) is more frequently exploited than that in (37b). Another factor that bears on the lower productivity of morphological blending is identified in the following section. Morphological blending is the result of associating output forms and not of regular input/output derivations.

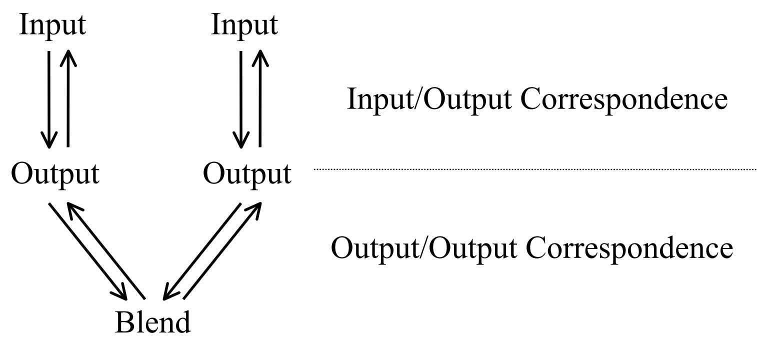
3.3.2 Output-to-output correspondence in morphological blending

A distinguishing property of blends is that they replicate the prosodic structure of one of the source forms. As Janda (1986, p. 16) points out, 'there seems to be a factor at work such that a blend is good to the extent that it mirrors the prosodic structure of one of its components'. In Spanish, the PWd that subsumes the blend is equivalent to the PWd that subsumes its longer source form.

(38)	a. [(cá.ca)]	[co.ca.(í.na)]	*Source forms*
		[ca.ca.(í.na))]	*Blend*
	b. $[(\text{jó.da})]_{\text{PWd}}$	$[\text{pa.ra.(dó.ja)}]_{\text{PWd}}$	*Source forms*
		$[\text{pa.ra.(jó.da)}]_{\text{PWd}}$	*Blend*

Considering that syllable and foot structures are derived prosodic properties, it is rather puzzling that they are copied from the input. Recent proposals within Correspondence Theory (Kentowicz 1994, McCarthy and Prince 1995, Benua 1995) have advanced the hypothesis that two output forms may be related to one another through a correspondence relationship that demands their identity. The claim is that in the same way that there is a correspondence relationship that holds between a Base and its Reduplicant (e.g. reduplicative morphology), or between an Input Form and its corresponding Output Form (e.g. regular derivational processes); there may also be a correspondence relationship that relates two output forms. I argue that the correspondence relationship that holds between a blended form and its source forms is an instance of this type of correspondence. Overall, there are two correspondence relationships implicated in the generation of blends.

(39) Morphological Blending Model:[5]



First, there is an input-to-output correspondence relationship that governs the derivation of regular output forms. This first dimension constitutes a domain equivalent to the core grammar, where the most productive morphological processes occur (e.g. concatenative morphology). Compounding, for example, takes place within this dimension. The ranking ALIGN(M⇔P) >> NO-PWd*, that was established in the previous section, is part of this domain.

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5 Yoneyama (1996) proposes a similar model to account for Japanese blends. She also concludes that blended forms must be derived from output forms since the first part of a Japanese blend coincides with a bimoraic foot that is copied after one of the source forms.

In tableau (40) below, candidate (40a) is ruled out by ALIGN-(M⇔P) because all three MWd's are unlicensed. ALIGN(M⇔P) also rules out candidates (40b) and (40c) because they also fail to license MWd's. Under the ranking ALIGN(M⇔P) >> NO-PWd*, the optimal output form is one that provides a PWd for every MWd (40d).

(40) ALIGN(M⇔P) >> NO-PWd*

Input: {campo} {santo}	ALIGN(M⇔P)	NO-PWd*
a. { {campo} {santo} }	* ! * * * * *	
b. { {campo} [{sánto}]$_{\mathrm{PWd}}$ }	* ! * * *	
c. { [{cámpo}]$_{\mathrm{PWd}}$ [{sánto}]$_{\mathrm{PWd}}$ }	* ! *	
d. ☞ [{ [{càmpo}]$_{\mathrm{PWd}}$ [{sánto}]$_{\mathrm{PWd}}$ }]$_{\mathrm{PWd*}}$		*

But crucially, there is also an output-to-output correspondence relationship, which constitutes the dimension where morphological blending occurs. Output forms may serve as Source Forms (SF's) for other processes. Blending is one of the processes that use output forms as SF's in order to generate new output forms.

(41) { i n o c e n t e } { g e n t e } Input

I/O-Correspondence

[{ i . n o . c é n . t e }] [{ g é n . t e }] Output / SF's

O/O-Correspondence

[{ { i . n o . { g é n . t e } } }] Output / B

In this case, the new output form is a blend (B), which is selected by the output-to-output correspondence constraints among all the possible candidates that result from combining the two SF's. It is within this output-to-output correspondence dimension that the constraint ranking NO-PWd* >> ALIGN(M⇔P) is operative forcing the combination of the two SF's under a single PWd. By positing a correspondence relationship between SF and B, this model explains why B mirrors derived properties of SF. If B were not allowed access to the information encoded in SF, the resemblance between these forms would be simply accidental. But if B and SF are both output forms which are required to be faithful, their resemblance is to be expected. In (41) above, for example, B [{{i.no.{gén.te}}}] faithfully mirrors the prosodic structure of SF [{i.no.cén.te}]. First, these two forms have the same number of syllables: four syllables each. Second, the fact that they obey the same stress pattern suggests that they have the same foot structure. In other words, B is prosodically identical to one of its SF's. This is not just a coincidence but a consistent property of blends that can only make sense if B and its SF's are both output forms that are directly related.

In order to account for this prosodic identity between blends and their source forms, I use the correspondence constraints MAX and DEP. MAX(SF-B, σ) and DEP(SF-B, σ) are the specific versions of these constraints that promote identity between SF and B in terms of the number of syllables.

(42) MAX(SF-B, σ): *Syllabic Maximization of the Source Forms*
Every syllable in SF has a correspondent in B.

(43) DEP(SF-B, σ): *Syllabic Dependence on the Source Forms*
Every syllable in B has a correspondent in SF.

Since B never contains any epenthetic syllables, the constraint DEP(SF-B, σ) is clearly undominated. Satisfaction of MAX(SF-B, σ) is less evident due to overlapping, but it should be taken into account that a single syllable in B may play a double role as the correspondent of two syllables in SF. This makes it possible for B to fully comply with MAX(SF-B, σ). In the blend *ino<u>gente</u>*, for instance, the last two syllables act as correspondents not only of the two syllables of SF_2 *gente* but also of the last two syllables of SF_1 *inocente*. Recall that the source forms must array in such a way so that they can maximize the use of the two PWd-edges available for alignment. This forces SF_2 (the shorter source form) to overlap upon one of the peripheries of SF_1 (the longer source form). Nonetheless, every syllable in SF is still represented by a syllable in B and vice versa.

(44) SF_1 $[\text{i}]_{\sigma1}\ [\text{n o}]_{\sigma2}\ [\text{c e n}]_{\sigma3}\ [\text{t e}]_{\sigma4}$
SF_2 $[\text{g e n}]_{\sigma a}\ [\text{t e}]_{\sigma b}$

B $[\text{i}]_{\sigma1}\ [\text{n o}]_{\sigma2}\ \mathbf{[g\ e\ n]_{\sigma3/a}\ [t\ e]_{\sigma4/b}}$

Under the blending model I propose, this prosodic resemblance between a blend and its source forms follows directly from the correspondence relationship that relates these output forms.

Allophonic resemblance between two output forms has also been presented in support of OO-correspondence (McCarthy and Prince 1995, Benua 1995). In Spanish blends, morphophonemic changes like diphthongization constitute additional evidence that B is required to be faithful to an output form SF. Consider the blend *piedragógica* and its SF's *piédra* and *pedagógica*. SF *piédra* is an example of diphthongization, a process whereby the mid-vowels /e/ and /o/ become [je] and [we], respectively.

(45)	a.	p[e].drús.ko	'piece of stone'	b. p[jé].dra	'stone'
		a.p[e].dre.ár	'to stone		
		em.p[e].drár	'to cover with stone'		

In order to capture the fact that the output form in (45b) is related to the output forms in (45a), one must assume an underlying form whose root vowel is /e/. Under stress, this mid-front vowel is realized as a diphthong.

(46)	p /e/ d r a	Input
	↓↑	
	p [j é] d r a	Output

Given that diphthongization requires the target vowel to be stressed and that stress is limited to a right-edge three-syllable window;[6] the input for blending may not be the abstract form *p/e/dra* because that would result in the unattested form **pedragóxika*. It must be then that, rather than the abstract form *p/e/dra,* the relevant SF is the output form *p[jé]dra*. Otherwise, there would be no explanation as to why the input segment /e/ should be realized as [je] in the blend, given that this segment is unstressed in B [{{{p[je].dra}.gó.gi.ca}}].

6 Lexical stress in Spanish may fall on the ultimate, penultimate or antepenultimate syllable but not beyond. Only through the adjunction of enclitic pronouns to verbal forms, stress may exceptionally appear on the fourth syllable from the end of the word, but never on the fifth or farther away: *entréga* 'hand in, imp.', *entrégamelo* 'hand it in to me', * *éntregamelo*

The representation in (47) illustrates the IO and OO-Correspondence relationships operative in the generation of the correct form of this example. According to (47), the reason why B contains the diphthong [je] is because B must mimic SF. Since the diphthong is present in SF, B must replicate this feature.

(47) { p e d r + a } { p e d a g o g + i c + a } Input

I-O Correspondence

[{ p [j é] . d r a } [{ p e . d a . g ó . g i . c a }] Output / SF's

O-O Correspondence

[{{{ p [j e] . d r a } . g ó . g i . c a }}] Output / B

Other than morphophonemic changes, blends do not seem to retain the allophonic realization of the segments in SF. Consider for example the blend *jetografía* 'a picture of an ugly face' derived from the SF's *jeta* 'mouth of an animal' and f*otografía* 'photograph'. Inter-vocalic /g/ is realized as the fricative [ɣ] in both SF and B. However, this frication in B need not depend on SF, since B has the right context for /g/ to undergo the change. I have been unable to find any examples where B copies the allophonic realization of a segment in SF even when B lacks the appropriate context. Lacking this type of evidence, one must conclude that simple allophonic realization does not require an output-to-output correspondence relationship between SF and B. However, resemblance in prosodic structure and mimicry in morphophonemic changes like diphthongization constitute robust support for this proposal.

Now that an output-to-output correspondence relationship has been motivated for the process of morphological blending, the task ahead is to identify the constraints that govern this dimension and to establish their ranking. The first step has already been taken. The ranking NO-PWd* >> ALIGN(M⇔P) was motivated in the previous section. This constraint ranking is responsible for the combination of the two SF's of a blend within a single prosodic word. Next, I study the role of the correspondence constraints MAX and DEP as well as their interaction with other constraints in order to determine the degree to which the identity between B and its corresponding SF's is preserved. Section 3.3.3 is devoted to this task.

3.3.3 Preservation of (SF -B)-identity

In morphological blending, it is never the case that the blended form contains segments that are not present in its source forms. In other words, B never contains segments that do not have a correspondent in SF. This observation suggests that the correspondence constraint DEP(SF-B, seg), which holds between SF and B at the segmental level, is undominated. On the other hand, it is not unusual to find blends in which some segments that are present in their source forms are left out from the amalgam. Put differently, it is possible that B does not have a correspondent for every segment in SF. It appears then that the correspondence constraint MAX(SF-B, seg) is dominated by some other constraint(s). Whereas the status of DEP(SF-B, seg) as an undominated constraint works towards the achievement of (SF-B)-Identity, the fact that MAX(SF-B) is dominated works to the detriment of this identity. In this section, I explore how the constraint

MAX(SF-B, seg) interacts with other constraints that are active in the output-to-output correspondence dimension where morphological blending takes place.

3.3.3.1 Ambimorphemic segments

Although MAX(SF-B, seg) appears to be dominated, there is a way in which (SF-B)-Identity may be salvaged. Certain segments in B may stand in correspondence with two segments in SF, one in SF_1 and the other one in SF_2. Ambimorphemic segments like these, allow B to avoid violations of the constraint MAX(SF-B, seg).[7] However, ambimorphemic segments do come at a cost. To develop this proposal, I make use of the constraint MORPHDIS proposed in McCarthy and Prince (1995).

(48) MORPHDIS: *Morphemic Disjointness*

$x \subset M_i \rightarrow x \not\subset M_j$, for instances of morphemes $M_i \neq M_j$ and for x a specific segmental (autosegmental) token. "Distinct instances of morphemes have distinct contents, tokenwise."

MORPHDIS militates against ambimorphemic segments. Following McCarthy and Prince (1995), a morpheme stands in a relation with a set of segmental units. These segments constitute the EXPONENCE of that morpheme, which is usually given in the lexicon under the entry corresponding to the morpheme in question. The forms *piedra* and *pedagogika*, for example, represent morphemes that stand in a relation of exponence with the segments they are associated with.

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7 For an alternative account that does not recognize morpheme overlapping see Bat-El (1996). This author proposes that blending requires a *Designated Identical Segment* that must be present in the two source forms but he does not allow ambimorphemic segments.

(49) φ_1 φ_2 φ_3 φ_4 φ_5 Morphemes

{ p e d r a } { p e d a g o x i k a } Input string

Every segment x associated with a morpheme M is a MORPHEME ASSOCIATE, written: $x \subset M$. The segments /p, e, d, r/ are morpheme associates of morpheme φ_1 in (49). Similarly, the segment /a/ is a morpheme associate of φ_2 , the segments /p, e, d, a, g, o, x/ are morpheme associates of φ_3 and so on. Then, $\{p, e, d, r\} \subset \varphi_1$, $\{a\} \subset \varphi_2$, $\{p, e, d, a, g, o, x\} \subset \varphi_3$, etc. Usually, in the input-to-output correspondence dimension, every morpheme associate has its own correspondent in the output form. There is a one-to-one relation between input and output segments by which a segment in the input has one an only one correspondent in the output and vice versa.

(50) {p e d a g o x i c a} Input

| | | | | | | | | | *I-O Correspondence*

[{ p e d a g ó x i c a }] Output

This type of one-to-one relation is enforced by the correspondence constraints UNIFORMITY and INTEGRITY (McCarthy and Prince, 1995).

(51) UNIFORMITY: *No Coalescence*

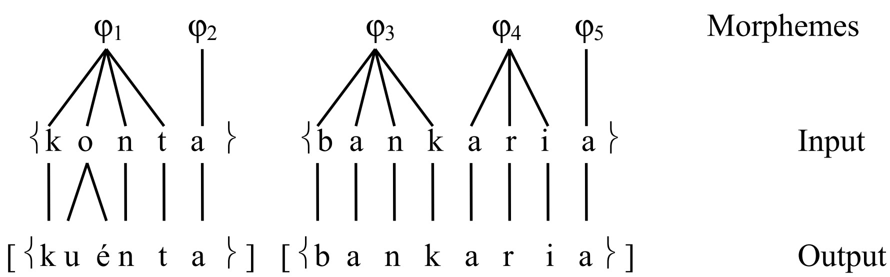
No element in S_2 has multiple correspondents in S_1.
For $x , y \in S_1$ and $z \in S_1$, if $x \Re z$ and $y \Re z$, then $x = y$.

(52) INTEGRITY: *No Breaking*

No element in S_1 has multiple correspondents in S_2.
For $x \in S_1$ and $w , z \in S_1$, if $x \Re w$ and $x \Re z$, then $w = z$.

In Spanish, INTEGRITY is not an undominated constraint since diphthongization is possible.[8] However, neither INTEGRITY nor UNIFORMITY are bottom ranking constraints because a one-to-one relation between input and output segments is the usual case in this language. Therefore, in the input-to-output correspondence dimension, INTEGRITY and UNIFORMITY must rank high enough as to enforce a one-to-one relation between the input and the output segments. In regular compounding, for example, a one-to-one correspondence relation is highly enforced.

(53)

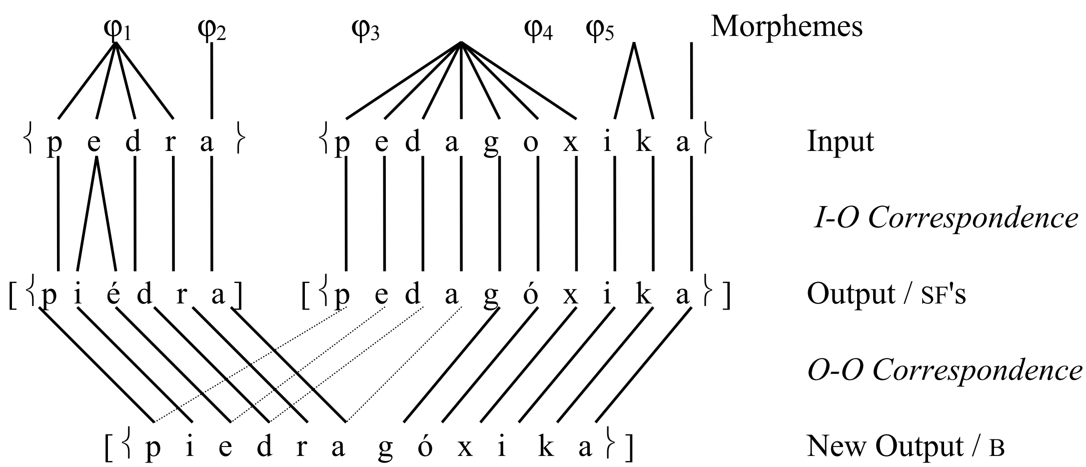


Nonetheless, in the output-to-output correspondence dimension, a two-to-one relation between SF-segments and their B-correspondents may actually be preferred for certain segments. Although I will modify this assumption later on, for the immediate purpose here I assume that two segments in SF may share a single correspondent in B provided they are featurally-identical. This is what I claim is happening in morphological blending and what allows an alternative to concatenative morphology: morpheme overlapping. Let x be a segment in SF$_1$ and y be a segment in SF$_2$. If x and y are featurally-identical, then x and y may share a single correspondent in B. The constraint MORPHDIS defined above penalizes this two-to-one type of correspondence

[8] Diphthongization of Spanish mid-vowels is an instance of a one-to-many correspondence relation between an input segment /e/ or /o/ and two output correspondents [je] or [we], respectively.

relation typical of ambimorphemic segments. If the segment /p/ is a morpheme associate of morphemes φ_1 and φ_3 , and it is the case that morphemes φ_1 and φ_3 are different morphemes ($\varphi_1 \neq \varphi_3$), then the segment /p/ must occur in two different instances so that φ_1 and φ_3 can actually be distinct tokenwise. Obviously, this condition may be violated in morphological blending where two morphemes may overlap upon the same segment provided the segments in question are featurally-compatible. The following representation illustrates this two-to-one relation for the segments *p, e, d, a* in the blending of the source forms *piedra* and *pedagoxika*.

(54)



Phonemic compatibility between the two source forms is being used in order to avoid MAX(SF-B, seg) violations. In (54), none of the segments in SF_1 or SF_2 has to be sacrificed, precisely because of the possibility for two segments in SF to be represented by a single correspondent in B. This leads to the conclusion that the constraint MAX(SF-B, seg) dominates the constraint MORPHDIS. (Ambimorphemic segments appear underlined)

(55) MAX(SF-B, seg) >> MORPHDIS

SF:	[{piédra}] [{pedagóxika}]	MAX(SF-B, seg)	MORPHDIS
a.	[{{piedra}{góxika}}]	* ! * * *	
b. ☞	[{{{<u>p</u>i<u>ed</u>r<u>a</u>}góxika}}]		p ed a

Phonetically, there is no difference between candidates (55a) and (55b). However, they are formally different because they participate in different correspondence relationships that are observed in their evaluation. In candidate (55a), the segments *p, e, d, a* stand in correspondence with the segments *p, e, d, a* of SF_1 *piedra* exclusively. This means that the segments *p, e, d, a* of SF_2 *pedagóxika* do not have correspondents in B. Therefore, this candidate incurs four violations of MAX(SF-B, seg). Candidate (55b) is preferred over (55a) because it avoids all violations of higher-ranking MAX(SF-B, seg) by allowing B-segments *p, e, d, a* to serve as correspondents for both occurrences of these segments in SF_1 *piédra* and SF_2 *pedagóxika*.

However, when the phonemic compatibility between the two source forms is not as extensive, it appears that the loss of some SF-segments can not be helped (e.g. *dedocracia* < *dedo* + *democracia*). Given that the source forms blend despite the disappearance of segmental material, the constraints NO-PWd* and ALIGN(M⇔P) must dominate MAX-(SF-B, seg). The ranking of the constraints identified so far is the following.

(56) <u>Constraint Ranking Responsible for Morphological Blending</u>:

NO-PWd* >> ALIGN-(M⇔P) >> MAX-(SF-B, seg) >> MORPHDIS

The partial ranking MAX(SF-B, seg) >> MORPHDIS serves the purpose of minimizing the damage to (SF-B)-Identity caused by the blending of the source forms. Tableau (57) illustrates the selection of the optimal output form of a blend whose source forms are extensively compatible. Each one of the underlined segments of candidate (57d) stands in correspondence with two segments in SF. They are the segments /b, e, t, a/ morpheme associates of φ_1 {a, n, a, l, f, a, b, e, t, a} and also the segments /b, e, t, a/ morpheme associates of φ_2 {b, e, s, t, i, a}.

(57) NO-PWd* >> ALIGN-(M⇔P) >> MAX(SF-B, seg) >> MORPHDIS

SF: [{analfabéta}] [{béstia}]	NO-PWd*	ALIGN-(M⇔P)	MAX-(SF-B)	MORPHDIS
a. [{ [{analfabèta}] [{béstia}] }]	* !			
b. [{{analfabeta} {béstia}}]		* ! *		
c. [{{analfa}{béstia}}]		* ! *	beta	
d. ☞ [{{analfa{<u>bé</u>s<u>t</u>i<u>a</u>}}}]		*		beta

By violating MORPHDIS, candidate (57d) accomplishes total satisfaction of the correspondence constraint MAX-(SF-B, seg), which outranks MORPHDIS. In candidate (57c), on the other hand, the segments /b, e, t, a/ are exclusive correspondents of the morpheme associates /b, e, t, a/ of φ_2 {b, e, s, t, i, a}. This means that the morpheme associates /b, e, t, a / of φ_1 {a, n, a, l, f, a, b, e, t, a} have no output correspondents whatsoever. These constitute four fatal violations of MAX-(SF-B, seg). Additionally, this lack of correspondents costs candidate (57c) an extra misalignment because its left edge can not coincide with the left edge of the PWd. These two violations of ALIGN(M⇔P) are plenty to rule out candidate (57c). Top-ranking NO-PWd* rules out candidate (57a) on the first run, even if this candidate perfectly complies with ALIGN(M⇔P), MAX(SF-B, seg) and MORPHDIS. Candidate (57b) contains two misaligned edges and it is also put out of competition by the constraint ALIGN(M⇔P).

The interaction of the constraints MAX(SF-B, seg) and MORPHDIS explains why phonemic compatibility between the source forms of a blend is a factor that bears on its well-formedness. For every pair of segments shared by the two source forms, the optimal output form can avoid one violation to the constraint MAX(SF-B, seg) by means of exploiting ambimorphemicity. Consequently, the more pairs of segments the source forms have in common, the more MAX(SF-B, seg) violations can be avoided. This yields the gradient felicity of blends that scholars such as Pharies and Janda pointed out in their work. Because phonemic compatibility helps B achieve optimal identity with respect to SF, it is no longer a mystery why a blend is better if its source forms have more segments in common. Now this important property of blends is not just intuitively perceived but formally expressed. With MAX(SF-B, seg) dominating MORPHDIS, the greater the phonemic compatibility between the SF's, the more similar to them may B remain.

This issue of phonemic compatibility is also related to the lower-productivity of morphological blending in comparison to regular compounding. The fact that the only way of enforcing perfect identity between SF and B is if the two SF's are highly-compatible in terms of segmental units is a factor that may limit to a certain extent the number of morphemes that can participate in morphological blending. Such a restriction does not apply to regular compounds because faithfulness is never at risk under the constraint ranking ALIGN(M⇔P) >> NO-PWd*. As a consequence of this, any two free morphemes can participate in regular compounding regardless of their segmental make-up. In morphological blending, on the other hand, the chances that a morpheme φ_1 may combine with a morpheme φ_2 are reduced by the contingency that φ_1 and φ_2 have segments in common, so that closer identity between SF and B can be achieved through the only available means: ambimorphemicity. One can entertain the idea that satisfaction of MAX(SF-B, seg) could also be achieved by candidates that preserve every single SF-segment without exploiting ambimorphemicity. However, candidates of this sort run afoul of ALIGN(M⇔P) as illustrated by (57b) above.

3.3.3.2 Non-preservation of the word marker

Spanish words that belong to the major categories noun, adjective and adverb typically end in a morphological element known as a Word Marker (WM). The most common WM's are /o/ and /a/, but they are by no means the only ones. Harris (1991) identifies seven different WM's, all of which are characterized by the fact that they can not be followed by another suffix, derivational or inflectional, except for the plural morpheme *-s*. In regards to this property of WM's, blends exhibit an interesting behavior. When the SF's are aligned at their left margins, the WM of the shorter SF is not allowed to appear in the output form. Consider the following examples where WM's appear underlined.

(58) Loss of the WM of one of the SF's:

a. b u r o c r a c i a 'bureaucracy'
b u rr o 'donkey'

➢ b u rr o c r a c i a 'stupid bureaucracy'

b. c o c a i n <u>a</u> ‘cocaine’
c a c <u>a</u> ‘feces’

➢ c a c a i n <u>a</u> ‘filthy cocaine’

c. b i b l i o t e c <u>a</u> ‘library’
ch a r l <u>a</u> ‘chat’

➢ ch a r l o t e c <u>a</u> ‘a library where people chat instead of reading or studying’

d. b i c i c l e t <u>a</u> ‘bicycle’
b u rr <u>o</u> ‘donkey’

➢ b u rr i c l e t <u>a</u> ‘small bicycle’

For examples (58a, b), it could be argued that the underlined segments /o/ and /a/ are ambimorphemic and that the WM’s of the SF’s *burr<u>o</u>* and *cac<u>a</u>* have a correspondent in their respective output forms. However, in blends like (58c, d), where the WM’s of the shorter SF’s do not coincide with a segment in the longer SF’s, it is evident that the WM is not preserved in the output form (Note that the segment *-o* of *biblio* may not be a word-marker because *biblio* is a prefix, not a morphological word). My claim is that WM's may only be preserved when they are word-final. In order to account for this, I propose that Spanish WM’s are subject to the following constraint.

(59) ALIGN-WM: *Align Word-Markers*

Align (WM, R, PWd, R)
The right edge of a WM is aligned with the right edge of a PWd.

The data show that when the right edge of a WM does not match the right edge of a PWd, such a WM does not surface in the blend. Since this leaves a segment in SF without a correspondent in B, the constraint ALIGN-WM must dominate MAX(SF-B, seg).

By transitivity, ALIGN-WM must also dominate MORPHDIS, since the latter was proved to be outranked by MAX(SF-B, seg). Tableau (60) below illustrates the interaction of these constraints in the selection of the optimal output form for the blend *burricleta*.

(60) ALIGN-WM >> MAX(SF-B, seg) >> MORPHDIS

SF: [{búrro}] [{bicicléta}]	ALIGN-WM	MAX(SF-B, seg)	MORPHDIS
a. [{{{b̲urro}cléta}}]	o !	ici	b
b. ☞ [{{{b̲urr}icléta}}]		ic o	b

Candidate (60a) incurs a fatal violation of ALIGN-WM because the WM of the SF *burr*o̲ ends up caught in the middle of B, away from the right edge of the PWd. Candidate (60b), on the other hand, opts for dropping the non-peripheral WM to avoid this violation of ALIGN-WM. By doing this, it achieves better satisfaction of the demands of the morphophonological constraints.

3.3.4 Determination of the precise locus of blending

In section 3.3.1, the interface constraint ALIGN(M⇔P) was identified as one of the principles governing the locus of morphological blending. But ALIGN(M⇔P) by itself is not enough to determine the exact locus of blending. This constraint can be optimally satisfied by output forms where the two morphological words start or end at the same point. This, however, can only narrow down to two the combinatorial possibilities between the source forms. Consequently, ALIGN(M⇔P) is unable to decide what is the precise locus of blending. Nonetheless, when (SF-B)-Identity is also taken into consideration, there is only one optimal way in which the source forms of a blend may combine. To motivate this point, reconsider the blend *piedragoxika*. In this example, it is clear that the shorter source form *piedra* appears towards the left rather than towards the right edge of the amalgam because it is towards the left margin that the form *pedagoxika* has the greatest phonemic compatibility with the form *piedra*. This is important to understand why the optimal output form is *piedragoxika* and not an apparently equally good competing candidate such as **pedagopiedra*. Notice that even though both of these forms respect alignment as optimally as possible (see 61), only the former exploits the phonemic compatibility between the two source forms in the best way possible to avoid incurring unjustified MAX(SF-B, seg) violations. The emerging generalization is that alignment and phonemic compatibility are properties that join forces to determine the precise locus of blending. These findings are illustrated in the following partial tableau, which leaves out the constraint NO-PWd*. Only candidates that satisfy top-ranking NO-PWd* are considered in (61).

(61) ALIGN(M⇔P) >> MAX(SF-B, seg) >> MORPHDIS

SF: [{piédra}] [{pedagóxika}]	ALIGN(M⇔P)	MAX(SF-B)	MORPHDIS
a. [{{piedra}{góxika}}]	* * !	peda	
b. ☞ [{{{piedra} góxika}}]	*		peda
c. [{{pedago{piédra}}}]	*	x ! k	i a
d. [{{pedago}{piédra}}]	* * !	xika	

Candidates (61a) and (61d) avoid ambimorphemic segments by deleting the correspondents of four SF-segments, each. This is, of course, sanctioned by the correspondence constraint MAX(SF-B, seg). But crucially, these candidates also incur two violations of top-ranking ALIGN(M⇔P) because, when they lose some of their segmental contents, two of their MWd-edges end up misaligned. Candidates (61a) and (61d) are then the first two forms to be ruled out. Candidates (61b) and (61c) satisfy ALIGN-(M⇔P) as optimally as possible. Incurring one violation of ALIGN(M⇔P) is something impossible to avoid because of the different size of the source forms. The decision falls then onto the lower-ranking constraint MAX(SF-B, seg), which makes it clear that only if the blending occurs at the left margin can ambimorphemicity be exploited in an optimal way to the benefit of (SF-B)-Identity. Candidate (61c), with two MAX(SF-B, seg) violations, achieves the closest identity possible, if blending occurs at the right margin. But candidate (61b) with blending at the left margin, is better than (61c) because it achieves perfect compliance with the constraint MAX(SF-B, seg) at the affordable cost of incurring some violations to bottom-ranking MORPHDIS. Interestingly, ambimorphemicity plays a double role. It allows a better preservation of (SF-B)-Identity, but it also serves to facilitate alignment. Compare, for example, candidates (61a) and (61b). Since the segments /p, e, d, a/ in (61a) do not serve as correspondents for two SF-segments each, the morphological word {pedagoxika} is reduced to {goxika} with the result that its left edge is not aligned with the left edge of the PWd. Candidate (61c), on the other hand, has the ambimorphemic segments /p, e, d, a/, which make possible that the left edge of the MWd {pedagoxika} be aligned with the left edge of the PWd.

The results of this analysis prove that there is nothing arbitrary in the selection of the output form *piedragoxika* over *pedagopiedra* or any other candidate GEN could possibly generate from the source forms *piedra* and *pedagoxika*. This account explains in a principled manner why this is the form chosen and not any other one. Blends such as *dedocracia*, *socialista*, *analfabestia*, *inogente*, etc. pattern just like *piedragoxika* because their source forms also exhibit extensive phonemic compatibility.

(62) NO-PWD* >> ALIGN(M⇔P) >> MAX(SF-B, seg) >> MORPHDIS

SF: [{dédo}] [{democrácia}]	NO-PWD*	ALIGN(M⇔P)	MAX(SF-B)	MORPHDIS
a. [{ [{dèdo}] [{democrácia}] }]	* !			
b. [{{dedo}{democrácia}}]		* ! *		
c. [{{dedo}{mocrácia}}]		* ! *	de	
d. [{{de{do}mocrácia}}]		* ! *	o	d
e. ☞ [{{{dedo}crácia}}]		*	m	de o
f. [{{dedo}{crácia}}]		* ! *	demo	
g. [{{demo}{dedo}}]		* ! *	crasia	
SF: [{inocénte}] [{génte}]	NO-PWD*	ALIGN(M⇔P)	MAX(SF-B)	MORPHDIS
a. [{ [{inocénte}] [{génte}] }]	* !			
b. [{{inocente}{génte}}]		* ! *		
c. [{{inocen}{génte}}]		* ! *	te	
d. [{{ino}{génte}}]		* ! *	cente	
e. ☞ [{{ino{génte}}}]		*	c	ente
f. [{{gente}{cénte}}]		* ! *	ino	

A single constraint ranking accounts for the two blending patterns in (62) without any need to stipulate that for some blends the locus of blending is towards the left margin and for others it is towards the right margin. It is the interaction of the principles at play that determines what the blend should be. Then, an additional advantage of this analysis is that it does not have to stipulate an order for the source forms to be fed into GEN.

Whether they enter GEN in the order *dedo democracia* or *democracia dedo* does not make any difference in the results of the evaluation. The source forms will always combine in the best way possible in order to satisfy the output-to-output correspondence constraints according to the priority they enjoy in the ranking.

3.3.5 Morpheme overlapping upon non-identical segments

So far, it has been assumed that only SF-segments that are featurally-identical may share a single B-correspondent. This assumption, however, appears to be too strong when one considers blends in which a B-segment that could be the correspondent for two SF-segments is only slightly different from one of them. Consider the following examples.

(63)	f u t b o l	'soccer'
	g o l	'goal'
	➢ f u t g o l	'the name of a soccer magazine'
	k r u s i g r a m a	'crossword puzzle'
	d r a m a	'drama'
	➢ k r u s i d r a m a	'dramatic puzzle'
	i n o s e n t e	'innocent'
	x e n t e	'people'
	➢ i n o x e n t e	'a nobody'

Like the data in (63), many blends have origin in SF's that are extensively compatible in terms of the segments they have in common. In fact, they are so compatible that, were it not for a single segment in which the two source forms differ, the result would be a PUN rather than a blend. That is, one of the SF's would be completely undistinguishable from the other SF in B (e.g. *comercio* 'food business' < *comer* 'eat' + *comercio* 'business'). But even when the two SF's differ in one segment, certain features of that segment may still be interpreted as a similarity between the two SF's. For instance, although the pairs /b/ ~ /g/, /g/ ~ /d/ and /s/ ~ /x/ involve segments that are clearly distinct, these segments have several features in common. Actually, the only difference between the members of these pairs is their place of articulation (cf. [labial] ~ [velar] and [velar] ~ [coronal], for the stops; [coronal] ~ [velar] for the fricatives). Evidently, there are more features the members of these pairs have in common than features in which they differ. It is then not unreasonable to think that the correspondent of a segment in SF_1 could play a double role and also act as the correspondent of a segment in SF_2 that is slightly different. That is to say that for two SF-segments to be able to share a single B-correspondent, they do not necessarily have to be identical. I propose to reanalyze the featural unfaithfulness of a B-segment with respect to its SF-correspondent as IDENT(SF-B) violations rather than MAX(SF-B, seg) violations. McCarthy and Prince (1995) propose IDENT(F) as the constraint that evaluates featural correspondence. IDENT(SF-B) is the specific version of this constraint active in morphological blending.

(64) IDENT(SF-B): *Featural Identity*

Let α be a segment in SF and β be any correspondent of α in B. If α is [γF], then β is [γF].

With the incorporation of the constraint IDENT(SF-B), a blend such as *futgol* does not fall in violation of the constraint MAX(SF-B, seg) at all (see 64b). Instead, the segment /g/ that is contained in B [{{fut{gól}}}] is the correspondent of both the segment /b/ in SF_1 *futbol* and the segment /g/ in SF_2 *gol*. This means that it is only featurally that B is not identical to SF because, in regards to the number of correspondents, B achieves perfect identity to SF. According to this, having a non-identical correspondent is better than not having a correspondent at all. For this purpose, the constraint MAX(SF-B, seg) must dominate the constraint IDENT-(SF-B). Note that with MAX(SF-B, seg) dominating both IDENT(SF-B) and MORPHDIS, B is able to maximize its identity with respect to SF at least in terms of the number of correspondents no matter if some segments in B must act as correspondents for two segments in SF that are not identical in their featural composition. This is illustrated in tableau (65) where I leave out the constraints NO-PWd* and ALIGN(M⇔P) since they are not relevant for proving this point.

(65) MAX(SF-B, seg) >> IDENT(SF-B) >> MORPHDIS

SF: [{futból}] [{gól}]	MAX(SF-B)	IDENT(SF-B)	MORPHDIS
a. [{{fut{gól}}}]	b !		ol
b. ☞ [{{fut{gól}}}]		[place]	gol

Phonetically, (65a) and (65b) are identical forms. However, these candidates are formally different because each instance of the segment /g/ they contain embodies a different type of correspondence relationship. Whereas in (65a) the segment /g/ is the exclusive correspondent of the segment /g/ in SF$_2$ *gol*, in (65b) the segment /g/ is in a double-correspondence relationship with the segment /b/ in SF$_1$ and the segment /g/ in SF$_2$. Candidate (65b) wins over (65a) because it finds an affordable way to satisfy MAX(SF-B, seg). By allowing a featurally-non-identical relationship, this candidate is able to provide a correspondent for every single segment in SF. The optimal output form falls in violation of IDENT(SF-B) and MORPHDIS, but these violations are justified because having a correspondent for every SF-segment is more important for (SF-B)-Identity. With the constraint MAX-(SF-B, seg) dominating IDENT-(SF-B), a candidate that offers an unfaithful correspondent for an SF-segment is better than one that has no correspondent at all.

Additionally, IDENT(SF-B) must dominate MORPHDIS. Otherwise, any B-segment could be a correspondent for any SF-segment no matter how dissimilar they are. This would yield the undesirable result of allowing extreme correspondence relations such as the case of a vocalic segment (e.g. /a/) acting as the correspondent of a consonantal segment (e.g. /k/); quite a stretched relation considering that the only feature such segments have in common is segmenthood for they differ in every feature under the root node. Domination of IDENT-(SF-B) over MORPHDIS constraints the degree to which an ambimorphemic B-segment may be featurally-dissimilar with respect to its SF-correspondent(s). The more dissimilar B(x) is from SF(y), the more violations of IDENT(SF-B) will arise. The effect of this is that when evaluating two competing output forms, both of which contain ambimorphemic segments, the winning candidate will be the one whose ambimorphemic segments are minimally dissimilar from their SF-correspondents. This is illustrated in tableau (66) below. Candidates (66b) and (66c) perform better than (66a) because they achieve perfect satisfaction of the constraint MAX(SF-B, seg) at the expense of having ambimorphemic segments. Nonetheless, in the case of (66c), the segments upon which the two source forms overlap are not the ones that facilitate the best preservation of (SF-B)-Identity. The fact that the ambimorphemic segments in (66c) do not have correspondents in SF_1 and SF_2 that are featurally-identical, or at least very similar, gives rise to a great number of IDENT(SF-B) violations. The ambimorphemic segments of candidate (66b), on the other hand, are a lot more similar to their correspondents in SF_1 and SF_2. As a result of this, only one IDENT-(SF-B) violation is necessary: {g/d}. Candidate (66b) is the winner because it achieves optimal preservation of (SF-B)-Identity as reflected by the minimal number of IDENT-(SF-B) violations.

(66) MAX(SF-B, seg) >> IDENT(SF-B) >> MORPHDIS

SF: [{krusigráma}] [{dráma}]	MAX(SF-B)	IDENT(SF-B)	MORPHDIS
a. [{{krusi{d<u>ráma</u>}}}]	g !		rama
b. ☞ [{{krusi{<u>dráma</u>}}}]		[g/d]	drama
c. [{{<u>drama</u>{gráma}}}]		[k/d] [u/a] ! [s/m] [i/a]	drama

Some important questions arise from this proposal. If featural-unfaithfulness is tolerated minimally, which of the two source forms should the blend be unfaithful to when it can not be completely faithful to both of them? Furthermore, if a blend and its source forms are required to be faithful, why is it that the blend is not identical to the longer source form given that such move would result in total identity at least with one of the source forms? In order to answer these questions, I point out at the fact that, in terms of featural identity, a Spanish blend is always more faithful to the shorter source form than to the longer one. This suggests that featural identity between the blend and each one of its source forms is evaluated independently. Based on this observation, I propose to split the constraint IDENT(SF-B) in two: IDENT(SF-B)SF$_1$ and IDENT(SF-B)SF$_2$.

(67) IDENT(SF-B)SF$_1$: *Featural Identity with SF$_1$*

Let α be a segment in SF$_1$ and β be any correspondent of α in B. If α is [γF], then β is [γF].

(68) IDENT(SF-B)SF$_2$: *Featural Identity with SF$_2$*

Let α be a segment in SF$_2$ and β be any correspondent of α in B. If α is [γF], then β is [γF].

Since B is featurally more faithful to SF$_2$ (the shorter source form) than to SF$_1$ (the longer source form), IDENT(SF-B)SF$_2$ must dominate IDENT(SF-B)SF$_1$. This explains why a blend such as *inoxente* is featurally more faithful to SF$_2$ *xente* than to SF$_1$ *inosente* (69d).

(69) MAX(SF-B, seg) >> IDENT(SF-B)SF$_2$ >> IDENT(SF-B)SF$_1$ >> MORPHDIS

SF: [{inosénte}] [{xénte}]	MAX(SF-B)	IDENT(SF-B)SF$_2$	IDENT(SF-B)SF$_1$	MORPHD
a. [{{ino{xénte}}}]	s !			
b. [{{ino{sénte}}}]	x !			
c. [{{ino{sénte}}}]		{s/x} !		sente
d. ☞ [{{ino{xénte}}}]			{x/s}	xente

This constraint ranking also accounts for the fact that B may not be identical to the longer source form unless SF$_2$ has all of its segments in common with SF$_1$. Tableau (70) below illustrates this case with the pun *comercio* < *comer* + *comercio*.

(70) MAX(SF-B, seg) >> IDENT(SF-B)SF_2 >> IDENT(SF-B)SF_1 >> MORPHDIS

SF: [{komérsio}] [{komér}]	MAX(SF-B)	IDENT(SF-B)SF_2	IDENT(SF-B)SF_1	MORPHD
a. [{{komér}{sio}}]	k ! omer			
b. ☞ [{{{<u>komer</u>}sio}}]				komer

The proposal that a B-segment may be the correspondent of two non-identical SF-segments is supported by the existence of blends in which satisfaction of the constraint ALIGN(M⇔P) depends crucially on the possibility of having this kind of featurally-unfaithful correspondence between SF and B-segments. The reader is reminded that ALIGN(M⇔P) is the morphophonological constraint that requires every MWd-edge to match the corresponding edge of a PWd (see 32 above). Concerning the satisfaction of this constraint, the following data are particularly interesting.

(71)

k o m e r s i o	‘business’
x o d e r	‘copulate’
➢ x o d e r s i o	‘prostitution business’
x e s t a p o	‘police organization’
g r i s	‘gray’
➢ g r i s t a p o	‘armed police

In these examples, the source forms of the blend are aligned at one edge even though the segments sitting at that edge are not identical (e.g. /k/ ≠ /x/ and /x/ ≠ /g/). Despite their non-identity, the members of these pairs of segments are not extremely dissimilar, which would result in only a few IDENT-(SF-B) violations, if one of them is used as the correspondent of both SF-segments.

(72) ALIGN(M⇔P) >> MAX(SF-B, seg) >> IDENT(SF-B) >> MORPHDIS

SF: [{komérsio}] [{xodér}]	ALIGN(M⇔P)	MAX(SF-B)	IDENT(SF-B)	MORPHDIS
a. [{{xoder}{komérsio}}]	* * !			
b. [{{xodér}{sio}}]	* * !	komer		
c. [{{x{odér}sio}}}]	* * !	k m		o er
d. ☞ [{{{xodér}sio}}}]	*		[k/x] [m/d]	xoder

Indeed, an output form that opts for this alternative is preferred because by having ambimorphemic peripheral segments such form is able to achieve better alignment (see 72d) than an output form that lacks the correspondent of the edgemost segment of one of the SF's (72c). The latter can not help falling in violation of ALIGN(M⇔P) since the lack of peripheral correspondents precludes proper alignment. Candidate (72a) violates ALIGN(M⇔P) twice because the right edge of MWd {xoder} and the left edge of MWd {komersio} are not aligned with a PWd-edge. These two violations are fatal despite the fact that (72a) fully complies with all lower-ranking constraints. Candidate (72b) is an attempt to blend the two SF's without using ambimorphemic segments. This results in loss of segmental material which is sanctioned by MAX(SF-B, seg). But crucially, the loss of peripheral segments in this candidate translates into misalignment since the right edge of the mutilated MWd {sio} and the right edge of MWd {xoder} do not match a PWd-edge. The most interesting contrast is between candidates (72c) and (72d). By having ambimorphemic segments, including a pair of non-identical correspondents (e.g. [k/x], [m/d]), output form (72d) is not only able to perfectly comply with MAX(SF-B, seg), but it also manages to align the greatest number of MWd-edges. Note that in (72d) only the right edge of MWd {xoder} does not match a PWd-edge. By contrast, candidate (72c) which only allows ambimorphemic segments when the SF-correspondents are featurally-identical (e.g. [o/o], [e/e], [r/r]), falls in violation of ALIGN(M⇔P) twice since not only the right edge of MWd {xoder} is misaligned but also the left edge of the mutilated MWd {o ersio}. These results support the proposal that a B-segment may in fact have a featurally-dissimilar SF-correspondent.

When the source forms of a blend are phonologically less compatible because SF_1 has fewer segments in common with SF_2, a greater number of violations of the constraints that promote (SF-B)-Identity is necessary.

(73) a. b o c a d i ll o 'snack'
p e rr o 'hot dog'

b o c a p e rr o 'hot dog snack'

b. b i c i c l e t a 'bicycle'
b u rr o 'donkey'

➢ b u rr i c l e t a 'small bicycle'

c. b o c a b u l a r i o 'vocabulary'
j e t a 'mouth of an animal'

j e t a b u l a r i o 'bad speech characterized by the use of cuss words'

Clearly, (SF-B)-Identity is more critically at stake in these examples because the members of each pair of SF's have only one segment in common. In order to comply with ALIGN(M⇔P) and MAX(SF-B, seg), several B-segments need act as correspondents of two non-identical SF-segments. The more instances of this type of unfaithful correspondence, the more IDENT(SF-B) violations are necessary.

(74) ALIGN(M⇔P) >> MAX(SF-B, seg) >> IDENT(SF-B) >> MORPHDIS

SF: [{bocadíllo}] [{pérro}]	ALIGN(M⇔P)	MAX(SF-B)	IDENT(SF-B)	MORPHDIS
a. [{{boca}{pérro}}]	* *!	dillo		
b. [{{boca{pérro}}}]	*	d ! ill		o
c. ☞ [{{boca{pérro}}}]	*		[d/p] [i/e] [rr/ll]	perro

Although the three candidates in tableau (74) are phonetically identical they are formally different. (74a) is a candidate resulting from clipping. That is, the source forms have been shortened and their remains have been put together, which means that there is no overlapping and hence input and output segments are in a one-to-one correspondence relation. This candidate is ruled out by ALIGN(M⇔P) because it contains two misaligned MWd-edges. (74b) is a blend with partial overlapping involving only segments that are featurally-identical in both SF's: the segment /o/. Lastly, (74c) is a blend with total overlapping including non-identical segments. This is the optimal output form because it maximizes the alignment of MWd-edges plus it provides a correspondent for every single segment in the SF's. Satisfaction of these higher-ranking principles is achieved at the cost of violating IDENT(SF-B) since three out of the four ambimorphemic segments this candidate contains do not have identical correspondents in one of the SF's.

Given that the source forms of the blends in (73) have so few segments in common, it might appear that there is actually no overlapping and that the source forms have simply been clipped and sewed together. But this is only impressionistic. While is true that from a segmental viewpoint, these blends only have one segment upon which the two source forms clearly converge, it should also be observed that the number of syllables given up by the longer SF is exactly equivalent to the number of syllables the shorter SF has. For instance, if SF_1 has five syllables and SF_2 has two syllables, B will maintain three syllables from SF_1 and two syllables from SF_2 with the additional condition that the two syllables from SF_2 must sit at one of the peripheries of B. This suggests that, at a prosodic level, one of the source forms does indeed overlap upon the other one.

(75) Prosodic Overlapping:

	Left Alignment	*Right Alignment*
SF_1	$\sigma_1\ \sigma_2\ \sigma_3\ \sigma_4\ \sigma_5$	$\sigma_1\ \sigma_2\ \sigma_3\ \sigma_4\ \sigma_5$
SF_2	$\sigma_1\ \sigma_2$	$\sigma_1\ \sigma_2$
B	$\underline{\boldsymbol{\sigma_1\ \sigma_2}}\ \sigma_3\ \sigma_4\ \sigma_5$	$\sigma_1\ \sigma_2\ \sigma_3\ \underline{\boldsymbol{\sigma_4\ \sigma_5}}$

It should then be taken into account that morpheme overlapping does not only take place at the segmental level but also supra-segmentally. The realization of this fact is of major importance to account for the length of the blend. Note that if one assumed that the blends in (73) arise from clipping rather than overlapping, then there would be no criterion to determine how much of the longer SF should be clipped since there would be no reason why clipping should stop at a specific point. For instance, in the blending of SF_1 *bocadillo* and SF_2 *perro*, SF_1 could be clipped as little as one syllable: *bocadiperro*, or as much as four: *boperro*, since no edge of SF_1 is required to match the corresponding edge of SF$_2$. By contrast, if one assumes overlapping, it follows that the longer SF will give up exactly the number of syllables that the shorter SF has. Recall that the reason why overlapping needs take place is because MWd-edges must share PWd-edges in order to achieve optimal alignment. This causes SF$_1$ and SF$_2$ to start or end at the same point. The constraint ALIGN(M⇔P), the same principle that forces overlapping, says that no syllable from the SF's should be clipped. Rather, B must contain as many ambimorphemic syllables as the shorter SF has since both SF's need be represented in B for proper alignment to occur. My claim is that when the source forms of a blend lack phonological affinity, overlapping still takes place. This is evident at the syllable-node level where the syllables of the shorter SF overlap on the syllables of the longer one even in the cases where this entails, that at the segmental level, a great number of IDENT(SF-B) violations will arise as illustrated in tableau (74) above.

3.3.6 A continuous segmental string

Except for a non-final word marker, B always has a correspondent for every segment in the shorter SF. In deed, in terms of segmental units, there is a tendency for B to remain more strictly faithful to the shorter SF than to the longer one. This becomes evident when the overlapping syllables contain a different number of segments.

(76)	SF$_1$	p e d a g o g i c a	a n a l f a b e t a
	SF$_2$	p i e d r a	b e s t i a
	B	**p** i **e** **d** r a g o g i c a	a n a l f a **b** **e** s **t** i **a**

In these examples, the overlapping syllables in SF$_1$ and SF$_2$ contain four and six segments, respectively. Even though the contiguity among the segments in SF$_1$ is altered, B does not skip any internal segments in SF$_2$ (e.g. forms such as **pidragogica*, **piedagogica* are not possible). McCarthy and Prince (1995) propose to analyze the correspondence relationship between internal segments through the constraint CONTIGUITY. The specific versions of this constraint that are at large in morphological blending are defined below after their original definition by McCarthy and Prince.

(77) I(SF$_2$)CONTIGUITY: 'No skipping in SF$_2$'

The portion of SF$_2$ standing in correspondence forms a contiguous string. Range ($\mathfrak{R}$) is a single contiguous string in SF$_2$.

(78) O(SF$_1$)CONTIGUITY: 'No intrusion in SF$_1$'

The portion of SF$_1$ standing in correspondence forms a contiguous string. Range ($\mathfrak{R}$) is a single contiguous string in SF$_2$.

Clearly, I(SF$_2$)CONTIGUITY must outrank O(SF$_1$)CONTIGUITY given that it is preferred not to skip any internal segments in SF$_2$ no matter if for that purpose some the correspondents of SF$_1$ segments are broken apart.

(79) I(SF$_2$)CONTIGUITY >> O(SF$_1$)CONTIGUITY

SF: [{analfabéta}] [{béstia}]	I(SF$_2$)CONTIGUITY	O(SF$_1$)CONTIGUITY
a. ☞ [{{{analfa}béstia}}]		s i
b. [{{{analfa}bétia}}]	s !	i
c. [{{{analfa}bésta}}]	i !	s
d. [{{{analfa}béta}}]	s ! i	

Candidates (79b) through (79d) are ruled out by I(SF$_2$)CONTIGUITY because they lack the correspondent(s) for some internal segment(s) in SF$_2$ *bestia*. The winner is candidate (79a) because it does not delete any internal segments in SF$_2$ even if this occurs to the detriment of O(SF$_1$)CONTIGUITY.

3.4 Summary

In this chapter, I explored the process of Spanish word-blending from a morpho-phonological perspective. I argued that blends are a type of compound whose optimal output form is determined by the interaction of both morphological and phonological constraints. In morphological blending, dominance of the prosodic constraint NO-PWd* over the interface constraint ALIGN(M⇔P) yields non-concatenative morphology: morpheme overlapping. The dominated constraint ALIGN(M⇔P) is satisfied optimally when the source forms start or end at the same point so that a greater number of MWd-edges can be aligned with PWd-edges. This causes one of the source forms to overlap upon one of the peripheries of the other source form. As a result, a single segment in the blend may stand in correspondence with two segments in the source forms. This strategy is used to avoid violations of the correspondence constraint MAX(SF-B, seg) at the expense of violating MORPHDIS. It is preferable if an ambimorphemic segment in B is featurally-identical to its two correspondents in SF because, in that way, no violations of IDENT(SF-B) would arise. However, when that is not the case, providing a non-identical correspondent is still better than not providing a correspondent at all, even though this results in IDENT(SF-B) violations. Such violations are justified by the need to comply with ALIGN(M⇔P), whose satisfaction would be precluded if B did not provide the correspondents for non-identical peripheral SF-segments. Whenever the word-marker of the shorter source form is trapped in the middle of the blend, this segment is lost due to the action of the undominated morpho-phonological constraint ALIGN-WM. Respecting the contiguity relations of the segments in the shorter source form takes priority over respecting the contiguity of the segments in the longer source form. In terms of featural identity, the blend also remains more faithful to the shorter source form than to the longer one. In compliance with the constraint I(SF_2)CONTIGUITY, no internal segments in the shorter source form may be skipped. Domination of IDENT(SF-B)SF_2 over IDENT(SF-B)SF_1 explains why when the two source forms differ in some segment(s), the ambimorphemic segments in the blend are more faithful to their correspondents in the shorter source form than to those in the longer one. Morphological blending is a type of output-to-output derivation where the blend is required to remain closely faithful to its source forms. Even though perfect identity between the blend and its source forms may not always be achieved, the output-to-output correspondence relationship that holds between them forces the preservation of derived properties of the source form such as prosodic structure and morpho-phonemic changes (e.g. diphthongization). Faithfulness to such derived properties can only make sense if blends are derived from output forms. The following constraint hierarchy accounts for the above-mentioned qualities of Spanish word-blending.

(80) Constraint Ranking Responsible for Morphological Blending: