

## SYLLABIC CONSONANTS IN NEW MEXICO SPANISH: THE GEOMETRY OF SYLLABIFICATION

JOHN M. LIPSKI  
*University of New Mexico*

ABSTRACT. The traditional Spanish of northern new Mexico and southern Colorado variably exhibits syllabic consonants (/m/, /n/, /r/, /l/) in the following contexts: (1) syllabic [m̥] occurs as a variant of *mi* before labial consonants (e.g. *mi papá*); (2) syllabic [m̥], [n̥], [l̥], and occasionally [r̥] appear before stressed /-it-/ (e.g. *lomita*, *Juanito*); (3) syllabic [m̥] occurs as a variant of *un* before labial consonants (e.g. *un beso*). In the first case, the syllabic [m̥] may develop a prothetic vowel (*em papá*). The present study analyzes these instances of syllabic consonants as the interaction of universal aspects of vocalic feature geometry, and a dialect-specific characteristic which allows resonants to absorb the feature [vocalic] when the remaining features of a vowel have been reassigned to neighboring segments, and, equipped both with a mora and with a [vocalic] specification, to become syllabic heads. Specifically, syllabic [m̥] in *un* before labial consonants occurs when the features defining /u/ are absorbed by the flanking labial consonants; [vocalic] is detached from the depleted feature matrix and reassigned to /m/. In the case of syllabic [m̥] deriving from *mi* before labial consonants, a similar process occurs; the vowel /i/ in this context is assumed to be unspecified for place features, and the Obligatory Contour Principle links the articulator nodes of the flanking labial consonants. Finally, syllabic consonants before *-ito/-ita* results from the unique interaction of the vowel /i/, specified only for a Coronal articulator, and the following coronal consonant. Thus, although the details vary, the existence of syllabic consonants in these dialects results from the same fundamental combination of dialect-specific and universal phonological feature reassignments.

INTRODUCTION. Popular varieties of Spanish exhibit a wide range of consonantal variation, involving processes. Among the most unusual is the creation of syllabic consonants reported by Espinosa (1909, 1925, 1946) for the traditional Spanish of northern New Mexico and southern Colorado. This is a dialect zone noted for many archaic and innovative traits, showing the results of isolation and linguistic

drift, but shows no other features as far removed from patrimonial Spanish phonological patterns. The present study will assess the importance of the New Mexican Spanish (NMS) data for phonological theory, by demonstrating that despite the superficial appearance of uniqueness, this process is part of a general pattern of assimilation and feature sharing found in other Spanish dialects. In particular, the most innovative examples of syllabic consonants will be attributed to the close relationship between coronal consonants and front vowels, supporting models which implicate the activation of the Coronal articulator for vowels as well as consonants. A unified analysis, which had not emerged from earlier studies, is made possible by the combination of radical underspecification and articulator-based feature geometry, thereby providing additional support for these theoretical proposals. The remainder of the study is organized as follows. Section 1 presents the data on syllabic sonorants in NMS. In section 2, the geometrical structure of /i/ and other Spanish vowels is explored. Section 3 motivates the notion that [vocalic] can spread to consonants in Spanish. This analysis is extended to syllabic sonorants in Section 4. The formation of a syllabic nasal from the article *un* and from the possessive *mi* is analyzed in Sections 5 and 6, respectively. Section 7 summarizes the discussion.

1. THE DATA: SYLLABIC CONSONANTS IN NEW MEXICAN SPANISH. Most of the phonetic variants described by early observers such as Espinosa (1909, 1925, 1946) and Hills (1938) for the Spanish dialect of northern New Mexico and southern Colorado are still to be found today, despite the fact that this variety of Spanish is rapidly being replaced by English, and by the Spanish of immigrants from northern Mexico and southern New Mexico. The syllabic consonants described by Espinosa (1925), are infrequent in contemporary New Mexico, except among the oldest speakers whose lives overlap with the informants studied by Espinosa.<sup>1</sup> This fact notwithstanding, Espinosa's observations are sufficiently explicit, and are not contradicted by current observations, to allow for a systematic analysis of this phenomenon. Espinosa described five syllabic consonants for NMS, many of which are also found in other Spanish dialects (although not explicitly described as such).

Short syllabic [l̥] occurs sporadically in the groups *gl-* and *cl-*, and does not carry an accent. In fact, this sound simply represents a prolongation of the sonorant /l/ in emphatic speech (e.g. *claro* [kL̥aro]), rather than the absorption of a surrounding vowel. This pronunciation is unremarkable and is heard occasionally among Spanish speakers from all areas. Although Espinosa describes this long sonorant as syllabic, it is unlikely that native speakers perceive it as such. It is simply a manifestation of the possibility for extending any sonorant (or even fricative obstruent) for stylistic or idiosyncratic purposes, to a length comparable with syllabic nuclei.

<sup>1</sup>Still heard frequently is syllabic [m̥] in the combination *mi papá*, pronounced [m̥papá] or, with epenthetic vowel, [empapá]. Many native speakers have lexicalized the form *empapá*, and occasionally offer fanciful etymologies for this variant.

Syllabic [m̥] arises when the indefinite article *un* precedes a word beginning with a labial consonant (*un beso* [m̥beso]). This process occurs in other Spanish dialects, and is very frequent, e.g. in Brazilian Portuguese. This phenomenon will be treated in Section 5. Syllabic [m̥] also appears occasionally in the possessive *mi*, coming before a word-initial labial consonant: *mi papá*; this will be covered in Section 6.

The most consistent cases of syllabic resonants observed by Espinosa occur before the diminutive endings *-ito* and *-ita*, and will be analyzed below in Section 4. Short syllabic [R̥] is the rarest of the sounds described by Espinosa (his examples only come from southern Colorado); this sound occurs before a stressed /i/, but only when the following consonant is /t/: *burr̥ito* [buR̥to], *perr̥ito* [peR̥to], *carr̥ito* [kaR̥to], etc. Three 'long' syllabic consonants are also described. The first, long syllabic [M̥], generally arises preceding the stressed vowel /i/, as in the diminutive ending *-itol-ita* (e.g. *lom̥ita* [loM̥ta]). It also occurs in the case of the possessive article *mi*, but only when followed by a labial consonant + unstressed vowel (*mi papá* [papá]). Syllabic [N̥] arises before the diminutive endings *-itol-ita* (*An̥ita* [aN̥ta]). Occasionally, according to Espinosa, syllabic [N̥] arises when the article *un* comes before a non-labial consonant (*un dedal* [N̥de\_al]). Finally, long syllabic [L̥] occurs before the diminutive suffixes *-itol-ita* (*bol̥ita* [boL̥ta]). It can be seen that, in addition to rather unremarkable cases involving apocope of an initial vowel in the article *un*, a change widely attested throughout Ibero-Romance, the 'syllabic' consonants in New Mexican Spanish occur before /i/.<sup>2</sup>

At first glance, Espinosa's observations suggest a morphological conditioning, i.e. involving the diminutive suffixes. In reality, these are simply the most common instances providing an environment in which syllabic consonants could be formed. The real conditioning factor is the fact that the consonants following /i/ all have a CORONAL articulation. That combinations other than the diminutive can also trigger syllabification of consonants is indicated by forms like *perm̥iso* [perM̥so], *com̥ida* [koM̥da], *fac̥ilite* [fasL̥ite], etc.

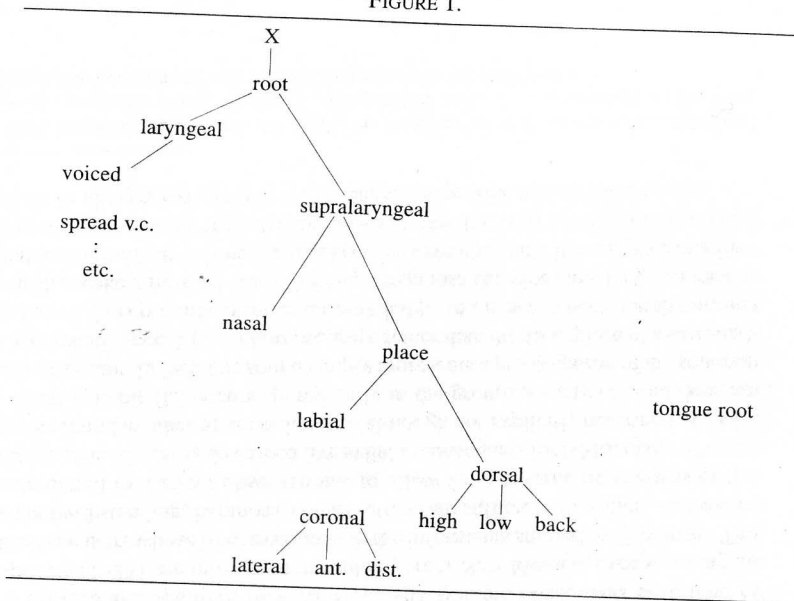
2. EXPLORING THE STATUS OF /i/. It might seem at first glance that the choice of [i] as the vowel before which syllabic consonants are formed reflects the default status of this vowel, i.e. as being completely unspecified at the underlying level. There is, however, no other evidence that Spanish /i/ enjoys this status. Indeed, the vowel /e/ provides overwhelming evidence of being the unspecified default vowel, appearing in all processes requiring an epenthetic vowel for proper syllabification.<sup>3</sup>

A comprehensive analysis of the full range of syllabic consonants in NMS will

<sup>3</sup>E.g. Archangeli (1984, 1988), Harris (1983, 1987); cf. Vago (1988) for the claim that /a/ is the default vowel in at least one dialect of Spanish.

<sup>2</sup>Except for the cases involving *un* and *mi*, the resulting syllabic consonant is preferentially in postvocalic position. That is, creation of syllabic consonants is considerably less frequent word-/phrase-initially (e.g. *nido* rarely becomes \*[do], and *lader* seldom becomes \*[der]).

FIGURE 1.



entail reference to feature geometry, articulator-based theory, and underspecification theory. A total consensus on feature geometry has yet to be achieved; the configuration in Figure 1 illustrates widely accepted common denominators (cf. Clements 1985, 1987, 1989; Halle 1983, 1988; Hume 1990; Ladefoged 1988; McCarthy 1988; Sagey 1986).

According to this model, all vowels engage the Dorsal articulator. The sonorants /r/, /l/ and /n/ involve activation of the Coronal articulator, although according to theories of 'coronal underspecification' in some languages (cf. Avery and Rice 1989, Paradis and Prunet 1989), coronal consonants have no Place features specified at all. The nasal /m/ involves the Labial articulator.

This first approximation to feature geometry is not very promising, in that there is little articulatory similarity between the vowel /i/ and the sonorants which undergo syllabification is visible. In particular, nothing accounts for the special status of /i/ vis-à-vis the remaining vowels of Spanish, as being the only vowel to sanction the creation of syllabic consonants in the environment SONORANT + /i/ + CORONAL.

The link between front vowels and coronal consonants is supported by data from several languages, motivating the notion that the Coronal articulator may come into play in the articulation of /i/ and /e/.<sup>4</sup> In the Spanish data under consideration,

<sup>4</sup>Clements (1976) was one of the first to propose this structure within the framework of generative phonology. For more recent ideas, cf. Clements (1989), Hume (1990).

FIGURE 2.

a.	i	e	a	o	u
high	+				+
low			+		
back				+	+
b.	[ ]	*	→		[-back]
c.	[ ]		→		[-high]
d.	[ ]		→		[-low]
e.	[+low]		→		[+back]

this provides an immediate link between /i/ and the coronal resonants /n/, /l/ and /r/. The nasal /m/, involving only the labial articulator, is not covered by this similarity. However, the key factor in describing the absorption of the place features of /i/ lies not in the preceding consonant but rather in the FOLLOWING consonant, which must always be a coronal /t/ (or very occasionally, /d/). The examples cited by Espinosa mostly involve the diminutive suffix *-ito*, but what is relevant is not the morphological value but rather the fact that /i/ is followed by a consonant making use of the coronal articulator.

Within the framework of underspecification theory, the Spanish vowel system is usually presented as (cf. Archangeli 1984, 1988) (see Figure 2).

However, incorporating the activation of the Coronal articulator in front vowels, from the point of view of the articulators involved, the system is considerably simpler. The relevant Place node specifications are in Figure 3.

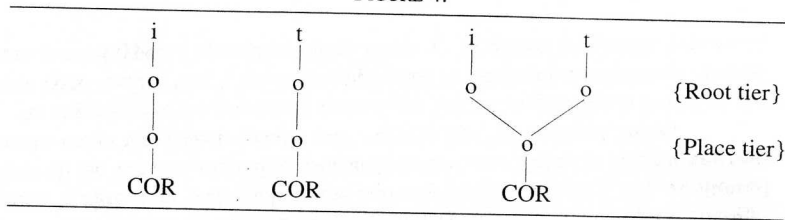
In other words, /i/ need only be specified as activating the Coronal articulator (activation of the Dorsal articulator, if it takes place at all, is completely redundant). The coronal consonants /t/ and /d/, in turn, are also specified as activating the Coronal articulator.<sup>5</sup> However, /t/, /d/ and /s/ arguably have no other features

FIGURE 3.

/i/	/e/	/a/	/o/	/u/
o	o	o	o	o
COR		DOR	DOR	LAB
		[low]		

<sup>5</sup>Despite some claims that on a quasi-universal basis, coronal consonants underlying lack a place node—the "coronal underspecification" theory—Spanish presents no independent evidence that coronal consonants are any more underspecified than the remainder of the consonantal inventory.

FIGURE 4.



dependent on the Coronal node. When /i/ and a coronal obstruent come together, the Obligatory Contour Principle (cf. McCarthy 1986) will assure linkage of the Place nodes; for example, the sequence /-it-/ will take the form (eliminating irrelevant intermediate nodes). (Figure 4)

Configuration (4) presumably exists in all Spanish dialects. What is 'special' about New Mexico Spanish is the existence of an additional process of feature spreading, which simultaneously depletes the phonological matrix underlying /i/ by reassigning its features to neighboring segments, thereby allowing the preceding resonant to become the syllable head. Once the place features defining /i/ (namely the Coronal articulator) have been linked (to a following coronal consonant), the only remaining phonological feature defining /i/ which must be accommodated elsewhere is the root feature [vocalic]. Although spread of [vocalic] is not frequently discussed as a phonological process, much less in Spanish, it is possible to motivate an analysis of syllabic resonants in NMS as embodying the results of [vocalic] spread. It will be proposed that syllabic consonants in NMS result from a combination of OCP-induced dual linking, of the sort exemplified in (4), spreading of [vocalic] from a nuclear to a non-nuclear segment, and an option which is specific to NMS, namely the ability for a sonorant specified as [vocalic] to become a syllable head.

3. SPREADING OF [VOCALIC] TO SPANISH CONSONANTS. At first blush the notion that a major category feature like [vocalic] could undergo spreading seems to run afoul of the basic defining characteristics of modern phonology, but a closer look at the evidence provides justification for this postulate. Kaisse (1992) has explored the possibility that the feature [consonantal] can spread, examining several cases of the 'hardening' of glides and vowels. According to her reformulation of feature geometry, [consonantal] is no longer part of the Root node, but is rather a daughter of the Root node. The feature [sonorant] remains as part of the Root node, and is not subject to spreading. In the examples adduced by Kaisse, the resulting segments to which [+consonantal] has spread are definitely 'consonant-like' (e.g. obstruents); in fact, she claims that spreading of [+consonantal] automatically entails a [-sonorant] specification. In Kaisse's revised feature geometry, [continuant] is a sister of [consonantal], and should also be subject to spreading.

Kaisse queries whether [-consonantal] (presumably [vocalic]) can also spread in the same fashion. The difficulty with finding probative cases lies in the inevitable interaction of weakening and strengthening depending upon syllable position. However, all the observations on 'hardening' and 'vocalization' are set against the background assumption that any 'spreading' of a major class feature such as [consonantal] completely transforms the resulting segment into a member of the 'opposite' category: hardened glides or vowels become obstruents, and vocalized consonants become glides or vowels.<sup>6</sup>

Recent investigation by Lipski (1993a) has implicated spreading of [vocalic] in certain stop-fricative alternations of Spanish /b/, /d/ and /g/. Spread of [vocalic] is also claimed to be a factor in Spanish glide-hardening, in which a semivocalic element in the syllabic rhyme is replaced by a homorganic voiced obstruent, which is resyllabified into the onset of the following syllable:

FIGURE 5

aire > adre	europeo > egropeo
aura > agra	jaula > jabla
Aurora > Abrora	Laureano > Labreano
bautizar > babtizar	laurel > labrel
Braulio > Brablio	maura > mabra
cadrá < cairá < caerá	Mauricio > Mabricio

The opposite change also occurs: the 'vocalization' of a postvocalic voiced obstruent which is followed by a liquid; the resulting element emerges as a semivowel, after having been resyllabified into the nucleus of the preceding syllable. This is a possible option, since all the consonants subject to 'vocalization' may also occur rhyme-finally in Spanish words (cf. the wide selection of examples in Oroz 1966: 140-5):

FIGURE 6.

amaule < amable	madre > maire
aular < hablar	mugre > muire
cuaira < cuadra	padre > paire
láirima < lágrima	

<sup>6</sup> In many instances, however, changes in manner or place of articulation also occur, in fashions which cannot be directly attributed to the consonant/vowel distinction. Thus in Cypriot Greek the glide *y* 'hardens' to a velar consonant. In Romansch dialects where glide-hardening occurs, a velar consonant is the result of 'hardening' of both *y* and *w*. Appeal to default places of articulation is a tacit admission that more is at stake than merely changing a base feature, and suggests a drastic delinking of most or all defining features, followed by the feature-filling action of default rules.

Yet another type of alternation which can be attributed to spreading of [vocalic] in vernacular Spanish is the reduction of rhyme-internal voiced obstruents to semivowels:

FIGURE 7.

abdomen > audomen	cápsula > cábsula > cáusula
absoluto > ausoluto	doctor > dogtor > doitor/doutor
acción > ausión	eclipse > ecliuise
afecto > afeuto	

This vocalization reflects the incorporation of coda consonants into the nucleus, where the [vocalic] specification contributed by the nuclear vowel results in a semivocalic articulation.

In the cases of vocalization of obstruents, spread of [vocalic] creates a semivocalic element occupying a non-head nuclear position. There are no known cases in which such an element attains syllable headship, if only because no processes affect the syllabic vowel. Strictly speaking, in NMS [vocalic] does not spread, but is rather reassigned, together with the place features defining /i/. This provides the staging ground for syllabic resonants.

4. NMS SYLLABIC CONSONANTS AS SPREADING+DELINKING OF [VOCALIC]. Consonantal syllabification in New Mexican Spanish is, in an impressionistic fashion, a case of feature sharing and merger. An original combination of a sonorant plus /i/, occupying two skeletal slots, fuses into a single segment, combining the articulatory characteristics of the sonorant and the syllabicity originally assigned to the vowel. It would be tempting to simply stipulate that in New Mexico Spanish, segments of e.g. sonority level 2 and 3 may also form syllable heads, but only after all available [vocalic] elements have been exhausted. At the same time, some means of assuring the deletion of /i/ in the appropriate circumstances would be required. Since consonantal syllabification is a low-level process, a continuous resyllabification would be required. However, what really happens is not a change in sonority elements affecting the syllabification algorithm, but rather the exchange of a feature between /i/ and the preceding resonant. The same feature, when attached to the matrix defining /l/, /m/, or /n/, allows these elements to assume nuclear status within the same syllable. The feature in question when detached from the geometric structure defining /i/ leaves behind a non-viable phonological configuration: a bare Root node lacking the defining feature [vocalic]. This is allowed since all the features originally associated with /i/ are relinked to neighboring segments, either via dialect-specific processes, or by OCP-induced fusion.

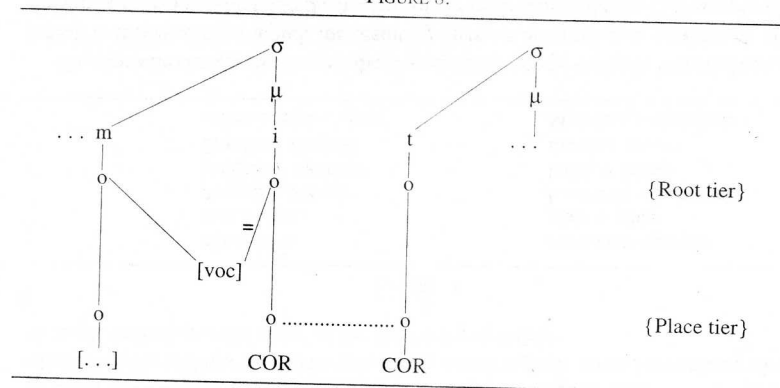
As suggested in the preceding section, the feature in question is [vocalic], the very same feature which has been implicated in glide-voiced obstruent alternations in other types of Spanish syllables. Since /l/, /m/ and /n/ are already [sonorant],

the addition of [vocalic] does not change the fundamental articulation patterns of the sonorants. However, once the originally vocalic nucleus has disappeared (by a mechanism to be discussed below), syllable headship is automatically transferred to the one remaining [vocalic] element.

In most varieties of Spanish, detachment of [vocalic] from a matrix containing vocalic features is not a viable option, since the resulting depleted feature matrix would find no phonetic realization. In such dialects, transfer of [vocalic] to a sonorant is irrelevant, since sonorants cannot form syllable heads under any circumstances. In NMS, not only can [vocalic] freely attach to a sonorant (providing that the remaining phonological material left behind can also be accommodated), but sonorants specified as [vocalic] can become syllable heads, under appropriate conditions.

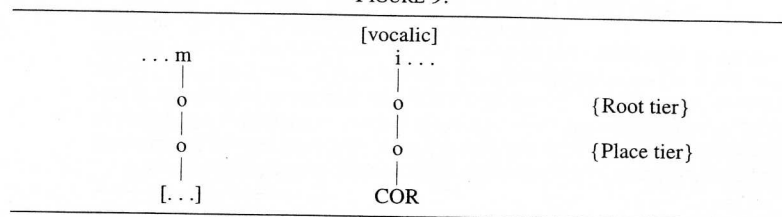
In the case of syllabic consonant formation, [vocalic] detaches from /i/ and attaches to a preceding sonorant. The Place node of /i/ is already linked to that of the following coronal consonant by the OCP. Therefore, even though the matrix underlying /i/ does not emerge with separate phonetic realization, given the fact that [vocalic] has been removed, all the remaining features are accommodated by one or the other of the neighboring segments (Figure 8).

FIGURE 8.



This account explains why only the vowel /i/ is involved in cases of syllabic resonants, and also why the following consonant must be a coronal. The essential difference between New Mexican dialects and other varieties of Spanish lies in the possibility, in the former, for [vocalic] to actually detach from vowels, allowing sonorants to become syllable heads. In the limiting case, [vocalic] need not be underlyingly associated to the vowel /i/, but can be a floating autosegment which

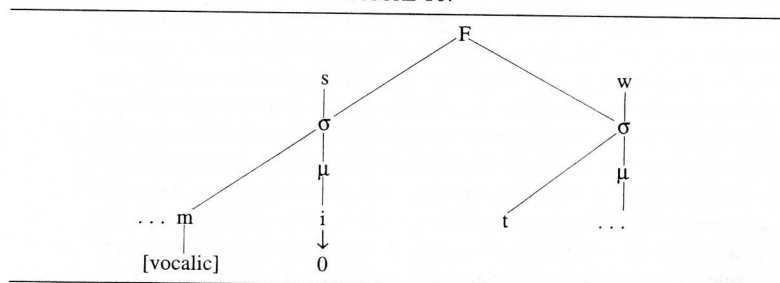
FIGURE 9.



can freely attach to any available docking point.<sup>7</sup> Thus the second syllable of a word such as *lomita* will take the form shown in Figure 9.

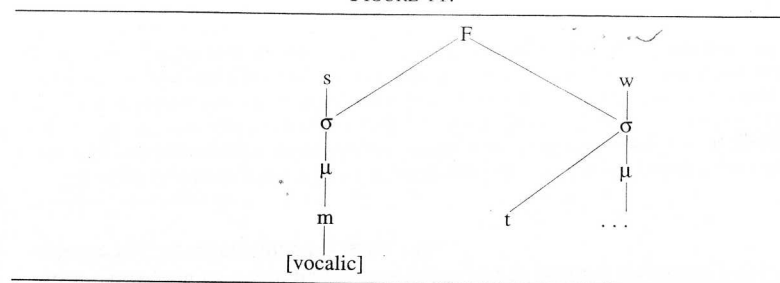
Feature reassignment represented by the depletion of /i/ takes place within the confines of a single syllable. The evidence from NMS suggest that both syllables and feet are fully formed before feature reassignment takes place, a reasonable conclusion given the obviously low-level phonetic nature of the latter phenomenon. Following association of [vocalic] to the resonant, the latter element becomes the new syllable head. The mechanism by means of which the preceding resonant, having absorbed [vocalic], becomes the head of a syllable illustrates the difference between syllable-internal reassignment of features (hence of syllable-head status), and complete resyllabification, such as occurs when a segment is entirely deleted. The first step in the formation of a syllabic sonorant involves reassignment of the features defining /i/, as in (8). The resulting depleted root node is deleted by stray erasure, but the prosodic superstructure, including both the syllable and the metrical foot, remains intact (Figure 10).

FIGURE 10.



<sup>7</sup>In such a case, there is strictly speaking not a 'free-form syllable' (in the sense of Lipski 1993b), but rather a trans-syllabic configuration, given that the matrix underlying /i/ from which [vocalic] has been removed must link to the Place node of a following consonant. This still does not preclude a syllable in which [vocalic] is originally unattached to an individual segment; such a syllable is simply not viable if the condition of a following coronal consonant is not met. Since the underlying representation of a word is not the result of transient juxtapositions but rather of a stable configuration, such non-viable syllables will not arise in the first place.

FIGURE 11.



The mora originally associated with /i/ automatically associates to the sonorant specified [vocalic]. This configuration, combined with the dialect-specific allowance for syllabic sonorants, enables the newly moraified consonant to reconstitute the syllable, thereby preventing collapse of the prosodic structure (Figure 11).<sup>8</sup>

Reassignment of a mora left stranded by root node (segment) deletion will always take place within the confines of the same syllable, providing that no phonotactic or sonority constraints are violated. This follows from the basic principles of prosodic licensing or prosodic integrity (e.g. Itô 1986, Crowhurst 1992). In most Spanish dialects, vowel deletion strands an onset consonant which cannot form a syllable head, both due to dialect-specific sonority restrictions, and because [vocalic] does not spread from the vowel prior to deletion. In such cases, the stranded mora can only associate to the stranded consonant by becoming a coda of the preceding syllable. This is what happens in dialects such as those of the Andean region and parts of central Mexico: *pres(i)dente* > *presdente*, *art(i)ificio* > *artificio*, etc. (cf. Lipski 1990 for one analysis). The syllabic structure originally associated with the deleted vowel collapses, and in extreme cases, new syllable-types can be formed (cf. Hundley 1986 for one analysis). Collapse of the syllable also entails collapse of the metrical structure, and when required (i.e. especially when a posttonic vowel is deleted), a new foot must be formed. In principle, nothing prevents deletion of tonic vowels, in which case re-application of the Spanish stress algorithm would place main stress on the immediately preceding syllable.<sup>9</sup> In practice, tonic vowel deletion does not normally occur, because the main cause of vowel deletion, shortening/devoicing in prosodically weak environments, does not affect tonic vowels.

In partial summary, several factors combine to allow the formation of syllabic sonorants in NMS, a development not found in other Spanish dialects. The primary mechanism is the depletion of the phonological features defining a vowel

<sup>8</sup> Cf. Archangeli (1991) for one model of syllabic projection by moraic elements.

<sup>9</sup> The possible effects of such a shift can be seen in the popular pronunciation of *mendigo* as *ménd(i)go*, often with a vanishingly weak posttonic vowel.

through linking to neighboring segments, rather than simple deletion. This procedure not only frees up the mora originally associated with the vowel for subsequent assignment to a re-formed syllable, but also distributes the crucial feature [vocalic] to a neighboring segment. Of these events, it is the depletion through re-assignment of features, and the viability of syllabic sonorants, which are (relatively) unique to NMS. Feature spreading, including spread of [vocalic], occurs freely in all Spanish dialects, defining such phenomena as assimilation, glide hardening, spirantization of voiced obstruents, etc. Similarly, OCP-induced fusion of identical adjacent elements is assumed to be universal and not subject to tampering. In other circumstances and dialects, however, feature spread does not entail delinking from the original site. Syllabic sonorants in NMS preserve the phonological 'memory' of the original vowel via the syllabicity permitted by the feature [vocalic]. Even in these circumstances, a following coronal consonant is required, to absorb the Coronal specification of /i/. Deletion of a vowel through reassignment of the component features is the reason why a STRESSED VOWEL in NMS can give way to a syllabic consonant. Normally, vowel DELETION processes (which typically perform the deletion in a single step) require that the vowel be in a metrically weak position, with expiratory weakness as well as rhythmic alternation contributing to the feasibility of deletion. In NMS, on the other hand, questions of prominence actually work in the opposite direction, with maximum prominence/stress enhancing the possibilities for the formation of a syllabic resonant.<sup>10</sup>

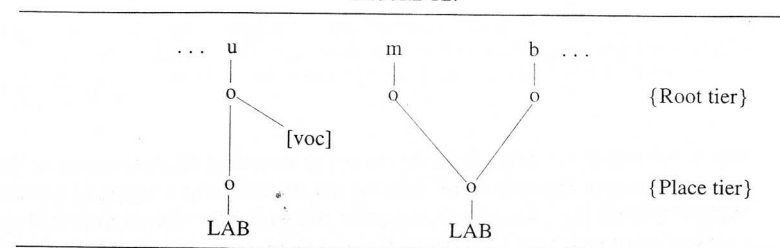
5. SYLLABIC NASALS IN THE ARTICLE *UN*. A somewhat similar analysis will account for occasional syllabification of *m* in the article *un*, when preceding a labial: *un beso*, *un pedazo*, etc. In Spanish, preconsonantal /n/ underlyingly lacks place of articulation features, and links to the place node of a following consonant, in this case, a labial. Although underlyingly specified only for [back] and [high], Spanish /u/ is superficially [round], a dependent of the Labial articulator. Labial consonants such as /p/ and /b/ have a bare Labial articulator node (cf. Sagey 1986). The resulting configuration follows (Figure 12):

Normally the feature [round] does not apply to Spanish consonants.<sup>11</sup> In the case of Spanish round vowels, [round] is also redundant, since there are no other dependents of the Labial articulator. It is therefore possible to specify /u/ as also characterized by a bare Labial articulator, thus allowing OCP-induced linking to the place

<sup>10</sup>Occasionally, the same feature reassignment affects unstressed /i/; for example *vomitar* (pronounced *gomitar* in vernacular NMS) may be realized as [gotár] and *vómito* (*gómíto*) as [góto]. The syllabicity of these sonorants is more difficult to maintain, given the general weakening and shortening associated with pretonic and intertonic positions in Spanish. The phonetic results may be virtually indistinguishable from [gom-tár] and [góm-to], with the sonorant reassigned as a coda consonant, thus suggesting an otherwise non-existent process of unstressed syllable deletion in NMS.

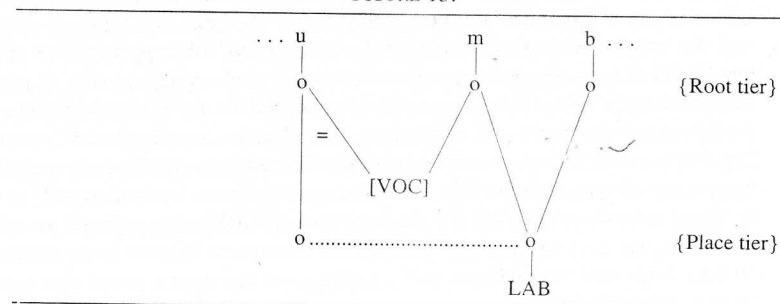
<sup>11</sup>Except to the bilabial realization of /f/ as [Φ], cf. Lipski (1993b).

FIGURE 12.



node of the following NASAL+OBSTRUENT combination.<sup>12</sup> Once the OCP has fused the place node of /u/ to the following consonants, [vocalic] can spread to the nasal. As in the cases discussed above, all the features of /u/ will be accounted for, either through spread of [vocalic] or through multiple linking of the place node (Figure 13).

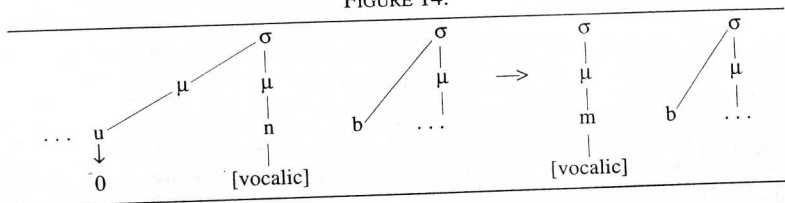
FIGURE 13.



Thus /u/ will not be phonetically realized, and its accompanying mora will be stranded, and ultimately stray-deleted. The nasal consonant, occurring in the rhyme, will already have an associated mora, via a Weight by Position rule (e.g. Hayes 1989), since Spanish has no underlyingly moraic consonants. Once more, since NMS permits a moraic [vocalic] sonorant to become a syllable head, the syllable will be reconstituted (Figure 14).

<sup>12</sup>It might also be possible to leave [round] dependent on a triply-linked Labial node, allowing language-specific restrictions to preclude association of [round] to a labial consonant. In principle, this analysis could also effect /o/, but the syllabification of *m* is critically related to the shortening of the preceding vowel. The (phonological) clitic status of the article *un* provides a perfect context in which /u/ can be reduced. This reduction can be interpreted as depleting the specification [+round] from /u/, leaving behind only a bare Labial node.

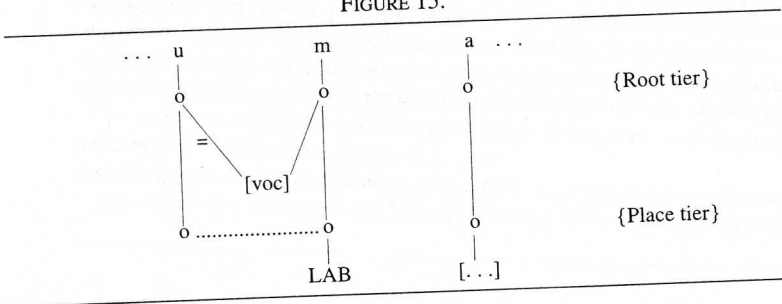
FIGURE 14.



Unlike the cases involving absorption of /i/, (14) entails a net loss of a mora. The formation of a syllabic nasal derived from the article *un* also illustrates feature/mora reassignment within the confines of a single syllable, rather than resyllabification. Spanish dialects which lack the possibility for syllabic nasals would have no way of syllabifying a combination such as /mbe.../, which violates all sonority constraints (cf. Harris 1989; Hualde 1989, 1991; Guerssel 1986; Dell and Elmedlaoui 1986).

The feature reassignments proposed in (13) could in principle be extended to cases of /u/ followed by underlying (prevocalic) /m/ (e.g. *su mata*, *humano*). Espinosa, however, described no syllabic nasals in this environment, and for a linguistically sound reason.<sup>13</sup> Consider the results of feature spreading in a combination such as *humano/humanamente*:

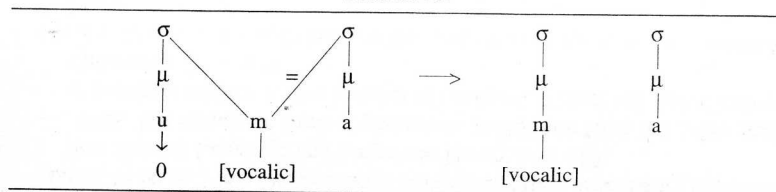
FIGURE 15.



<sup>13</sup>Occasionally a syllabic *m* does surface, especially when the /m/ cannot be retained in the onset due to the potential formation of an impossible cluster (as in \*/sm-/ < *su mata*). When this restriction does not obtain, syllabic [ ] is more likely before unstressed vowels (e.g. *humanamente*) than before stressed vowels (e.g. *humano*), since in the latter instances it is difficult to maintain a viable syllabic sonorant before a tonic vowel. Impressionistically, in those few cases where /m/ can become syllabic before /u/, syllabic [ ] appears to be slightly more frequent in *humilde*, while vanishingly rare in *humano*; if true, this would confirm the sonority scales of Harris (1989), Guerssel (1986), Dell and Elmedlaoui (1986), according to which the non-high vowels occupy a higher position on the sonority scale than the high vowels, with /a/ being the most sonorous vowel.

The process shown in (15) would require that both features and morae be reassigned to segments in another syllable:

FIGURE 16.



Another reason for the virtual nonexistence of (15)-(16), despite the viability of feature reassignments, is contrary to (virtually anyone's version of) sonority sequencing (e.g. Selkirk 1982), the presence of a following vowel makes it much more likely that the nasal will be retained as an onset, exemplifying the basic CV or onset-rule.

6. SYLLABIC /m/ IN THE POSSESSIVE *MI*. The derivation of syllabic *m* derived from the possessive article *mi* (e.g. *mi papá* > [Mpapá]) is similar to the preceding analysis, although some additional steps must be postulated.<sup>14</sup> That this transfer of syllabification only occurs between a labial nasal and a following labial consonant is clearly not irrelevant, nor is the fact that the very next vowel is usually unstressed (*mi padre* \* [Mpa\_re]). The clitic status of *mi* ensures that the /i/ will receive a very weak stress at best, and thus be susceptible to elision, while the existence of at least one more syllable before the main stressed syllable further contributes to the phonetic weakness of the environment in which /i/ occurs.

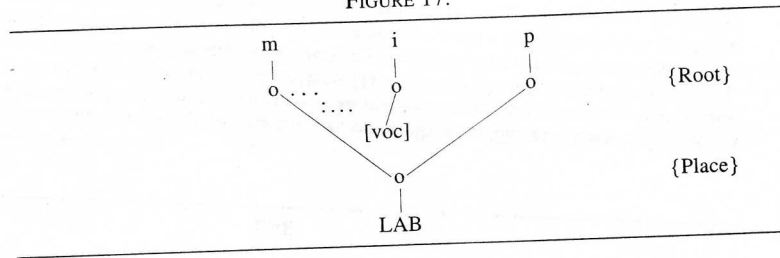
Espinosa (1946: 22-24) gives further examples in which clitic *me* and disjoint pronoun *mí* also becoming syllabic [M]: *no ME [M] pudo ver*, *a MÍ [M] menos m'importa*, *a MÍ [M] mismo*, etc. This indicates that, rather than a phenomenon confined to the vowel /i/, unstressed or weakly stressed front vowels in general can participate in this process of feature sharing and reassignment. The vowel /i/ , in which the Coronal articulator is activated, does not directly interact with the Labial articulator which characterizes both /m/ and /p/ or /b/. However, I suggest that in the possessive *mi*, the /i/ contains a completely predictable vowel, which in other instances is manifested as [e]. The clitic status of *mi* does not exclude /e/ (to wit the pronominal clitic *me*), but even in the latter word there is a tendency for the unstressed vowel to raise. If the vowel in *mi* is maximally underspecified, at

<sup>14</sup>Espinosa noted that syllabic [M] < *mi* sometimes develops a prothetic [e]: *mi papa* [papá] > [empapá]. This same evolution has occurred elsewhere in Romance, e.g. in Catalan and some Italian dialects (cf. Vanelli 1984). Under some circumstances, both of the above-mentioned phenomena are better treated as instances of exrescent vowels (cf. Levin 1987).



least in NMS, then OCP-induced fusion can link the Labial articulators of the flanking consonants, resulting in a dually-linked place node which will preclude default assignment of place features to the vowel:

FIGURE 17.



Spreading of [vocalic] to the preceding nasal creates the conditions for eventual syllabicity of /m/, and upon failure to receive place features, the phonological material associated with /i/ is deleted.

In NMS, the analysis just proposed is highly speculative. A more constrained solution might embody the suggestion that [high] vowels can optionally delete, providing that two conditions are met: (a) that the vowel in question is pronounced sufficiently weakly, in terms of prosodically-assigned stress, and (b) that an adjacent element can receive [vocalic], thus ensuring that the overall number of syllables in the word will not be diminished. In this revised scenario the place node of a vowel does not have to link to a neighboring segment in order to sanction delinking of the vocalic root node. It is merely sufficient that [vocalic] be accommodated, in this case via the NMS option of spreading [vocalic] to a nasal.<sup>15</sup>

7. SUMMARY AND CONCLUSIONS. Syllabic resonants in NMS combine universally-available phonological configurations with dialect-specific events, which combine to create the impression of a greater innovation than actually occurs. The OCP-induced feature fusions occur in principle in all Spanish dialects, but the features defining the vowels /i/ and /u/ cannot all be reassigned, thereby allowing a prosodically-licensed deletion of these vowels and leaving a syllabic resonant in their place. NMS not only allows the feature [vocalic] to attach to sonorants, but

<sup>15</sup>That [high] vowels are involved in a broader spectrum of feature-sharing in NMS is suggested by the optionally syllabic /n/ in *un dedal*. In this combination, the LAB articulator of /u/ is irrelevant to the following configuration. Evidently the spread of [vocalic] from the /u/ to the /n/, together with the mora already associated with /n/, is sufficient to allow the nasal to assume headship of the syllable. It is also possible that the vowel in *un* is also maximally underspecified, since a completely predictable article is at stake. A definitive solution will have to await further research on the interaction between Spanish morphology and feature geometry.

also allows a sonorant equipped with both a mora and a [vocalic] specification to become a syllable head. If the analysis proposed above is on the right track, it might eventually be extended to syllabic consonants in Portuguese as well as Italian and Rho-Romance dialects.

REFERENCES

ARCHANGELI, DIANA. 1984. Underspecification in Yawelmani phonology and morphology. Ph. D. dissertation [New York: Garland Publishing, 1988].  
 —. 1988. Aspects of underspecification theory. *Phonology* 5.183-207.  
 —. 1991. Syllabification and prosodic templates in Yawelmani. *Natural Language and Linguistic Theory* 9.231-283.  
 AVERY, PETER AND KEREN RICE. 1989. Segment structure and coronal underspecification. *Phonology* 6.179-200.  
 CLEMENTS, GEORGE N. 1976. Palatalization: linking or assimilation? *CLS* 12.96-109.  
 —. 1985. The geometry of phonological features. *Phonology Yearbook* 2.223-250.  
 —. 1987. Phonological feature representation and the description of intrusive stops. *CLS* 23/2.29-50.  
 —. 1989. A unified set of features for consonants and vowels. Unpublished MS, Cornell University.  
 CROWHURST, MEGAN. 1992. Minimality and foot structure in metrical phonology and prosodic morphology. Ph. D. dissertation, University of Arizona. Distributed by Indiana University Linguistics Club.  
 DELL, FRANÇOIS AND MOHAMMED ELMEDLAOUI. 1986. Syllabic consonants and syllabification in Imdlawn Tashlhiyt Berber. *Journal of African Languages and Linguistics* 7.105-130.  
 ESPINOSA, AURELIO. 1909. Studies in New Mexico Spanish, part 1: phonology. *Bulletin of the University of New Mexico* 1.47-162. Translated and printed as 'Estudios sobre el español de Nuevo Méjico, parte I: fonología' in the *Biblioteca de Dialectología Hispanoamericana* 1 (1930), 19-313.  
 —. 1925. Syllabic consonants in New Mexican Spanish. *Language* 1.109-118.  
 —. 1946. Estudios sobre el español de Nuevo Méjico, parte II: morfología. *Biblioteca de Dialectología Hispanoamericana* 2.1-102.  
 GUERSEL, MOHAMED. 1986. Glides in Berber and syllabicity. *Linguistic Inquiry* 17.1-12.  
 HALLE, MORRIS. 1983. On distinctive features and their articulatory implementation. *Natural Language and Linguistic Theory* 1.55-105.  
 —. 1988. The immanent form of phonemes. In William Hirst (ed.), *The making of cognitive science: essays in honor of George A. Miller*, 167-183. Cambridge: Cambridge University.  
 HARRIS, JAMES. 1983. *Syllabic structure and stress in Spanish*. Cambridge: MIT Press.

- . 1987. Epenthesis processes in Spanish. *Studies in Romance Languages*, ed. by Carol Neidle, Rafael Núñez Cedeño, 107-122. Dordrecht: Foris.
- . 1989. Sonority and syllabification in Spanish. *Studies in Romance linguistics*, ed. by Carl Kirschner and Janet Decesaris, 139-153. Amsterdam: John Benjamins.
- HILLS, E. C. 1906. New Mexican Spanish. P. M. L. A. Spanish translation 'El español de Nuevo Méjico' in *Biblioteca de Dialectología Hispanoamericana* 4.1-73.
- HUALDE, JOSÉ IGNACIO. 1989. Silabeo y estructura morfé mica en español. *Hispania* 72.821-831.
- . 1991. On Spanish syllabification. *Current studies in Spanish linguistics*, ed. by Héctor Campos and Fernando Martínez-Gil, 475-493.
- HUME, ELIZABETH. 1990. Front vowels, palatal consonants and the rule of umlaut in Korean. *NELS* 20:1.230-243.
- HUNDLEY, JAMES. 1986. The effect of two phonological processes on syllabic structure in Peruvian Spanish. *Hispania* 69.665-668.
- ITÔ, JUNKO. 1986. Syllable theory in prosodic phonology. Ph. D. dissertation, University of Massachusetts.
- KAISSE, ELLEN. 1992. Can [consonantal] spread? *Language* 68.313-332.
- LADEFOGED, PATER. 1988. Hierarchical features of the International Phonetic Alphabet. *BLS* 14.124-141.
- LEVIN, JULIETTE. 1987. Between epenthetic and excrescent vowels (or what happens after redundancy rules). *WCCFL* 6.187-201.
- LIPSKI, JOHN. 1990. Aspects of Ecuadoran vowel reduction. *Hispanic Linguistics* 4.1-19.
- . 1992. Spontaneous nasalization in the development of Afro-Hispanic language. *Journal of Pidgin and Creole Languages* 7.261-305.
- . 1993a. Spanish stops, spirants and glides: from consonantal to [vocalic]. Presented at the Linguistic Symposium on Romance Languages, Northern Illinois University, April 1993. To appear in the proceedings, published by Georgetown University Press.
- . 1993b. [round] and [labial] in Spanish and the 'free-form' syllable. Presented at the Georgetown University Roundtable on Linguistics, Spanish Linguistics Pression, March, 1993.
- MCCARTHY, JOHN. 1986. OCP effects: gemination and antigemination. *Linguistic Inquiry* 17.207-63.
- . 1988. Feature geometry and dependency: a review. *Phonetica* 43.84-108.
- OROZ, RODOLFO. 1966. *La lengua castellana en Chile*. Santiago: Universidad de Chile.
- PARADIS, CAROLE AND JEAN-FRANÇOIS PRUNET. 1989. On coronal transparency. *Phonology* 6.317-348.
- SAGEY, ELISABETH. 1986. On the representation of features and relations in non-linear phonology. Ph.D. dissertation, MIT.

- SELKIRK, ELIZABETH. 1982. The syllable. The structure of phonological representations, part II, ed. by Harry van de Hulst and Norval Smith, 337-383. Dordrecht: Foris.
- VAGO, ROBERT. 1988. Underspecification in the height harmony system of Pasiego. *Phonology* 5.343-362.
- VANELLI, LAURA. 1984. Pronomi e fenomeni di prostesi vocalica nei dialetti italiani settentrionali. *Revue de Linguistique Romane* 48.281-295.