

Nasal assimilation in Spanish

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1.

It is commonly said of Spanish that 'nasal consonants assimilate in point of articulation to a following obstruent'. While far from being a completely accurate characterization, such a statement in many ways mirrors the observable data. The following examples demonstrate the phenomenon of nasal assimilation before obstruents in many dialects of Latin American Spanish, both word-internally and across word boundaries (the diacritics are largely taken from HARRIS 1969):

<i>campo</i>	[kámpo]	<i>un beso</i>	[umbéso]
<i>triumfo</i>	[triúñfo]	<i>un fuego</i>	[uñfwéyo]
<i>canto</i>	[káñto]	<i>un tipo</i>	[uñtípo]
<i>ganso</i>	[gánso]	<i>un soldado</i>	[unsoldádo]
<i>ancho</i>	[áñčo]	<i>un chubisco</i>	[uhčubísko]
		<i>un ñandú</i>	[uññañdú]
<i>ángulo</i>	[áŋgulo]	<i>un gato</i>	[uŋgáto]

In these dialects the interdental continuant [θ] does not occur, but in those dialects (of Spain) where [θ] is present, nasal assimilation also occurs before this consonant, resulting in an interdental nasal [ɲ]:

<i>encerrar</i>	[eɲθeɾár]	<i>un circo</i>	[unθírko]
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In order to account for this series of forms, HARRIS (1969: 12) has proposed the following rule of nasal assimilation, where assimilation across word boundaries takes place only in rapid or casual speech:

$$[+nas] \rightarrow \begin{bmatrix} \alpha \text{ cor} \\ \beta \text{ ant} \\ \gamma \text{ back} \\ \delta \text{ dist} \end{bmatrix} / _ (\#) \begin{bmatrix} + \text{obstr} \\ \alpha \text{ cor} \\ \beta \text{ ant} \\ \gamma \text{ back} \\ \delta \text{ dist} \end{bmatrix} \quad (1)$$

Now (1) is a very nice rule. It is 'natural' in the sense that it provides a one-to-one mapping between the assimilated features in the nasal consonant and those of the following consonant. In addition, it provides a very fine resolution of the various forms of nasal assimilation, since the use of the feature 'distributed' permits distinguishing seven different nasal consonants. It is also to be noted that this rule, while not specifically designed to do so, accounts for nasal assimilation before [θ] in those dialects containing this sound, thus potentially distinguishing eight nasal consonant phones. Further merits of rule (1) are extolled by HARRIS (1969: 13-18).

2.

The description of Spanish nasal assimilation loses its air of simplicity, however, when one attempts to broach the subject of assimilation before glides. HARRIS (1969: 17) is of the opinion that nasal assimilation before glides occurs when a word boundary intervenes, but not otherwise, and that /n/ becomes [ɲ] before [j] and [ɲ] before [w]. Examples such as the following serve to illustrate his claims:

<i>un huevo</i>	[uɲwéβo]	<i>nuevo</i>	[nwéβo]
<i>un hielo</i>	[uɲjélo]	<i>nieto</i>	[njéto]

These supposed alternations may then be covered by a rule such as the following, which is proposed by HARRIS (1969: 17), and later rejected, as will be discussed below:

$$[+nas] \rightarrow \left[\begin{array}{l} -cor \\ -ant \\ +dist \\ \alpha \text{ back} \end{array} \right] / \text{---} \# \left[\begin{array}{l} G \\ \alpha \text{ back} \end{array} \right] \quad (2)$$

This analysis misses several key points, however. The first concerns the so-called assimilation of /n/ to [ɲ] before [w]. It is a commonly observed fact that in many idiolects of Spanish, word-initial [w] is reinforced to [ɣw] or [gw], that is, reinforced by a velar obstruent increment. Many speakers of Spanish condemn such a pronunciation as vulgar or substandard, but one has only to listen to spoken Spanish to realize that its distribution is much more widespread. HARRIS (1969: 25) admits that the (educated) speakers of Mexican Spanish who served as informants for his study used the reinforced pronunciation of word-initial [w], which represents roughly the following process:

$$\phi \rightarrow g / \# \text{---} w \quad (3)$$

Alarcos LLORACH (1968: 163-4) lists the strengthening of word-initial [w] as general in Spanish. However, MALMBERG (1965: 64) considers that pronunciations such as [uɲgwéso] for *un hueso* are a result of reinforcement of the glide after the (nasal) stop *n*: 'La nasal . . . es ella misma una oclusiva desde el punto de vista de su articulación bucal. No hay, por lo tanto, nada de sorprendente en el hecho de que el órgano articulante . . . conserve la cerrazón completa en el momento de la elevación del velo del paladar. Es, por consiguiente, una asimilación de cerrazón'. While such an assimilation may have been the original impetus for the reinforcement of initial [w], it seems to have been superseded in most contemporary Spanish dialects by a generalization of the reinforced pronunciation regardless of the preceding sound. Thus Alarcos LLORACH (1968) cites such forms as [deɣwélas] for *de huellas* (p. 164) and [lozɣwésos] for *los huesos* (p. 158). The present writer has also observed this generalization among speakers of Spanish who tend to reinforce

initial [w]. This tendency has in fact led to an orthographically indicated permanent reinforcement in words borrowed from Nahuatl which originally contained only [w], such as *aguacate*, *guajolete*, etc. (see MALMBERG 1965: 63). For those speakers who have reinforced all instances of word-initial [w] through application of (3), it is likely that restructuring has taken place to phonemicize the added velar increment, especially in the transmission of this pronunciation to children who have never encountered the non-reinforced variants.

The impact of the preceding remarks on the analysis of nasal assimilation before [w] suggested by (2) is obvious, since for many Spanish speakers, including those studied by HARRIS, word-initial [w] does not occur, being reinforced instead to [ɣw] or [gw]. In these cases it is clearly pointless to speak of assimilation before initial [w], since such an initial sequence is in fact nonpermissible. The appearance of the velar nasal [ɲ] in such forms as *un huevo* is merely a manifestation of the general rule (1) of nasal assimilation before obstruents, since for the speakers involved, the word *huevo* in isolation would be pronounced [gwéβo] or [ɣwéβo]. The only interesting feature of word-initial [w] remains the fact that there are some speakers for whom the reinforcement of word-initial [w] takes place only after a pause or an obstruent. For these speakers, rule (3) would have to be amended as:

$$\phi \rightarrow g / \left\{ \begin{array}{l} [+obstr] \\ \#\# \end{array} \right\} \# \text{---} w \quad (4)$$

The remaining data which need to be accounted for concern those Spanish speakers who do not reinforce word-initial [w] at all. These speakers generally treat instances of /n/ before word-initial [w] in one of two ways. In (very) careful speech, no changes take place; that is, the words are pronounced as if in isolation: *un huerto* [unwérto]. In more rapid or unguarded speech, the present writer has observed a tendency to drop the final *n* before word-initial [w] and to nasalize the preceding vowel. Thus: *un hueso* [ũwéso], *sin hueso* [sĩwéso]. This phenomenon has also been noted by such scholars as Navarro TOMÁS (1965: 142) and Menéndez PIDAL (1966: 111). Schematically, such a process may be represented as:

$$V n \# w \rightarrow \tilde{V} \phi, 3, 4 \quad (5)$$

1 2 3 4

It must be noted that there may in fact exist Spanish speakers who do not reinforce word-initial [w] in isolation, but who velarize a preceding nasal consonant in connected speech; that is, speakers who would exhibit the alternation [wéso] : [uɲwéso] for the pair *hueso* : *un hueso*. Although such speakers have not been observed by the present writer, their existence would be accounted for by HARRIS' analysis, which was, however, based on a different set of speech habits.

Actually, there is one way of obtaining such an alternation, for there are many dialects of Spanish, both in Latin America and in Spain, where word-final *n* is normally velarized to [ɲ]. For speakers of these dialects, the word *un* in isolation is pronounced [uɲ], with the result that *un hueso* may emerge as [uɲwéso], even if

the word *hueso* by itself is pronounced [wéso]. However, this velarization of *n* has nothing to do with a following [w] or [g], since the velar nasal also appears in combinations like [unjamiyo] for *un amigo*. An interesting analysis of the velarization of final *n* may be found in Hyman (1956).

Turning now, to cases of word-initial [j], the situation becomes even more complex. For a large number of Spanish speakers, initial [j] is strengthened to [ʒ] or [j̃]; thus, *yema* may emerge as [ʒéma] or [j̃éma]. This phenomenon, more widespread than the reinforcement of initial [w], is socially acceptable in most parts of the Spanish speaking world, and has even been capitalized upon in the treatment of loan words. Thus, Spanish speakers are told to treat the English word *Jeep* [ʒijp] as if it were /jip/, which results in the pronunciation [j̃ip], a fair approximation of the American pronunciation.

The reinforcement of [j] also occurs, with somewhat diminished regularity, in word-internal position. In intervocalic position, the phenomenon only occurs in certain dialects (such as those of Argentina) and is considered a distinctive dialectal trait, being known as *žeísmo*. In word-internal position after obstruents, however, especially after *n*, reinforcement of [j] occurs regularly, yielding results such as [injektár] for *inyectar*. This distribution supports Malmberg's thesis of reinforcement after stops, as discussed above.

Once again, it appears that for many speakers, evidently including those studied by HARRIS, nasal assimilation before initial [j] must be dismissed as a vacuous concept, since initial [j] is nonexistent. What is present instead is a sort of prepalatal obstruent, roughly given as [ʒ] or [j̃]. Thus, nasal assimilation before these phones should demand the prepalatal nasal which HARRIS has designated as [ɲ]: *inyectar* [injektár], *un hielo* [unʒélo], etc. In these cases, then, nasal assimilation before (underlying) /j/ is merely an extension of (1), since, as HARRIS (1969: 22) states: 'in phonetic representations the segments produced with friction are obstruents, not glides'.

In addition to the speakers mentioned above, there exists an (ever-decreasing) number of Spanish speakers who do not reinforce word-initial [j]. Determining the exact details of nasal assimilation for such speakers is rendered exceedingly difficult by the minimal perceptual differences between [nj], [ɲj], and [ɲ], but a few tentative remarks may nonetheless be offered. In careful speech, there is no assimilation between [n] and a following [j]: *un hielo* [unjélo], *nieto* [njéto]. In fact, one may occasionally here a completely released word-final *n* occurring before a following initial [j], thus accentuating the lack of assimilation. For these speakers, minimal pairs between [nj] and [ɲ] such as *miño* : *minio* and *uñón* : *unión* are preserved.

In careless speech, the combination [ɲj] tends to become fused as [ɲ]. Although there are no accurate statistical studies of the distribution of this assimilation, the present writer has observed no preference given for assimilation across word boundaries; that is, when speech becomes relaxed enough to allow the assimilation to take place, it occurs in all positions. Thus *nieto* may become [ɲéto], while *un hielo*

would result as [unjélo]. Again, it is possible that there exists a (small) number of speakers who do not reinforce word-initial [j], who *do* assimilate [n] to [j] across word boundaries, but who *do not* perform this assimilation in word-internal position. These speakers would then perform as indicated by (2). The speakers who merge [ɲj] as [ɲ] in rapid speech exhibit the following rule:

$$\begin{matrix} n & j & \rightarrow & \eta, \phi \\ 1 & 2 & & \end{matrix} \quad (6)$$

Returning to the analysis of nasal assimilation before glides as proposed by HARRIS, it was noted above that (2) was rejected by HARRIS as an explanation of his data. Instead, it was realized that initial [j] and [w] are often reinforced to obstruents, as previously outlined. Actually, Harris claimed that [j] becomes reinforced to an obstruent segment which has the same distinctive feature specifications as the palatal nasal [ɲ], rather than the prepalatal [ɲ̃] given above. The differences between the two are, of course, minimal, and the question as to which phone actually occurs is a fine phonetic point not worth arguing about.

In order to account for the fact that this reinforcement does not always occur, HARRIS is forced (p. 27) to posit a second rule strictly ordered after the glide-reinforcement rule which returns [ɣw] and [j] to [w] and [j], respectively. The nasal assimilation rule (1) is ordered between these two rules, thus permitting one to derive sequences such as [unɣwéβo] for *un huevo* and [unjélo] for *un hielo*. While such rules formally produce the desired result, it is not clear that the primary data involved are above scrutiny, as previously mentioned. The reinforcement of initial [j] and especially initial [w] are characteristic of rather careless, rapid speech, from which nasal assimilation follows as a matter of course. On the other hand, the refusal to reinforce initial glides represents an entirely different mode of pronunciation, often even a different dialect, and it is questionable whether the two sets of observed data may be conflated by a single algorithm, although Harris' proposals may in fact hold up under conditions of extremely rapid or unreflecting speech. A further controversial issue, which will be no more than noted in passing, is the alternating effect displayed by successively-ordered rules of glide reinforcement and weakening. In fact, in order to correctly arrive at the surface representation for words such as *guapo*, HARRIS has postulated an additional rule, ordered before the rule of initial glide reinforcement, which deletes the initial *g*. Thus, in order to arrive at the proper phonetic output of *guapo* in rapid or careless speech, the following set of transformations have to be effected on the underlying form:

$$/gwápo/ > |wápo| > |ɣwápo| > [wápo]$$

3.

As it stands now, rule (1) evidently captures more 'generalities' about Spanish than actually exist, for it requires that the nasal segment being assimilated need only be specified as [+nas]. This assumption implies that all three of the Spanish nasal consonants, [m], [n], and [ɲ] should undergo nasal assimilation to a

following obstruent. (I am ignoring here the question of whether [ɲ] should be considered as one or two phonemes at the systematic phonemic level, since it is assumed that at the point at which nasal assimilation takes place, [ɲ] already exists in its surface form.) This claim is not quite true, however, as illustrated by the following examples:

<i>buñuelos</i>	[bunwélos]
<i>Manuel</i>	[manwél]
<i>sarmiento</i>	[sarmjento]

It has already been pointed out that there is no solid evidence in favor of nasal assimilation before simple [w]; thus, examples like *Manuel*, *nuevo*, etc. may be ruled out. According to the general assimilation theory, however, [m] should assimilate to the [j] in words like *sarmiento*, although in reality it does nothing of the sort. It is therefore suspected that nasal assimilation may not be as general as originally supposed, for we have examples where *m* is not assimilated. Further verification of such a suspicion is rendered almost impossible by the fact that Spanish permits only the nasal *n* in word-final position. Since, in rapid speech, nasal assimilation normally occurs across word boundaries, this distribution could conceivably be used as evidence that Spanish seeks to restrict nasal assimilation to a single phoneme by allowing only this phoneme to occur word-finally. Such an argument, however, would not be totally germane, since the present distribution of nasal phonemes in Spanish is in large measure due to the Latin heritage. It should be noted, however, that modern Spanish ordinarily changes final *m* of borrowed words to *n*: *album* > [álbun].

In opposition to the statement that nasal assimilation in Spanish is restricted to a single phoneme, HARRIS (1969: 10) offers the following sets to demonstrate that assimilation of /m/ also occurs:

<i>consumir</i>	~	<i>consunción</i>	~	<i>consunto</i>
<i>presumir</i>	~	<i>presunción</i>	~	<i>presuntivo</i>
<i>redimir</i>	~	<i>redención</i>	~	<i>redentor</i>

While the forms containing *n* did in fact develop from Latin etyma containing stem-final *m* through a process of assimilation, it is not clear that this same assimilatory process actively relates these forms in modern Spanish. Due to the rather learned and restricted nature of some of the words involved, it may be that in contemporary speech the above sets, while considered as related by the speakers possessing all of them, are not rule-generated from a common base form. Attempting to demonstrate such an assertion leads at once into the circular and unproductive debate over 'felt sets' or valid morphophonemic alternations, since forms which one speaker feels are closely related may remain totally unassociated by another speaker. It is noteworthy, however, that in an informal survey of a number of both highly educated and less educated Spanish speakers, the author was given

the unanimous conclusion (from those speakers who actually knew all the forms) that the above forms were only passively related.

DALBOR (1969: 114-16) has listed the phone [m] before *p* and *b* and the phone [ɲ] before *f* as allophones of /m/. However, as DALBOR states in the introduction to his book (pp. v-viii), the 'allophonic distributions' are designed for their pedagogical value, not for their adherence to abstract phonological theories. In fact, on pages vii and 117 of the same book, [m] and [ɲ] are listed as 'allophones' of /n/.

If, as hinted at by the evidence, it is indeed the case that Spanish permits only one nasal phoneme to participate in homorganic assimilation, then the general assimilatory rule must be amended to include this fact:

$$n \rightarrow \begin{bmatrix} \alpha \text{ cor} \\ \beta \text{ ant} \\ \gamma \text{ back} \\ \delta \text{ dist} \end{bmatrix} / \text{---} (\#) \begin{bmatrix} + \text{obstr} \\ \alpha \text{ cor} \\ \beta \text{ ant} \\ \gamma \text{ back} \\ \delta \text{ dist} \end{bmatrix} \quad (7)$$

4.

An interesting alternative to the interpretation of nasal assimilation before glides proposed by (2) has recently been reported by VENNEMANN (1972). VENNEMANN objects to the obligatory presence of the word boundary in (2) and proclaims, as a universal phonological constraint (p.15): 'Segment-harmony rules . . . cannot contain obligatory grammatical boundaries'. In order to account for HARRIS' data on nasal assimilation before glides in Spanish, VENNEMANN refers to a forthcoming paper by Joan HOOPER (which, unfortunately, I have not read) in which the problem is handled in terms of syllable boundaries. HOOPER has succeeded in combining rules (1) and (2) by noting that the presence of a syllable boundary between a nasal and a following consonant is required in order for assimilation to take place. Using \$ to represent the syllable boundary, this notion may be represented as:

$$[+ \text{nas}] \rightarrow [\alpha \text{ Features}] / \text{---} \$ \begin{bmatrix} \text{C} \\ \alpha \text{ Features} \end{bmatrix} \quad (8)$$

This interesting suggestion seems to account for many of the problems encountered by HARRIS. For instance, the fact that assimilation takes place in words such as *infierno*, *enganar*, etc., while no assimilation occurs in *Manuel*, *bisnieto*, and so forth, may be related to the fact that the initial clusters **nf*, **mb*, etc. are nonpermissible in Spanish, while the clusters *nw*, *nj*, *mw* may occur. Thus, a syllable boundary may be placed before *nw*, *mw*, etc., but not before such combinations as *nf* and *mb*.

While (8) appears to account for HARRIS' interpretation of nasal assimilation before glides, it is not evident that it must be retained in an interpretation which posits no assimilation before true glides, such as the one offered by this paper. If all instances of nasal assimilation occur only before obstruents, then (1) may be considered an exhaustive description, and the additional stipulation of syllable

is superfluous, although it may very well be due to questions of syllabification which does not exist at all. In any event, the inclusion of syllable boundaries should be useful in explaining the differential treatment (in non-zeisler dialects) of pairs such as *in-yectar*, where the glide is reinforced in the second word but not in the first. Difficulty is encountered, however, in attempting to explain, for example, why the glide in *inyectar* is reinforced, while the one in *aniegar* is not, since the two words contain the identical sequence *VnjV*. Offhand, without resorting to manipulations of underlying forms, there seem to be two possible ways of explaining this discrepancy. An 'unenlightened' analysis, following the classical precepts of Romance philology, would claim that the difference lies in the location of morpheme boundaries; i.e. that *inyectar* is analyzed as *in + yectar* while *aniegar* is analyzed as *a + niegar*. At first glimpse, such an analysis may appear to stand in contradiction to VENNEMANN's prohibition of obligatory formative boundaries, but this is not so. If one accepts the fact that nasal assimilation occurs only before initial consonants, then it could be proposed that reinforcement of glides is general in any initial position. Thus, the [j] of *inyectar* would be reinforced to [j̃], while that of *aniegar* would remain unchanged, and nasal assimilation could take place in the former case without mentioning the morpheme boundary. That native speakers might actually perform such a morphemic analysis is rendered at least plausible by the existence of morphemes like *a-*, *in-*, *ab-*, etc., in various derivational paradigms throughout the language.

On the other hand, a more 'progressive' analysis, incorporating the notion of syllable boundaries, would insist that the difference between *inyectar* and *aniegar* lies in the syllabic structure; that is, that *inyectar* is *in \$yec \$tar*, while *aniegar* is *a \$nie \$gar*.

At least, it can be seen that the notions of syllable boundary and morpheme boundary will often, if not always, coincide in such cases. Using the place of syllable boundaries as a deciding criterion for the forms in question, rule (8) will do the rest. A word of caution should be added, however, since in claiming a difference in the treatment of the nasal consonant in pairs such as *inyectar* vs. *aniegar* is due to syllabification, it is in effect being asserted that native speakers not only have a deep awareness of syllabic structure, but also can syllabify a given sequence in more than one fashion. This is, in fact, a very strong claim, and while there are various potential merits to be realized from its acceptance, it should not be subjected to rigorous psycholinguistic testing before being adopted as a fact. Upon being questioned, many Spanish speakers, some even linguistically trained, have been horrified at the idea that the syllable boundary in words like *Manuel* should come before the nasal consonant and not after it. Other speakers, however, have accepted such a proposal, while some admit to total ignorance. Such discrepancies highlight the need for further investigation of the psychological recognition of syllable boundaries.

As a final note, I should like to mention a further problem encountered by combining a syllabic analysis of the sort represented by (8) with the analysis of nasal assimilation before glides proposed by HARRIS. This concerns the treatment of such words as *buñuel* [buj̃wél], *buñuelos* [buj̃wélos], etc. If one adheres to the claim

that nasal assimilation occurs before consonants (including glides) only when a syllable boundary intervenes, then the failure of [n] to assimilate can only be due to the lack of such a boundary between the [n] and the [w]. This, in turn, implies that the nonexistence of the initial cluster *[njw] in Spanish is merely an accidental gap, which seems highly unlikely. One would in fact like to place the syllable boundary between the nasal and the following glide. One should then expect nasal assimilation to occur, but such expectations are not fulfilled. One way out of the dilemma is suggested by the preceding section, for if one assumes that [n] does not undergo assimilation in any position, the problem vanishes. Further support for the claim that only a single nasal normally undergoes assimilation in Spanish comes from the difficulty which HARRIS (1969: 18) encountered in words such as *alumno*, *solemne*, *columna*, etc., where the cluster [mn] never assimilates, even in rapid pronunciation. Clearly, restricting nasal assimilation to /n/ gives a more plausible explanation than assuming the existence of the syllable-initial cluster *[njw], thereby pointing to a rule such as (7) as a more accurate statement of nasal assimilation in Spanish.

References

- ALARCOS LLORACH, Emilio. 1968. *Fonología española*. Madrid: Editorial Gredos. 4th ed.
- DALBOR, John B. 1969. *Spanish pronunciation: theory and practice*. New York: Holt, Rinehart & Winston.
- HARRIS, James W. 1969. *Spanish phonology*. Cambridge: M. I. T. Press.
- HYMAN, Ruth. 1956. [ŋ] as an allophone denoting open juncture in several Spanish-American dialects.
- MALMBERG, Bertil. 1965. *Estudios de fonética hispánica*, tr. by Edgardo R. Palavecino. Madrid.
- MENÉNDEZ PIDAL, Ramón. 1965. *Manual de gramática histórica española*. Madrid: Espasa-Calpe. 12th ed.
- NAVARRO TOMÁS, Tomás. 1965. *Manual de pronunciación española*. Madrid. 12th ed.
- VENNEMANN, Theo. 1972. On the theory of syllabic phonology. *Linguistische Berichte* 18. 1-19.