

# *Vowel Epenthesis By Spanish Learners of English*

By Charles Baker

Two well-known rules of Spanish phonology are the marked nature of word-final consonants and the prohibition against word-initial consonant clusters beginning with /s/. English, on the other hand, has both word-final consonants and word-initial onsets of the form /sC/. In both environments, Spanish speakers of English epenthesize, inserting /e/, the default vowel of Spanish, as shown in (1) and (2):

- (1)  $\emptyset \rightarrow e / C\_ \#$   
(2)  $\emptyset \rightarrow e / \#\_sC$

Carlisle (to appear) studied the interaction between these two rules in Spanish/English interlanguage phonology. He gave his subjects a list of 435 sentences with word-initial onsets, /sl/, /sm/, and /sn/ appearing after twenty-eight different word final segments. He found the following frequency of epenthesis:

(3)

| Environment | /sl/ | /sN/ |
|-------------|------|------|
| Consonant   | .312 | .391 |
| Vowel       | .226 | .282 |

There was a greater frequency of epenthesis before /sN/ than before /sl/ in both environments. This was the predicted result since /sN/ is a more marked onset than /sl/ according to Clements' (1990) Dispersion Principle:

- (4) The preferred initial demisyllable minimizes D, where D is the complexity ranking based on the sonority scale  
 $O < N < L < G < V$ .

Similarly, there was a greater frequency of epenthesis after word-final consonants than after word-final vowels before both onsets. This, too, was expected, given Cressey's (1978) rule that word-final consonants in Spanish are marked:

- (5)  $[+ \text{consonantal}] \rightarrow [-\text{consonantal}] / \_ \#$

What was expected was that, in the aggregate, the markedness of the environment was a more powerful factor in triggering epenthesis than was the markedness relationship between the onsets. Carlisle concludes his study by stating the need for a principled linguistic explanation for this phenomenon. This squib seeks to investigate the viability of several alternative explanations.

Markedness of Word-Final Consonants. Can it be that word-final consonants in Spanish have a greater degree of markedness than do word-initial /sC/ onsets? This

would be an easy solution, but the evidence to support it is simply not there. Carlisle's study systematically varied the environment in front of /sC/ onsets, but he did not systematically vary the environment after word-final consonants. Rule (1), per se, was beyond the scope of his test, which focused on rule (2). To test rule (1), we would need to expand the test data to include word-initial vowels and other word-initial consonants in place of /sC/.

Two other points are relevant. First, while word-final consonants are marked in Spanish, they are not rare by any means. Spanish L1 speakers would frequently have occasion to use C#C combinations such as the two in (6) without epenthesizing:

- (6) Mejorar bajo nivel educacional chileno.  
To improve low level educational Chilean.

Second, there are strategies other than epenthesis for dealing with word-final consonants by Spanish speakers of English. MacDonald (1989) mentions deletion of word-final consonants, as in (7), and devoicing of word-final voiced obstruents, as in (8), as two of the twelve most frequent problems of fossilized Hispanic English:

- (7) C --> Ø / \_ #  
(8) [+obstruent] --> [-voice] / \_ #

Curiously, she does not list rule (1) as one of the twelve most frequent problems.

Resyllabification. In Spanish, /sC/ clusters may appear internal to words but never in the same syllable. Compare the English and Spanish syllable structures shown in (9) and (10):

- (9) per.spec.tive  
(10) pers.pec.ti.va

Spanish follows Harris' (1983) rule shown in (11):

- (11) Adjoin the segment /s/ to the right of an existing rhyme.

It is also a well-known fact of Spanish phonology that resyllabification occurs across word boundaries. It is tempting to analyze Carlisle's data in terms of such a rule, hypothesizing that when there is an /sC/ cluster in Hispanic English, the /s/ adjoins to the last syllable of the preceding word. When the preceding word ends in a vowel, this would normally be done without epenthesis. When the preceding word ends in a consonant, epenthesis would normally occur to maintain the unmarked CV syllable structure. Although such a theory fits rather neatly with Carlisle's data, it would violate another rule of Spanish phonology given by Harris:

- (12) Resyllabification only occurs on the string [+consonantal] # V.

One of the reasons why this rule is especially important for [+consonantal] # /s/ strings is that /-s/ is an important morpheme in both noun plurals and verb conjugations. If it were to adjoin to word-final syllables, it would have the potential to inadvertently change the syntax and semantics of the sentence, which would not be desirable. Since

resyllabification of /s/ across word boundaries does not occur in Spanish, there is no reason to postulate its appearance in Hispanic English.

**Obligatory Contour Principle.** Carlisle analyzed his data by distinguishing only two environments for his /sC/ onsets, word-final vowels, and word-final consonants, the latter having a greater frequency of epenthesis than the former. If, however, we divide the word-final consonants into two groups, an interesting pattern emerges: Coronal consonants induce a greater frequency of epenthesis than do non-coronal consonants. If we further divide the coronals into two sub-groups, an even more interesting pattern develops: Coronal continuants trigger more epenthesis than do the other coronals. (13) arrays these data by distinctive feature from lowest to highest degree of epenthesis with /s/ shown at the bottom for purposes of comparison:

(13)

| Frequency | Consonantal | Coronal | Continuant |
|-----------|-------------|---------|------------|
| 1         | -           | -       | -          |
| 2         | +           | -       | -          |
| 3         | +           | +       | -          |
| 4         | +           | +       | +          |
| /s/       | +           | +       | +          |

By this point, the nature of this pattern is fairly obvious--the more the word-final segment and the word-initial segment /s/ resemble each other, the greater the frequency of epenthesis. This is the Obligatory Contour Principle: Distinguish like segments. In this case, the distinction is done by epenthesis.

Such a solution still leaves many unanswered questions. Why should it be that the OCP comes into play in Hispanic English before /sC/ clusters when combinations such as (14) occur in Spanish without epenthesis?

(14)

|                   |                 |
|-------------------|-----------------|
| Nosotros salimos. | ¿Quiénes son?   |
| We left.          | Who are (they)? |

Similarly, can we find evidence of the OCP coming into play when other like segments are juxtaposed in Hispanic English? These and other questions will be a fruitful subject for future research.

## References

- Carlisle, Robert S. (in press). Environment and markedness as interacting constraints on vowel epenthesis. In M. Yavas, (ed.) *First and Second Language Phonology*. San Diego: Singular.
- Clements, G. N. 1990. The role of the sonority cycle in core syllabification. In J. Kingston and M. Beckman, (eds.), *Papers in Laboratory Phonology I*. New York: Cambridge University Press.
- Cressey, W. W. 1978. *Spanish phonology and morphology: a generative view*. Washington, DC: Georgetown University Press.

- 
- Harris, J. W. 1983. *Syllable structure and stress in Spanish*. Cambridge, MA: MIT Press.
- MacDonald, M. G. 1989. The influence of Spanish phonology on the English spoken by United States Hispanics. In P. C. Bjarkman and R. M. Hammond, (eds.) *American Spanish Pronunciation*. Washington, DC: Georgetown University Press.