Markedness and Naturalness in the Acquisition of Phonology[1]

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1 Introduction

Lado's (1957) Contrastive Language Hypothesis stated that the problems we are confronted with when learning an L2 could be predicted by comparing the L2 system with that of our own L1. L1 transference, as the theory went, is the root of all the difficulties we come across when learning a new language. This hypothesis was ultimately found wanting due to its inability to account for many exceptions; that is, what should have been difficult L2 patterns were, in fact, easily acquired. Nowadays, it is accepted that the CLH was a vast overgeneralization, although, Eckman (1981), Larsen-Freeman & Long (1991) and Major (1999) among others, agree that our L1 has some influence on what, how, and how fast we learn different structures of an L2.

In spite of some progress, the acquisition of L2 phonology, like many other areas of L2 acquisition, is still, to a large degree, yet another *black box* mystery to researchers. Major & Kim (1999: 154) admit that the reason we can achieve the authentic pronunciation of certain sounds but not others "is a complex and puzzling question, not only to theoreticians but also to practitioners, who ponder feasibility regarding what to teach". A related problem is the rate at which we learn certain sounds and why some sounds are acquired more easily than others. In the sections that follow I will be looking at the factors which affect the way we acquire L2 sounds and two specific problems for Spanish learners of English.

2. Acquisition of L2 sounds

Flege (1987) stated that, all other things being equal, we actually learn L2 sounds which are dissimilar to the sounds in our L1 more easily than their less dissimilar counterparts. Major & Kim (1999: 158) agree but warn that markedness can override this tendency. They provide the example of velar and pharyngeal Arabic consonants:

> Consider an English speaker learning Arabic /x/ and /ʕ/: English /k/ is more similar to /x/ than to /ʕ/ because both /k/ and /x/ are voiceless and velar, whereas /ʕ/ is voiced and pharyngeal and accordingly /x/ should be harder to learn; however, from the standpoint of markedness, /ʕ/ should be harder to learn because it is much more marked than /x/.

An acquisitional aspect that should not be forgotten is, obviously, the learners' language proficiency. Beginners, according to Major & Kim (1999:160) tend to *perform* better and more quickly with similar sounds. This might happen, for example, with English learners of Spanish who pronounce [æ] instead of the Spanish [a]. In spite of the fact that phonetically these sounds are quite distinct, the difference between them

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does not constitute too great a problem with regard to comprehension. Comprehension problems are often caused, however, when beginners substitute dissimilar L2 sounds with ones in their L1 which they perceive to be similar, but which may really be quite different. This is the case when Spanish learners of English use the alveolar [s] for the palato-alveolar [ʃ], for example.

Advanced learners, on the other hand, are more aware of dissimilar sounds and tend to concentrate on them. In the process they acquire greater *competence* than they do with similar sounds (Major & Kim 1999: 160). The choice of the words *perform* and *competence* above are extremely important. The learners, whose performance may be adequate enough to get by, may never *acquire* similar sounds but simply substitute them with others from their native language, whereas the advanced learner's need to tackle a dissimilar sound, will probably lead to greater competence, that is, the acquisition of more accurate, *authentic* pronunciation. This may even lead to a dissimilar sound spreading and ousting a sound more similar to the learner's L1. Major (1968) states that this explains why some English speakers from the United States use the trilled "r" when pronouncing any Spanish "r". In my own experience many learners of Spanish from English speaking countries manage to learn the trilled "r" but never really master the tap, perhaps because they perceive it to be similar to the English alveolar approximant.

Schmid (1997) offers an approach towards acquisition which might shed more light on why certain sounds are easier to acquire than others. He builds on Eckman's (1977, 1981) Markedness Differential Hypothesis (MDH), Hyltenstam's (1987) revised version of MDH and Natural Phonology (Dressler 1984, 1985, 1990, 1996). I will look at each of these proposals in chronological order. Eckman's approach to acquisition (1977) takes into account a comparison of the L1 and L2 grammar and markedness relations that exist in Universal Grammar. He reaches the following conclusions:

> (a) Those areas of the target language which differ from the native language and are more marked than the native language will be difficult.
> (b) The relative degree of difficulty of the areas of the target language which are more marked than those of the native language will correspond to the relative degree of markedness.
> (c) Those areas of the target language which are different from the native language, but are not more marked than those of the native language will not be difficult (Eckman 1977: 321 [cited in Schmid 1997])

In other words, only those parts of the L2 grammar which are more marked than the L1 will cause difficulty and the more marked they are, the more difficult they will be.

Hyltenstam's (1987: 69) reformulation of the MDH states that when unmarked categories in an area exist in both L1 and L2, no acquisition problems will occur. However, when an area in the L1 is unmarked but the same area in the L2 is marked, the unmarked category will be transferred; transference of marked categories from L1 to L2, on the other hand, will be "much rarer". Finally when L1 and L2 both have marked categories, the unmarked category might still *turn up* in the L2. Hytelstam's (1987) hypotheses are couched in careful language, that is, they are not rules but tendencies, therefore no absolutely reliable predictions can be made about one language with respect to another.

Schmid's (1997) Naturalness Differential Hypothesis avoids the word markedness preferring the term *natural* instead. In Natural Phonology a universal system is seen as a kind of *substratum* underlying all languages. Each individual language becomes different from all others due to a series of residual processes which make it unique (Donegan & Stampe 1979). So, when we learn another language we are constrained

by our L1 but are capable of producing a series of latent linguistically natural processes when acquiring an interlanguage. This means that:

a) Those natural processes of the native language which are inhibited in the target language will be difficult to suppress.
b) Those natural processes of the target language which are either inhibited or latent in the native language will not be difficult to activate.
c) Those natural processes which are latent in the native language and suppressed in the target language will appear in the interlanguage phonology. (Schmid 1997: 338)

Schmid (1997) backs up his hypotheses with examples of voicing and devoicing of final obstruents. Germans, for instance, have difficulty with voiced final obstruents when speaking French while the French have no problem devoicing German final obstruents. This is because voicing of final consonants is deemed to be universally marked while devoicing is unmarked. Vietnamese, Chinese and Japanese lack final obstruents but speakers of these languages have no problem devoicing them when learning English (Schmid 1997: 338). The reason is that devoicing is latent in these languages and can thus be activated in their English interlanguage. This kind of acquisition is called *developmental* as opposed to transfer from the L1. Final obstruent devoicing in Spanish learners' English interlanguage is also found (Eckman, 1981). Once again this process is developmental, as Spanish does not permit final stops, which are spirantized (Major: 1999: 128; Mott 1996: 268). To sum up, developmental processes account for errors in the interlanguage which are not due to L1 influence (Flege & Davidian, 1984; Leather & James, 1991; Weinberger 1994; Major: 1999).

It is quite clear that Eckman's (1981), Hytelstam's (1987) and Schmid's (1997) NDH hypotheses on language acquisition move the emphasis away from the native language system towards factors pertaining to language universals. One of the problems, of course, is to decide on the nature and limits of linguistic universals. According to Harris (1994: 16):

> The overall picture that is emerging is one in which Universal Grammar defines rigid limits beyond which it is impossible for individual phonological systems to stray. At the same time, it identifies particular areas where phonological structure is only partially determined; it is at these interstices that differences among core phonological grammars are located.

Harris (1994: 17) later warns that researchers have to be careful when reaching conclusions about differences between the phonological systems of different languages as more than one parameter may be involved in what, at first sight, might appear to be clear-cut differences between two or more language. Unfortunately, at the moment, we do not know the complete set of linguistic universals, nor whether the constraints they impose are *hard* or *soft,* that is, whether they admit of divergence or not.

3 Teaching Pronunciation

Insights gathered from the study of the acquisition of an L2 phonology can help teachers to decide what to concentrate on, given the severe time constraints they are faced with in the classroom. For example, if students can survive by substituting their L1 sounds for those of the L2, then substitution is, frankly, not too much of a problem. Therefore, finding out which sounds are difficult due to L1 transfer or developmental problems is important. In this respect, we should be concerned principally with those sounds that may cause confusion among listeners, whether they be native speakers of English or, non-native speakers—which is more likely (Jenkins 1998:119). For

instance, it is unnecessary to spend valuable class time teaching students the short [æ] when the Spanish realization [a] is a perfectly viable substitute.

In what remains of this article I will look at two problem areas in Spanish speakers' English interlanguage phonology, which might impede comprehension, in order to see whether the approaches we have looked at help us understand why they constitute problems in the first place. The first is the pronunciation of the realizations of the English phoneme /w/ in certain contexts. Spanish students do not seem to have any difficulty pronouncing words that contain /w/ such as *world, weigh, what,* but a considerable group of students do come up against severe problems when pronouncing those words in which the combination of /w/ + /ʊ/ is found. Words like *wool, would/wood, woman* are often either pronounced as [ˈgʊmən] or [bʊd, bʊl, ˈbʊmən]. The reason /w/ + /ʊ/ constitutes a problem seems to be due to the fact that the allophone [w] does not combine with the nearest Spanish equivalent of English / ʊ/, namely /u/.

English		**Spanish**	
wɪ/wiː	*quit/queen*	wi	*cuida*
we	*quench, Gwen*	we	*fuerza*
wæ	*quack*	wa	*cuadro*
wɒ	*quash*	wo	*vacuo*
wʊ/wuː	*wood/woo*	----------	----------

Table 1. Combinations with **w** in English and Spanish

The reasons [w] is replaced by /b/ or /g/ seem to be fairly straightforward. On the one hand, there are many words in Spanish which include the combination /bu/ or /gu/, such as /buˈtano/, /guˈsano/, etc. On the other, both in English and Spanish [w] is bilabio-velar. So, /g/, substitutes for [w] almost certainly because it shares with it the feature VELAR. The relationship between these two sounds is even clearer if we remember that the most open allophone of /g/ in words like *agua, aguador* is is [w] (Navarro-Tomás 1977: 139) and that [w] can often be reinforced by [ɣ] or, more rarely, by a velarized [β] in words such as *ahuecar* [aɣwekár] [aβwekár] and *hueso* [ɣwéso] [βwéso] (Navarro-Tomás 1977: 64). Reinforcement with [ɣ] can even be found in the Spanish interlanguage pronunciation of words like *went* and *we,* according to Cuenca-Villarín (1996: 318). In the case of /b/, substitution occurs because it shares with [w] the feature LABIAL. The difference being that [w] is an approximant, while /b/ is a stop. On top of the similarities between [w], /g/ and /b/, there is also a relationship between /g/ and /b/ taking into account that the popular pronunciation of certain words pronounced /gu/ is [bu] as in *bujero* [buˈxero] for *agujero* /aguˈxero/. The case of *wool, wood/would* and *woman* is thus interesting as it shows that difficulties in the acquisition of a foreign language's phonology can involve more than one segment. The fact that Spanish speakers do not seem to have problems with any other combinations of [w] + vowel is in itself revealing as it shows that those combinations that exist in Spanish cause no problems when learning English. Another interesting aspect is that [w] and /ʊ/ are practically homorganic so they should actually prove easy to pronounce together. The constraint, on the evidence I have provided, seems to be entirely due to

the L1. Moreover, we can discard the phonotactic origin of the problem as the sound [w] is found both word-initially and between a consonant and vowel in both English and Spanish, although it is admittedly quite rare word-initially in Spanish: *huevo, hueso, hueco, huella* (Navarro-Tomás 1977: 64).

A similar problem, that often causes confusion, is Spanish learners' pronunciation of the English phoneme /j/ in words such as *you, yacht, yes, your(s),* etc. Spanish speakers tend to pronounce it in an affricated fashion reminiscent of English /dʒ/ (Cuenca-Villarín 1996: 318). This means, for instance, that *you* and *your* are pronounced like the words *Jew* and *jaw* respectively. What are the reasons for this? There is a very similar sound to /j/ in Spanish, i.e., [j], which is considered to be an allophone of the vowel phoneme /i/ (Alarcos 1965: 153). The problem cannot be, therefore, caused by questions of naturalness or markedness as the sound [j] exists in both languages.

English		**Spanish**	
je	*yet*	je	*viejo*
jæ	*yap*	ja	*aciago*
jɒ	*yacht*	jo	*sabio*
ju[1]	*you,*	ju	*ciudad*
kjuː pjʊə ljʊə	*queue, pure, tune, lure*		
jiː/jɪ	*yeast, yiddish*	----------	----------

Table 2. Combinations with **j** in English and Spanish

The most probable cause of this particular problem is /y/ (Navarro-Tomás 1977: 129). This phoneme has two main allophones. The first is a voiced palatal fricative [y][2]; which is found in syllable-initial position, but not after a pause or when preceded by /n/ or /l/: *como yo, cayado, rayado, el hierro.* The second is a voiced palatal affricate [ŷ] (Navarro-Tomás 1977: 127) which occurs in syllable-initial position preceded by /n/ or /l/: *conyuge, inyectar*. According to Quilis & Fernández (1985: 109) it may also appear in absolute syllable-initial position in words like *yo,* when pronounced with emphasis — although I would go further and say that in syllable-initial position there is free variation between the two allophones of /y/[3], the affricate realization probably being the most common. Taking this information into account the reason [j] is replaced by the affricated allophone of /y/ seems to be because Spanish [j], in spite of being the most similar sound to English /j/, does not occur syllable initially whereas /y/ does. This circumstance may be reinforced by the fact that /j/ is often spelled "y" in English which might prompt Spanish learners to think it should be pronounced like the words spelt with this letter in Spanish.

[2] D'Iintrono *et al.* (1995: 120) call it an approximant, but use the same symbol.
[3] This is also the position adopted by Alarcos Llorach (1981: 155)

4 Conclusions

The models put forward by Schmid (1997), Eckman (1987), Major (1999) or Hytelstam (1987) are, at this time, still not sophisticated enough to explain why words in English that include sequences like [wu] and words that begin with /j/ are mispronounced by Spanish learners. Their hypotheses do not seem to handle what Mott (1996: 260) calls "sequential problems" of the [wu] type. The Spanish mispronunciation of words like *wool, wood,* etc., seem to obey a phonotactic constraint that converts approximants into contoids when they precede homorganic vowels. Is Spanish more marked in this respect than English? In this case there seems to be a phonotactic constraint in the Spanish learners' interlanguage disallowing a homorganic sequence of approximant followed by a vowel. To find out whether Spanish is more marked we would have to take a look at such sequences in many languages. The problem with /j/, however, seems to be due to syllabification constraints, i.e., the fact that Spanish [j] is not found syllable initially. The place a sound occupies in a syllable, which is part of the phonological system, appears to be more important than phonetic similarity in this case. We must remember that, according to many text books [j] is not classified as a consonant in Spanish but the glide component of Spanish crescendo diphthongs unlike the English /j/, which *is* considered to be a consonant. This ties in with the fact that Spanish speakers do not seem to use an affricate when pronouncing words such as *lawyer, savior,* etc. In the case of Catalan, for instance, /j/ does occur in syllable initial position. The less contoid pronunciation of words like *iamb, iode,* in the words of Mott (1996: 267), is probably due to "the desire to keep /j/ distinct from /ʒ/ and /dʒ/". It would be interesting to discover whether Catalan speakers have the same problems as those who speak Spanish. *A priori* they should not.

At the moment the hypotheses reviewed above have a limited usefulness for language teachers as they do not explain the influence of factors such as phonemes sequences and whether the position a phoneme has in a syllable overrides phonetic similarity. Other aspects, such as speech style or spelling also seem to be sidelined. All this tends to fray the edges of the neat hypotheses stated above. Perhaps a more productive approach to the acquisition of English phonology by Spanish speakers would be to discover as complete an inventory of the problems they have, delve into the reasons for them, and produce solutions that may eventually be used to help us teach English pronunciation more effectively.

5 References

Alarcos-Llorach, E. (1965): *Fonología Española.* (4th. ed.) Madrid: Gredos.

Cuenca-Villarín, M. H. (1996): "Principales dificultades de la pronunciación inglesa para hablantes nativos de español." In: Martínez-Vázquez, M. (ed.), *Gramática Contrastiva inglés/español.* Huelva: Servicio de Publicaciones Universidad de Murcia. 309-325.

Donegan, P., and D. Stampe. (1979): "The study of natural phonology". En: Dinnsen, D. A. (ed.), *Current Approaches to Phonological Theory.* Bloomington/London: Indiana University Press. 126-173.

Dressler, W. U. (1984): "Explaining natural phonology." *Phonology Yearbook 1,* 29-51.

Dressler, W. U. (1985): "Typological aspects of natural morphology." *Wiener Linguistiche Gazette* 35-36: 3-26.

Dressler, W. U. (1990): "The cognitive perspective of 'naturalist models'." *Cognitive Linguistics* 1: 75-98.

Dressler, W. U. (1996): “Principles of naturalness in phonology and across components.” In: Hurch, B. and Rhodes, R. A. (eds.), *Natural Phonology: The State of the Art.* Berlin: Mouton de Gruyter. 41-41.

Eckman, F. R. (1977): “Markedness and contrastive analysis hypothesis.” *Language Learning, 27,* 315-330.

Eckman, F. R. (1981): “On predicting phonological difficulty in second language acquisition.” *Studies in Second Language Acquisition* 4: 18-30.

Eckman, F. R. (1991): “The structural conformity hypothesis and the acquisition of consonant clusters in the interlanguage of ESL learners.” *Studies in Second Language Acquisition* 13: 23-41.

Eckman, F. R. (1977): “Markedness and the Contrastive Analysis Hypothesis.” *Language Learning* 27: 315-330.

Eckman, F. R. (1981): “On the naturalness of interlanguage phonological rules”. *Language Learning* 31: 195-216.

Eckman, F. R. (1991): “The structural conformity hypothesis and the acquisition of consonant clusters in the interlanguage of ESL learners.” *Studies in Second Language Acquisition 13:* 23-41.

Flege, J. E. (1987): “The production of *new* and *similar* phones in a foreign language: Evidence for the effect of equivalence classification.” *Journal of Phonetics 15:* 47-65.

Harris, J. (1994): *English Sound Structure.* Oxford, UK & Cambridge, USA: Blackwell.

Hytelstam, K. (1987): “Markedness, language universals language typology and second language acquisition.” In: Pfaff, C. (ed.), *First and Second Language Acquisition Processes.* Cambridge, Mass.: Newbury House. 23-36.

Lado, R. (1957): *Linguistics across Cultures.* Anne Arbor: Arizona State University: Tempe.

Larsen-Freeman, D., and M. Long. (1991): *An introduction to Second Language Acquisition Research.* London: Longman.

Major, R. C. (1999): “Chronological and stylistic aspects of second language acquisition of consonant clusters.” *Language Learning: A Journal of Research in Language Studies 49:* 123-150.

Major, R. C., and K. Eunyi. (1999): “The similarity differential rate hypothesis.” *Language Learning. A Journal of Research in Language Studies* 49: 151-183.

Mott, B. (1996): *A Course in Phonetics and Phonology for Spanish Learners of English.* Barcelona: EUB.

Munro, M. J., and T. M. Derwing. (1999): “Foreign accent, comprehensibility, and intelligibility in the speech of second language learners.” *Language Learning: A Journal of Research in Language Studies* 49: 285-310.

Navarro-Tomas, T. (1977): *Manual de Pronunciación Española.* Madrid: C.S.I.C.

Schmid S. (1997): “The naturalness differential hypothesis: Cross-linguistic influences and universal preferences in interlanguage phonology and morphology.” *Folia Linguistica, XXX13-4,* 331-348.