OPTIMIZING THE TEACHING OF ENGLISH SUPRASEGMENTALS

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1. Introduction

Research in the teaching of English pronunciation as a second and foreign language (ESL/EFL) over the last decade or so has made evident the significance of suprasegmental features (i.e., stress, rhythm and intonation) in the comprehension and production of the language (Anderson-Hsieh et al 1992; Anderson 1993; Brazil et al 1980; de Bot & Mailfert 1982, Munro and Derwing 1995). Furthermore, from a pedagogical point of view, it has also been found (Derwing, Munro, & Wieber 1998) that speakers who had had instruction emphasizing suprasegmental features could apparently transfer their learning to a spontaneous production more effectively than those who received instruction with only segmental content (i.e., vowels and consonants). However, the teaching of English suprasegmentals is not a priority in most EFL/ESL programs or in commercial materials for instruction; there is, generally speaking, more emphasis placed on segmental aspects of the language.

The neglect in teaching suprasegmentals does not seem to be due to those extensive gaps that generally exist between theoretical investigations and pedagogical materials based on those investigations. Both teachers and material designers have in fact highlighted the need to concentrate more on rhythm and intonation than any other aspect of pronunciation because of their importance to communicate meaning (Gilbert 1993; Morley 1987: Preface). The lack of attention seems more to be due to the difficulty found in teaching some features of rhythm and intonation. Celce-Murcia (1987) referring to the teaching of pronunciation as communication remarks that the one glaring omission in her current approach is that she is still having problems with fully integrating stress and intonation in her teaching. Roach (1991:11) warns us that "the complexity of the total set of sequential and prosodic components of intonation ... makes it a very difficult thing to teach". Dalton and Seidlhofer (1994:73) have remarked that features of intonation such as prominence, tones and key "are particularly irnportant in discourse ... but at the same time they are particularly difficult to teach. With individual sound segments it is the other way round: they are relatively easy to teach, but also relatively less important for communication".

In order to facilitate the instruction of suprasegmentals, pedagogical priorities should be established mainly through the choice of features that are more relevant for the learner's intelligibility in spoken English. As Roach (1996:47) has stated: we need to distinguish between "what English speakers do" and "what learners of English need to learn". The purpose of this paper is to examine, in the light of relevant research, pedagogical experience, and an understanding of the native speaker competence, basic issues of English rhythm and intonation which are important to communicate meaning. These features, in turn, serve to determine a basic system to be used as a starting point in the instruction. An examination is made of specific issues in the rhythm and intonation of English and Spanish, with special reference to declarative sentences in marked and unmarked utterances.

Nuclear placement, pitch height nuclear accent mobility and syllable length are taken as the most important features to the speaker's intended meaning. This interaction of intonational configurations and rhythm have been recognized as decisive in the identification of nuclear accents by native speakers of English (Ortiz-Lira 1994). The interaction of certain features of intonation with stress timing and weak forms has also been considered as crucial for intelligibility (Jenkins 1997:18) since they highlight the most salient part of the message and indicate where the listener should pay particular attention. Currie and Yule (1991) also refer to a basic model of English intonation with a basic contour system which derives its primary unit from the rhythm of English.

With a basic model, the learner would then be better prepared to approach more effectively pronunciation features which have been considered extremely dependent on individual circumstances and therefore nearly impossible to isolate out for direct teaching, for example, the relation between intonation and attitudes (Taylor 1993), Dalton and Seidlhofer 1994, Roach 1991). Establishing a model of instruction for a specific group of learners is an advantage since it is easier to concentrate on aspects that are significantly different between English and the learner's first language. With heterogeneous groups, we might be directing our efforts in the instruction to features that only cause difficulty to some of the learners. Nonetheless, the teaching and learning problems on the specific features of rhythm and intonation that are dealt with in this paper are shared by many groups of learners.

2. Pitch Movement

Intonation refers to the melody of speech, the changes in the pitch of the voice during the articulation of an utterance. The overall behaviour of the pitch is referred to as tone. Thus, a falling tone is one which descends from a higher to a lower pitch, whereas a rising tone is a movement from a lower pitch to a higher one. These tonal events can be better appreciated in one-syllable utterances where the meaning is made clear not by grammatical means or additional lexis, but by the direction of the pitch movement at the end of the utterance, as in the following examples:

(2.1) - I found it!
- What? ↘
- Your watch.

(2.2) - I found it
- What? ↗
- I said I found it.

The functions of intonation that are commonly highlighted in English programs are those that indicate the distinction of sentence types, that is, questions versus statements and the expressions of the speaker's attitudes: excitement, pleasure, annoyance, etc. However, Ohala (1983) has found that features such as high or rising pitch to mark questions, low or falling pitch to mark non-questions, high pitch to signal politeness, low pitch to signal assertiveness, etc. are remarkably similar across languages and cultures and should consequently not cause difficulty to second language learners. We can appreciate the similarity in pitch direction at the end of utterances in both English and Spanish in situations reflecting grammatical functions:

(2.3) - I speak Thai. ↘
- You speak Thai? ↗
- Where did you learn it? ↘

(2.4) - Hablo tailandés
- ¿Hablas tailandés? ↗
- ¿Dónde lo aprendiste?

Pitch movement as a final boundary tone of the overall melody of the utterance has not only been considered an intonation universal (see also Cruttenden 1986) but the claim for a grammatical function of intonation relating to pitch, i.e., pitch movement on the nucleus as being an indicator of grammatical structure, has been considered weak: "Contrary to popular belief, all analysts of English intonation have insisted that there is no melody which is exclusively associated with one type of sentence: statements do not necessarily have a falling tune, questions do not necessarily rise. The tunes do not necessarily correlate with any specific kinds of grammatical structure" (Kreidler 1989:182-183). On the other hand, the association of pitch movements with the possible attitudes that a native speaker may be expressing, for example, a rise-fall with sarcasm, irony, and so on, are now considered by intonation experts to be "very subjective, dependent on the individual speaker and on the specific context of the interaction, and thus impossible to generalise" (Jenkins 1997:16). And it is suggested that such "aspects might better be left for learning without teacher intervention" (Dalton and Seidlhofer 1994:73).

Even though pitch movement is not considered essential for intelligibility, a lot of effort is put in EFL/ESL pronunciation text-books in the market to the recognition of rises and falls of the voice on one-syllable words, phrases, etc. The goal of such exercises is to eventually use the proper intonation at the end of an utterance to differentiate final statements from unfinished statements, from questions, etc. Although most second language learners should not have difficulty *producing* the correct fall or rise in statements and questions because the same phenomenon occurs in their first language, exercises leading to a *conscious awareness* of pitch movement or a conscious production of it, especially out of context, are difficult. This distinction is even difficult in the learner's native language. It has also been found difficult for experienced English teachers. Jenkins (1997) has reported that in teacher education experienced teachers such as those on Dip TEFLA courses have problems in identifying pitch direction "Invariably around half the group will hear the same example of pitch movement as ending in a rise and the other half in a fall" (p. 17). *Hearing* differences between a falling or a rising pitch movement, is not the same as *labelling* a final tone as a "fall" or a "rise". The teacher might be misled by the learner's difficulty in *labelling* tones and therefore give time-consuming and by and large pointless exercises. There are few cases in English intonation in which this exercise is justified, for example, to differentiate tag questions that elicit agreement from those that signal uncertainty. But cases such as this should be dealt with directly.

Another argument for considering pitch direction less critical for oral intelligibility of second language learners is the fact that this feature is highly variable within some languages. In Spanish, for example, pitch direction at the end of statements may be one of the features that differentiates speakers from Chile, Mexico, Argentina, Venezuela and so on. The variability of pitch direction is also evident in the shifting of the functions attributed to nuclear tones. The high rise in English, for example, has traditionally been attributed the effect of questions, especially those which are echoed (e.g., ´What was his name again? (I've forgotten); He's coming for ´how long? Is it ´raining, did you say?). Cruttenden (1995) reports on the use of high rises in various English dialects on declarative sentences (e.g., (talking about a dog) they'd put him in a large ´pen, between large ´dogs, and he was ´scared; I nearly cracked into a tailgate on a ´lorry today; I was reversing out and it was sort of low ´level, on one of those ´transit vans). Other features of English intonation which *are* stable, do not differ among the different dialects of English, but do differ significantly across languages are nuclear placement and nuclear accent mobility in marked and unmarked utterances.

3. Nuclear Placement

For the purposes of analysis, the overall melody of the utterance is referred to in the literature as *intonation contour* and the chunks or utterances for the description of intonation as *intonation units, tone units, sense groups, thought groups,* etc. The intonation contour is usually decomposed into smaller units in order to account for its linguistic productivity. Computerized displays of intonation contours in English and Spanish (see for example, Chela-Flores 1994; Fant 1984; Ladd 1996; Nibert 1999; 2000; Pierrehumbert 1980; Pierrehumbert and Beckman 1988; Sosa 1999) show that both in English and Spanish only certain points in the intonation unit are phonologically specified for tone. Tonal events in these two systems are associated with either phrasal boundaries, referred to as boundary tones or with the stressed words within an utterance, referred to as pitch accents. Thus, for both languages, neutral declarative utterances, such as:

(3.1) He ar*rived* with his *cou*sin. ↘ (3.2) Lle*gó* con su *pri*mo. ↘

will have a falling tone, reaching the bottom of the speakers range at the end. And in both languages, the words that function as anchoring points for intonational pitch accents are *arrived* and *cousin* in the English utterance and *llegó* and *primo* in the Spanish one.

From the stressed words in an intonation unit, there is usually one in neutral declarative utterances that is highlighted, bearing the highest level of prominence. This stressed word is referred to as nucleus, tonic, etc. In neutral declarative utterances in English, the nucleus occurs in the last *content* word, which could be the last word in the unit:

(3.3) He ar*rived* with his COUSin.

Or it could be followed by one or more unaccented grammatical words:

(3.4) *John asked* me to TALK to him.

When the last content word in English is an adverb, especially an adverb of time, the preceding content word often receives prominence instead of the adverb:

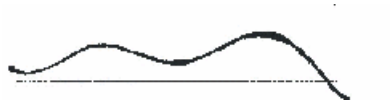
(3.5) I'm *go*ing to the THEAter tomorrow.

In English, the last content word is the one that governs the placement of the nucleus in neutral declarative utterances. In this type of utterance in Spanish, on the other hand, there is a tendency to place the highest level of prominence on the word that occurs farther to the right (Ortiz-Lira 1994, Roca 1986), even though this item may not be a content word. Thus, the utterance (3.4) in English would have a perceived prominence on the pronoun "him" in a translated version of it into Spanish:

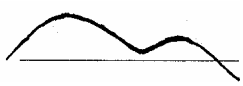
(3.6) *John* me pi*dió* que ha*bla*ra con ÉL.

Thus, the first important difference between English and Spanish that should be highlighted when teaching a basic contour system in neutral declarative utterances in English should be the placement of the nucleus in the intonation unit. This is particularly difficult for Spanish speakers when the nucleus is followed by unaccented functional or content words as in examples (3.4) and (3.5) above. The next important issue is the location of the highest tonal peak in the intonation contour. In neutral declarative utterances in English, the highest tonal peak occurs on the last content word. In Spanish, the highest tonal peak will be the first syllable

in the unit associated with a pitch accent, after which the melodic line descends gradually to the baseline (see the Appendix for computerized displays of neutral declarative sentences in English Fig I and Spanish Fig 2). The highest tonal peak in (3.7) and (3.8) would fall at the end on the word *cousin* for English and at the beginning, on the word *llegó* for Spanish:



(3.7) He ar*rived* with his COUsin



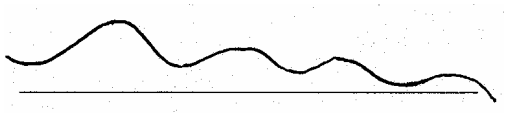
(3.8) Lle*gó* con su PRImo

Bolinger (1961) has likened this configuration to a suspension bridge: the ups and downs of the cable represent the rises and falls of the pitch of the voice and the two humps at the position of the towers are the principal accents where a syllable is made to stand out by a relatively high deviation of pitch:

(3.9) English

(3.10) Spanish

Whereas in English the *nucleus* and the *highest tonal peak* in the intonation contour *coincide,* in Spanish, the last stressed syllable or word often bears *no distinctive tonal peak,* in spite of its perceived prominence (Roca 1986). In an utterance such as: *Mariano me dio la moneda de oro- M. gave me the golden coin* (taken from Hualde 1999) spoken in a neutral way, the main prominence or nucleus falls on the stressed syllable of the last word *oro,* but the highest accentual tonal peak occurs at the beginning on the word *Mariano* and the intonation contour decreases progressively from the beginning of the utterance. The word with the greatest perceived prominence has the lowest tonal peak (see Appendix Fig 2, for a computerized display):

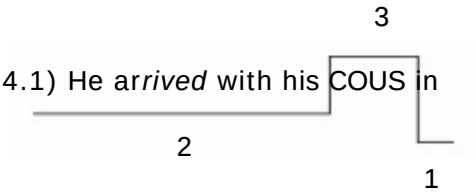


(3.11) Mar*ia*no me *dio* la mo*ne*da de Oro.

From the discussion above we can conclude that one of our first concerns in teaching a basic contour system to Spanish speakers should be making the learner aware of the association of the nucleus with a content word and the tonal peak with the nucleus. Placing the tonal peak on the nucleus in neutral declarative utterances in English may also present difficulties since this same contour would have an emphatic implication in Spanish. Thus, the relative height of the tonal peak on the nucleus, dealt with in the next section, should also be ail issue of concern in a model for the teaching of basic suprasegmental features to Spanish speakers.

4. Pitch Height

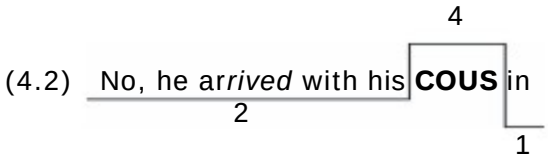
Tonal events are not only associated with pitch direction and pitch accent but also with pitch height. ESL/EFL pronunciation textbooks have traditionally distinguished four levels of phonetic pitch for English. A neutral declarative sentence, such as (3.7) above, would have one of the most common intonation patterns in English, usually referred to as the rising-falling contour (Celce-Murcia, et al 1996), that includes 3 levels of phonetic pitch:



The intonation contour in neutral declarative utterances typically begins with a middle level 2, rising to a level three on the last content word and then finally falling to a bottom or low level 1 which is usually the lowest that the speaker's pitch reaches.

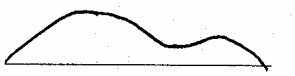
There is an extra pitch height or level 4 for situations where emphasis, contrast or strong feelings are to be expressed:

(He arrived alone, did you say?)



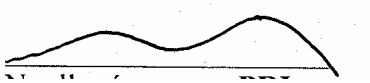
Although four pitch levels have also been distinguished for Spanish (Fant 1984) the interrelationship of pitch and prominence is not the same as in English. As seen in example (3.8), the highest accentual tonal peak occurs on the first pitch accent of the intonation unit and not on the nucleus on neutral declarative utterances. When emphasis is placed on the nucleus a higher tonal peak is used in Spanish (Fant 1984). Thus, the tonal peak in the neutral declarative utterance (4.3) would be shifted from "llegó" (arrived) to "primo"' (cousin) in the emphatic utterance in (4.4):

(4.3) ¿Con quién llegó? (Whom did he arrive with?)



Lleg*ó* con su PRImo.

(4.4) ¿Llegó sólo, dijiste? (He arrived alone, did you say?)

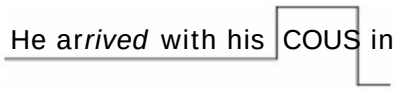


No, lleg*ó* con su **PRI**mo.

Using the four levels of phonetic pitch referred to above, emphasis on the nucleus in Spanish will be obtained rising from a base line or middle level 2 to a level 3. The intonation contour obtained would be similar to the intonation contour used on *neutral declarative sentences* in English:

(4.5) Lleg*ó* con su **PRI** mo. (**Emphatic** utterance in Spanish)

(4.6) He ar*rived* with his COUS in. (**Neutral** utterance in English)



In the author's experience, Spanish speakers learning English (even very advanced students in teachers training programs) have problems associating a pitch level 3 on the nucleus with a neutral declarative utterance and also having to go as high as a level 4 for an emphatic utterance, as required, for example, in an exercise such as the following (Celce-Murcia et al. 1996:199):

(4.7)

Original Statement	**Clarification question**	**Repeated Information**
I'm going to New YORK	WHERE?	New **YORK**!
Do you have Mary's PHONE number?	WHOSE?	**MARY's**!
Ted likes the BLUE one best.	WHICH one?	The **BLUE** one!
I can't find the CAR keys.	WHICH keys?	The **CAR** keys!
I'm taking my vacation in NoVEMber.	WHEN?	In No**VEM**ber

Exercise (4.7) includes three main features that should be emphasized in a basic model of English intonation when teaching Spanish speakers: (a) the nucleus of the last *content* word (b) the *tonal peak* on the *nucleus (c)* a pitch height difference on the nucleus from a level 3 to a level 4 to differentiate neutral declarative utterances from emphatic ones. Emphasis and contrast in English, as well as new and given information is also signalled by means of nuclear accent mobility. Although the shifting of the nucleus within the sentence is also possible in Spanish, a more common procedure to highlight words is carried out by lexical and syntactic means, i.e., by adding other words to the utterances, or by changing word order. General principles on nuclear accent mobility in English should, therefore, be also included in a basic instruction on English suprasegmentals.

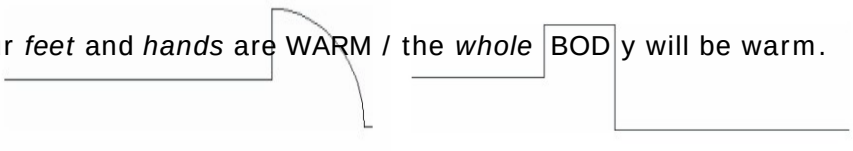
5. Nuclear Accent Mobility

In English, the discourse context generally influences which stressed words in an utterance receive prominence and, as mentioned in the last section, these highlighted words co-occur with the tonal peaks in the intonation unit:

Thus, pitch and prominence can be said to have a symbiotic relationship with each other in English and the interrelationship of these phenomena determines the intonation contour of a given utterance. (Celce-Murcia et al 1996:185)

There are various reasons that generally influence the speaker as to which word he/she wishes to highlight. Words representing new information in English are spoken with stronger stress and higher pitch, whereas words expressing old or given information are spoken with lower pitch:

(5.1) If your *feet* and *hands* are WARM / the *whole* BOD y will be warm.



The interrelationship of pitch and prominence in Spanish is not the same as in English. As discussed in (3), the most prominent word in the intonation unit tends to be the one farther to the right, whether it is a content or a grammatical word, as seen in the examples (3.8) and (3.11) above. Likewise, these last prominent items could convey new information or given information. Ortiz-Lira (1994:201) gives (5.3) as a more common answer than (5.4) among Spanish informants to a question such as (5.2):

(5.2) ¿Cómo sabías que se entregaría la mercancía a tiempo?

How did you know the goods would be delivered on time?

(5.3) Mis aMIgos me DIEron la noTIcia

My friends gave me the news.

(5.4) Mis aMIgos me dieron la noticia.

In Spanish, there is no apparent link between the item that conveys new information, the word that carries the highest level of prominence in the intonation unit, and the highest tonal peak in the intonation contour, as it occurs in English. A translated version in English of (5.4) would be the most feasible answer in English to (5.2):

(5.5) My FRIENDS gave me the news.

The item in (5.5) that conveys new information *'friends'* becomes the nucleus of the unit and it is highlighted by having the tonal peak of the intonation contour and the post-nuclear words without pitch prominence. This phonological focusing, obtained by alternating the intonational pattern of the sentence, is of special difficulty to Spanish speakers learning English. In a study carried out to measure the auditory perception of English suprasegmentals by Spanish speakers (Chela de Rodríguez, 1979), it was found that the nucleus could not even be identified indirectly, within context, when the accent shifted over the focussed word, as in the following exercise:

(5.6)

1. **I** don't want to buy a brown coat.	(a) Yes, I know you hate brown.	_4_
2. I don't want to buy a brown **coat.**	(b) Buy jacket then.	_2_
3. I don't want to **buy** a brown coat.	(c) But your brother does.	_1_
4. I don't want to buy a **brown** coat.	(d) Why don't you rent one then?	_3_

(Chela de Rodríguez 1979:243)

Nuclear accent mobility seems to be a preferred device for sentence focusing in English. In Spanish, on the other hand, a more common procedure to highlight words in the sentence is carried out by lexical and syntactic means, changing word order or by adding other words to the sentences. Thus, the sentences in (5.7) are more likely to be translated into Spanish as the sentences in (5.8) rather than a translation in which the accent is shifted over the focussed word:

(5.7)

a. John lent me his **bi**cycle.
b. John lent me **his** bicycle.
c. John lent **me** his bicycle.
d. **John** lent me his bicycle.

(5.8)

a. Juan me prestó su bici**cle**ta.
b. Juan me prestó la bicicleta de él.
c. A mi me prestó Juan su bicicleta.
d. Fue Juan el que me prestó su bicicleta.

However, both English and Spanish have the possibility of using either nuclear accent mobility or word-order change. Ortiz-Lira (1994) states that versions such as *JUAN ama a María* (no Carlos) and *Juan aDOra a María* are perfectly possible in Spanish and identical to the English versions JOHN loves Mary and John LOVES Mary, respectively. (p.91). In the same way, word order change to highlight an item in an utterance is perfectly acceptable in English, as with the words *'two thousand'* in example (5.9):

(5.9)

A: That's a nice piece of furniture.
B: It should be. *Two thousand* it cost.

Nonetheless, English tends to recur more to phonological focusing, whereas in Spanish, lexical and syntactic means seem to be more common. The different renderings of the English utterance *'I'm going to study Thai'* in dialog (5.10) can be given by means of intonation alone. In a translation to Spanish of the same dialog, phonological focusing in the marked utterances seems to be more effective when the nucleus is at the end as in sentence (5.11.c), but when the highlighted word is shifted to other positions within the sentence, as in (5.11.e1 and e2), there seems to be a preference among informal Venezuelan-Spanish informants and the author herself, as a native speaker of Venezuelan-Spanish, for lexical or syntactic focusing:

(5.10)

(a) -I'm *go*ing to *stud*y THAi.
(b) -You're going to study what?
(c) -I'm going to *stud*y **THA**i!
(d) -You've got to be kidding.
(e) -I **AM** going to study Thai.

(5.11)

(a) -*Voy* a estu*diar* tailanDÉS.
(b) -¿Vas a estudiar qué cosa?
(c) -*Voy* a estu*diar* tailan**DÉS**!
(d) -Debes estar bromeando.
(e1) -SI VOY a estuDIAR tailanDÉS.
-CLAro que VOY a estuDIAR tailanDÉS
or
(e2) -**VOY** a estuDIAR tailanDÉS.

In Spanish in the option (5.11.e2) where the auxiliary verb *voy* is highlighted, the basic contour shape is maintained from the neutral version in (5.11.a). The only difference prosodically would be an increased pitch range and higher steepness of the falls (as reported in such utterances by Montero et al 1998, Quilis 1987, Sosa 1999). In (5.11.e1) the phonological focusing could be either substituted or reinforced with additional words that emphasize the auxiliary. Sentence focusing is easily achieved through phonological means in the English utterance in (5.10.e) because the nucleus, shifted to the auxiliary verb *am*, is highlighted by having a pitch accent, by having the tonal peak of the intonation contour and by leaving the post-nuclear words without prominence. Another aspect that helps emphasize the auxiliary word in English in (5.10.e) is the significant difference in syllable length, dealt with in the next section.

6. Syllable Length

Syllable length is an important English phonological asset that helps highlight the focussed word in the utterance. It is specially important to enhance grammatical words in marked utterances. The grammatical words *his* and *me* in examples (5.7. b and c) can be easily highlighted not only by having the tonal peak and by leaving the post-nuclear words without prominence, as mentioned above for example (5.10.e), but also because there is a significant difference in length between these grammatical words in stressed and unstressed positions. In a study carried out to measure difference in syllable length in stressed and unstressed syllables in various languages Delattre (1966) found a ratio of 1.3:1 for Spanish compared to 1.6:1 for English. This might be a reason why a preferred translation into Spanish of the sentences (5.7 b and c.): *'John lent me **his** bicycle'* and *'John lent **me** his bicycle'* may be *'Juan me prestó la bicicleta de él'* and *'A mi me prestó Juan su bicicleta',* respectively, rather than *'Juan me prestó **su** bicicleta'* and *'Juan **me** prestó su bicicleta'.*

The basic features of rhythm have been identified as "syllable length, stressed syllables, full and reduced vowels, pause, linking and blending sounds between words, and how words are made prominent by accenting syllables and simultaneously lengthening syllables" (Wong 1987:24). Syllable length has been considered the most important rhythm feature for the comprehension of non-native speakers oral production (Adams & Munro 1978; Anderson 1993; Chela-Flores 1997; Faber 1991; Fokes and Bond 1989; Taylor 1991). In a study carried out to define intelligibility parameters, Anderson (1993) measured the duration of interstress intervals in English in the speech of non-native speaking subjects and native English speakers. Native speakers had the shortest average duration of an interstress interval and the fewest number of stresses, the 'most intelligible' group had the next shortest time interval and the next fewest number of stresses and the 'least intelligible' group had the longest speaking time interval and the greatest number of stresses.

Syllable length and the features of intonation referred to above, are suggested in this paper as a starting point in the instruction of suprasegmentals. Other factors closely related to rhythm such as reduction of unstressed vowels, linking and blending of segments between words, are easier to teach once there is a certain control of rhythmic patterns. It could be thought that the reduction of vowel sounds should be introduced in the instruction before dealing with rhythmic patterns. Failure to reduce vowels correctly in appropriate places, however, does not seem to be always the cause of the syllable-timed rhythm in the speech of non-native speakers of English. Taylor (1991) carried out a survey in which both speech and reading of experienced non-native teachers of English of varied language backgrounds were recorded and analyzed. From the twenty four subjects who achieved acceptable English rhythm in his survey, fourteen used none or very few weak forms and generally did not properly reduce vowels in unstressed syllables. Taylor therefore concludes that lengthening and shortening syllables adequately in chunks is more important to avoid a syllabic pattern of sounds than other features of rhythm.

Syllable length was found to present the most significant phonetic differences between English and three other languages, French, Spanish and German (Delattre 1966). Difference in syllable length was also found in a study carried out by Fokes and Bond (1989) in which the stress patterns of non-native speakers productions (Japanese, Chinese, Persian, Hausa and Spanish) were compared to those of native American English speakers. In this study, in which the spectral and durational characteristics of vowels in stressed and reduced syllables were examined, none of the non-native speakers produced words in which durational relationships were

similar to the American pattern. The American productions clearly used the length of the vowel to signify syllable stress. This aspect of the rhythm system of English -syllable length- was lacking in the non-native speakers; they tended to produce stressed vowels that were too short and unstressed vowels that were too long. Syllable length appears to be the most widely encountered difficulty among foreign learners of English (Chela-Flores 1993; Faber 1991; Taylor 1991) and is a major obstacle in acquiring a near-native pronunciation (Adams and Munro 1978).

At the same time, however, syllable length is perhaps the most difficult pronunciation feature to teach because of the difficulty in perceiving and concentrating on the rhythmic pattern as a chunk. Since the rhythmic pattern is superimposed on the utterance, it is difficult to find means of directing the learner's aural attention to the pattern as a whole. It is not easy for example to present rhythmic patterns with near equivalents in the language (i.e., minimal pairs), a common procedure in pronunciation teaching. This is possible with vowel and consonants (e.g., *ship/sheep; cup/cap; think/sink)* and even with pitch variations (e.g., *He's coming tomorrow; He's coming tomorrow?).* However, different rhythmic patterns necessarily have different lexical and syntactical structures, making it difficult to direct the listener's attention to the problem in question. Champagne-Muzar et al. (1993) found that phonetic instruction improved discrimination ability of segments and intonation, but not of rhythm; they attributed this failure "to the nature of the rhythm discrimination task" which is considered "extremely difficult even for native speaking individuals to master" (ibid., p. 154).

A technique, suggested by the author in previous works (Chela-Flores 1991, 1993, 1997, 2001), and described in the next section, helps to overcome the auditory difficulty found in perceiving English rhythm and facilitates its oral production. Syllable duration is presented in rhythmic patterns or chunks and attention is drawn just toward the pattern as a whole, without focusing on its parts. In this way, it has been found that in oral production there is a better chance of reducing a syllabic rhythm, since the learner acquires the rhythmic swing of the utterance. The rhythmic pattern also includes nuclear placement and pitch height and nuclear accent mobility when needed.

7. Pedagogical Suggestions

From the discussion above we can conclude that a basic contour system for teaching the basic features of English suprasegmentals to Spanish speakers should clearly indicate: (a) the association of the highest tonal peak with the nucleus (b) the association of the nucleus with a content word in unmarked declarative sentences (c) significant length differences between stressed and unstressed syllables and words (d) the possibility of shifting the nucleus over other words in the utterance for sentence focusing.

Currie and Yule (1991) have proposed a basic model for the teaching of intonation, which derives its primary unit from the rhythm of English; in other words, a system of intonation based on the recognition of stressed vs. unstressed syllables rather than on the nucleus (referred as *tonic* in their article). They justify their proposal based on studies that show the identification of the tonic as a very difficult task -even for native speakers of English. They report on a series of experiments designed to investigate the notion of tonic and to test whether judges previously trained could agree on tonic placement in any utterance. The results of the experiments showed quite clearly that even trained phoneticians found the task of identifying single tonics in actual utterances very difficult and there was marked disagreement among the decisions of the judges. The point at which the judges did

coincide in their identification of a single tonic element was when an item in a sentence was a focus of contrast. Otherwise, they identified more than one tonic in a sentence ‘even to the point where every lexical item was perceived as a tonic’ (ibid.:272).

These experiments seemed to raise some doubts on the nature of the unmarked tone group with its single tonic element and to suggest that what was identified as tonics were simply stressed syllables in lexical items which receive greater stress and which contrast with unstressed syllables and words, producing the single tonic phenomenon. In the light of these studies, Currie and Yule propose a basic model for the teaching of intonation which derives its primary unit from the rhythm of English; in other words, a system of intonation based on the recognition of stressed vs. unstressed syllables, rather than on the tonic. In their model, a basic unmarked intonation contour is suggested to indicate stressed and unstressed syllables, and high and low points in a speaker's range, as shown in Figure 1:

Figure 1

The unstressed syllables form a baseline; any movement from this baseline is perceived as prominence. This basic unmarked intonation contour is manipulated in various ways according to the discourse context; the unstressed items could for the purpose of contrast, become higher in the pitch range and more prominent.

Such a model, however, is only concerned with the recognition of pitch height as correlating with stress and as Faber (1991) has stated, pitch height can only normally indicate stress on the nucleus. He gives as an example the *sentence “I just won’t PAY you until you do the work”* (ibid., p.248) said on a single tone group and with a high fall on *pay*; many of the syllables that come before and after *pay* are stressed but don't necessarily have pitch prominence, indicating that pitch cannot be relied upon to tell us whether a syllable is stressed or not. Although pitch has been found to be a more powerful indicator of stress when it operates than either length or loudness (Bolinger 1986; Fry 1958), syllable length seems to be more reliable at all times. And this is probably the reason why the English native speakers in Fokes and Bond study (1989) mentioned above, used the length of the vowel to signify stress.

Although the recognition and production of stressed vs. unstressed syllables and words may be a better starting point in the teaching of intonation, they are also difficult to teach since rhythm is superimposed on the utterance and it is difficult to find means of directing the learner's attention to the pattern as a whole. A technique has been suggested by the author in previous works (1991, 1993, 1997, 2001) to overcome the auditory difficulty found in perceiving English rhythmic patterns and the basic features of the intonation contour discussed above. Basic rhythm and intonation are first presented isolated from the normal segments and sequences with which they co-occur in language; thus the learner is not concerned with lexical or syntactic factors within an utterance, nor with the pronunciation of individual segments until the patterns are perceived aurally. By isolating the rhythmic pattern and the basic intonation contour, it is then possible to present two stimuli simultaneously, juxtaposed, in a minimal pair fashion. This is a common procedure in teaching vowels and consonants and it gives the learner a better

chance to more accurately discriminate the auditory effects of the features in question. Oral production is presented after the basic rhythmic pattern and intonation contour has been adequately perceived. This technique proceeds on the widely accepted principle that a learner is unlikely to be able to produce a certain pronunciation feature if he is unable to perceive the feature aurally.

The procedure is as follows: two rhythmic patterns are first presented graphically and echoed with the nonsense syllable *ti* for unstressed syllables *TA* for stressed ones and *TAA* for the nucleus.

(7.1) a. · ___ ··· ___ (ti 'TA tititi `TAA)
b. · ___ ·· ___ ·· (ti 'TA tititi `TAA titi)

In this introductory exercise, the student is first asked to discriminate aurally the two rhythmic patterns, which the teacher verbalizes with the nonsense syllables. The purpose of the exercise is to make the learner aware, on the one hand, of the significant difference between the stressed and unstressed syllables. On the other hand, the capital letters *TAA* at the end of the chunk makes the learner aware of the emphasis on the last stressed syllable or nucleus and of its association with a tonal peak. The two patterns also show a difference between an utterance where the nucleus is the last word in the unit (7.1.a) and when there are unstressed syllables or words following it (7.1.b). The stressed syllable is marked with a vertical line and the pitch variation with a slanted line.

The two patterns in (7.1) are then identified in sentences such as those in (7.2); (a) or (b) is written next to each utterance:

(7.2)

i.	Perhaps you could talk to him.	b
ii.	We'll bring it back today.	a
iii.	It's very unfortunate.	b
iv.	That's not what I asked you for.	b
v.	You obviously gave in.	a

The student is not asked to verbalize the rhythmic patterns until they are perceived and discriminated accurately. Oral production is given with a number of phrases and sentences similar to those in (7.2) and with short dialogs made up of utterances containing the two patterns practiced. In these dialogs, pitch height is indicated by raising the dash over the nucleus higher up in the contour:

(7.3)

___ ___
. ___ . . . . . ___ . . .
Mary: I'm *look*ing for MARgaret. She *did*n't go to SCHOOL.
Mother: She *has* a high TEMperature. She *has* to stay in BED.
The *doc*tor has ORdered it. She's *al*so fast aSLEEP.
Mary: She *asked* me to COME today. Please *tell* her that I CAME.

The dots and dashes are a convenient visual means of indicating syllable length, as long as one does not depend only on this graphic help. The auditory discrimination of the patterns suggested as an introductory exercise, has to be a priority in the instruction and should be tackled first. Dots and dashes plus auditory discrimination with nonsense words could also be used to practice the shifting of the nucleus within the sentence and different pitch levels.

To evaluate the effectiveness of this technique, ten lessons were elaborated in the manner described above. Only two rhythmic patterns are presented at a time in

each lesson and the difference between each lesson consisted in the length of the patterns which ranged from two to twelve syllables (see Chela-Flores, B. & Chela-Flores, G. 2001, for a complete set of the lessons). These lessons were tested for a semester with students of English from a teacher-training program at Universidad del Zulia (Chela de Rodríguez 1981). The results showed that by isolating the rhythmic patterns and the basic intonational features in the first part of the instruction, the learner could increase his acuity in perceiving the same patterns in normal language behaviour. The student tested also reported that with this technique they were able to detect their own mistakes and felt more confident in their self-correction.

The results also showed that the patterns were successfully produced only under controlled situations, when the students were concentrating on the pronunciation problem. More practice was needed before the students could handle the patterns automatically. Integration of this technique into other language activities and from a beginner level has also been recommended, in order to achieve control of the patterns in spontaneous situations (Chela-Flores 1997, 2001).

8. Conclusion

This article has sought to account for fundamental features that differentiate English and Spanish rhythm and intonation systems in order to optimize its teaching in EFL/ESL programs. A basic model should include the following basic features: (a) the association of the highest tonal peak with the nucleus (b) the nucleus with a content word (c) pitch level differences from 3 to 4 to distinguish between neutral and emphatic sentences (d) significant durational differences between stressed and unstressed syllables and words (e) sentence focusing by means of the shifting of the pitch accent over the focussed word. Although reference has only been made to declarative sentences, these features are basic for other grammatical structures such as Wh-questions, Yes-No questions, commands, exclamations, etc. Rhythm has been suggested as the starting point of the instruction together with intonational features such as the association of the highest tonal peak with the nucleus and the nucleus with the content word. The teaching technique suggested forces the learner to focus on the phonological patterns without the normal segments and sequences with which they co-occur in language, so that the learner can more accurately discriminate the auditory effects of the suprasegmental features.

Appendix

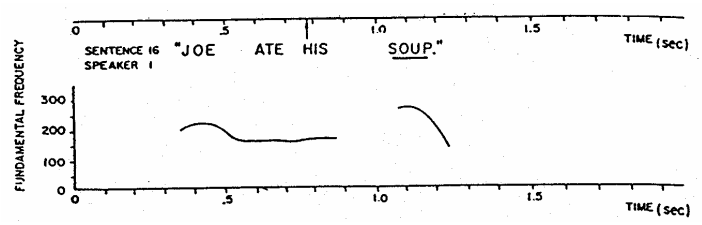


Figure 1. Acoustic data for speaker reading the declarative sentence *'Joe ate his soup'*

(Lieberman, P. 1967:67)

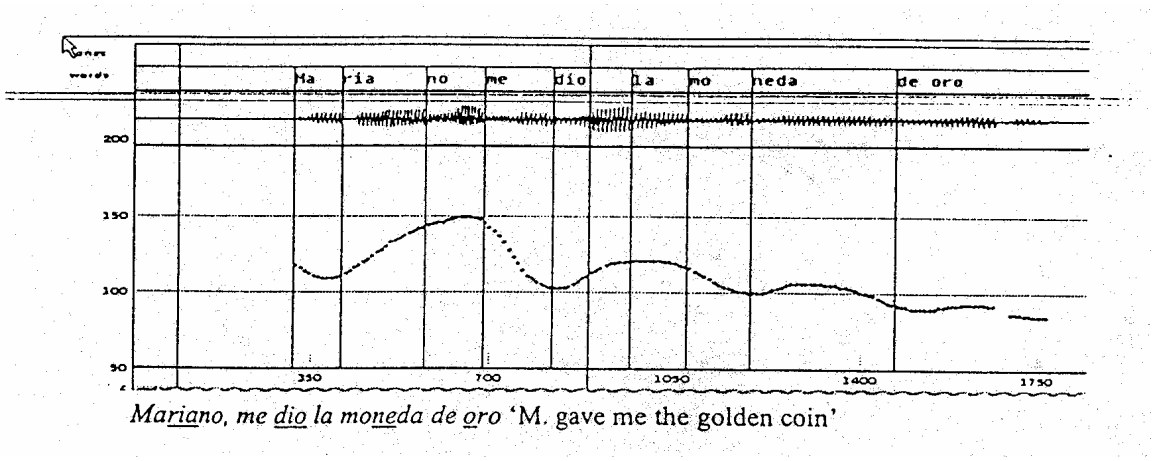


Figure 2. Acoustic data for speaker reading the declarative sentence *'Mariano me dió la moneda de oro' 'M. gave me the golden coin'*

(Hualde, J.I. 1999)

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