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Sosa’s book, a long-awaited study based on his outstanding doctoral dissertation Fonética y fonología de la entonación del español hispanoamericano (Sosa 1991), has come as a very agreeable surprise to scholars interested in Spanish prosody. Ever since Navarro-Tomás and Quilis published their seminal research on Peninsular Spanish, the study of intonation has occupied a rather marginal position within the discipline of Hispanic Linguistics. The present book is bound to redress this situation by calling attention to this currently burgeoning facet of linguistic theory. The main goal of Sosa’s book is to investigate the phonological properties of the intonation contours of several Spanish dialects. Its first positive aspect lies in its descriptive side, for it takes into account a wide pool of data from different Spanish dialects. As the author notes in the first chapter, the basic materials for this project were collected from hours of recording natural conversations from different dialects: “Para este estudio de la entonación del español hemos utilizado como fuente principal de datos, nuestro extenso corpus constituido de varios centenares de horas de conversaciones, entrevistas y cuestionarios orales grabados de distintas variedades del español, provenientes de la mayor parte de los países hispanoamericanos además de España” (p. 91). The second asset of the present study resides in its strong theoretical basis. Sosa adopts one of the most widely recognized phonological approaches to intonation, namely, the autosegmental-metrical approach —the reader can find an introduction to this model in Pierrehumbert’s 1980 thesis and, more recently, in Ladd’ 1996 book—. This study can thus be considered the first full-fledged application of the metrical model to Spanish intonation and a necessary starting-point for subsequent work in this area.

The book is coherently divided into three main chapters. Sosa devotes the first chapter to a very clear and informed introduction to intonation which may be quite useful for any student of prosody or any reader with a general background in linguistics. The author discusses topics such as the relationship between intonation and phrasing, the factors that influence phrasing decisions in discourse and the interaction between intonation and stress. Finally, after an overview of some relatively recent contributions to the analysis of Spanish intonation, Sosa proceeds to review the main principles and assumptions underlying Pierrehumbert’s (1980) metrical model of intonation. In a way, the first chapter serves to lay out and motivate the theoretical assumptions adopted in the second chapter, which constitutes the core analytical part of the book. In this chapter, Sosa presents a descriptive analysis of Spanish intonation taking the metrical model as its main theoretical basis; he also provides a number of well-grounded and insightful observations about the phonological patterning of different Spanish contour-types. The third chapter compares a selection of intonation contours of three sentence-types (declarative, yes-no questions and
wh-questions) produced in several Spanish dialects, concluding that the differences found between them are phonological in nature (rather than phonetic, as it was previously claimed). Finally, the Epílogo summarizes the main conclusions of the book and its implications for intonation theory.

As far as the methodology is concerned, Sosa acknowledges the importance of taking into account the two complementary aspects of this prosodic feature, namely, its phonologic and its phonetic side: “Dada la complicada naturaleza estructural y la multiplicidad de funciones que cumple la entonación, una mera descripción de su sustancia sin referencia a lo lingüístico sería inadecuada e insuficiente, tanto como las referencias funcionales apriorísticas que no incluyen precisiones con respecto a cómo se manifiestan esas funciones en su forma fónica.” (p. 247). Hence, the book is very careful of providing the reader with the F₀ contour of each of the sentences it analyzes together with a general description of the meaning it conveys.

Throughout this review I would like to shortly discuss three of Sosa’s proposals regarding the phonological structure of Spanish intonation. I take these proposals to be important criticisms to standard assumptions of the metrical framework whose resolution may condition the development of the model and its further application to other Romance languages.

Sosa’s primary concern in chapter two is to examine the phonological properties of Spanish intonation contours within the metrical model. To accomplish this, he first analyzes acoustically a selection of Spanish tunes and then proceeds to advance an inventory of phonological pitch accents and boundary tones (the main building blocks of intonation contours) that can account for the tonal variation found in this language. Within the metrical model, phrase-final can be of two types: phrase accents (associated with the limits of intermediate phrase boundaries) and boundary tones (associated with the limits of intonational phrase boundaries). Moreover, both tonal events display different association patterns with the segmental material: while boundary tones are always linked to the end of intonation phrase boundaries, phrase accents describe the tonal trajectory between the nuclear accent and the limits of the prosodic domain —cf. Pierrehumbert (1980:32)—. Sosa (1991, 1999) claims that phrase accents could be eliminated entirely from the tonal inventory of languages where the intonation nucleus is always placed at the end of the intonation group. According to Sosa, “es oportuno mencionar que la noción de acento de frase puede ser menos útil, incluso supérflua, en lenguas como el francés, el español y demás lenguas de núcleo fijo. En estas lenguas, el último acento tonal no puede estar muy lejos del borde derecho de la frase, por lo que un eventual acento de frase no podría generar ningún tipo de contraste” (Sosa 1991: 69; Sosa 1999:87). “En general, no puede haber más de dos sílabas (inacentuadas) después del último acento tonal, y excepcionalmente tres. Por esta circunstancia, el último acento tonal no puede estar muy lejos del
tono de juntura, por lo cual un acento de frase, de cualquiera de los dos tipos (H- o L-), no podría generar ningún tipo de contraste.” (p. 95).

Sosa argues that the main advantage of dispensing with the phrase accent category is to help eliminate the potential ambiguity in the analysis of Spanish nuclear configurations in Romance languages. Let us examine the following schematized exclamative tune from Puerto Rican Spanish —which Sosa names “tonema ascendente-descendente”, cf. p. 232ff.—. The final pitch pattern consists of a low rise plus a falling movement that links to the postonic syllable. Within the standard metrical model, such a tune can be either analyzed as L*H-L% or as L*+H L%: the two possibilities cannot be adequately distinguished in Spanish because the last pitch accent is obligatorily attached to the last stressed syllable in the prosodic domain. If we assume, together with Sosa, that no phrase accent exists, then the second option will be the only feasible one: “obligatoriamente debemos recurrir a acentos bitonales para dar cuenta de algunos contornos complejos” (p. 96).

(1) ¡... con la co ci ne ra de la casa.... !

L*+H L%

In my opinion, the claim of dispensing with the phrase accent unit is somewhat questionable and the implications of such a proposal will have to be evaluated in detail. Indeed, it is generally true that this proposal helps to eliminate some of the potential analytical ambiguity of nuclear configurations in Romance languages. Yet, on the other hand, Romance languages are also able to produce quite complex final movements that cannot be accounted for with a simple combination of a bitonal accent plus a boundary tone. Let us take a look at the following exhortative contour of Catalan (cf. ¡Escolta! ‘Listen to me!’) which conveys an additional meaning of insistence and complaint on the part of the speaker. The final tune consists of a rise associated to the tonic syllable followed by a fall-rise-fall movement associated to the posttonic syllable —for more examples of terminal movements of this type, see Prieto (in press) for Catalan and Ladd (1996) for Italian—. In this case, if we do not allow for pitch accents to have more than one trailing tone (or for boundary tones to be bitonal), then there is a need to refer to the phrase accent unit —the standard transcription of this case is H*+L H-L%—.

(2) ¡Es col ta !
Moreover, dispensing with the phrase accent category has also implications for the theoretical parallelisms established between this unit and the intermediate phrase prosodic domain as well as for the labeling of particular final tunes, which call out for reexamination. Let us take the case of the suspension tone ("tonema de suspensión"), a level melodic movement (neither rising nor falling), which Pierrehumbert transcribes with the combination H-L% and Sosa (p. 129ff) reanalyzes as H*+HL% —in a way, Sosa's labeling accounts for the fact that a final level tone can only appear after a rising pitch accent—. Similarly, Sosa reanalyzes the final rise H-H% present at the end of interrogatives as L*+HH%. I guess there is no easy answer to the question of what the status of phrase accents should be; the implications of such a proposal will have to be carefully examined in light of some possible evidence about the functional relationship between nuclear pitch accents and boundary tones.

Another potentially controversial aspect of Sosa's study is the analysis of prenuclear pitch accents in unmarked declarative sentences. Even though Sosa's core analysis is framed in the metrical model, he also departs from it in some respects. Following the British tradition (and Navarro-Tomás’ notion of tonema), Sosa makes a twofold distinction between (a) nuclear or terminal contours (p. 114ff) and (b) prenuclear contours (p. 134ff). Although the standard metrical view recognizes no internal structure to intonation contours, he argues that making use of such a division is quite useful for Spanish; thus, a finite set of nuclear contours (combinations of nuclear pitch accents plus boundary tones) is presented in page 132. With regards to the analysis of prenuclear declarative accents, Sosa argues that they should be transcribed as L*+H: "Nuestra investigación ha arrojado como conclusión la notable regularidad entre todos los dialectos estudiados en lo relativo al pretonema no marcado, integrado por uno o más acentos tonales L*+H." (p. 142). The main rationale behind the L*+H choice lies in the asymmetry found between the location of the peak in phrase-final (H*) vs. non-final (L*+H) pitch accents: "Los picos no finales están situados cerca del final de la sílaba postónica, mientras que los finales se encuentran dentro de los límites de la sílaba acentuada." (p. 143); “Sistemáticamente el pretonema declarativo tiene su primer pico coincidente con la sílaba inacentuada postónica, (...), efecto del acento tonal L*+H." Indeed, several experimental studies have revealed that Spanish prenuclear pitch accents are phonetically realised as a rising movement that starts quite consistently at the onset of the stressed syllable and ends in a more variable position depending upon its right-hand prosodic environment (cf. Prieto, van Santen and Hirschberg 1995 for Spanish; and Pierrehumbert and Silverman 1990 for English)¹. Specifically, these studies defend the position that

¹ Judging from close inspection of many of the F0 contours presented by Sosa, this also seems to be the case of many other Spanish dialects.
the H peak is significantly retracted not only in sentence-final position but also in tonal clash situations, that is, in contexts where the pressure created by an upcoming prosodic event (in particular, a falling boundary tone or a following pitch accent) causes the peak to move leftwards.

Recently, the notion of "starredness" has been subject to discussion within the autosegmental approach. The standard diagnostic for starring a tone has generally been the tone's phonetic alignment with respect to the metrically strong syllable. As shown by the following schema (after Pierrehumbert 1980), the categorical contrast between L+H* (or H*, depending on how the L valley is scaled) and L*+H in English is manifested phonetically through the relative timing association of the LH gesture: while the former is realized as a rising gesture over the stressed syllable, the latter is realized as a low or a falling tone over the tonic syllable followed by a rising gesture that starts near the end of this syllable. In the first case, the tonic syllable is perceived as carrying a high tone and in the second as carrying a low tone. At first glance, then, it seems that the type of rising gesture involved in Spanish prenuclear accents should correspond to a L+H* or H* pitch accent.

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\begin{bmatrix}
(3) & L+H^* & H^* & L^*+H \\
\end{bmatrix}
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Recently, Arvaniti, Ladd and Mennen (1999, in press) have reconsidered the notion of starredness in light of the alignment and stability properties of LH gestures in Greek. In particular, the authors highlight a common assumption underlying the way stars are used in bitonal accents, namely, that "unstarred tones are subject to spreading in certain circumstances (...), while starred tones are not expected to spread, precisely because they are associated to a particular syllable" (p. 2). Following this line of reasoning, Sosa’s use of the accent L*+H could be interpreted as a way of signifying both the time stability of L valleys and the more variable timing behavior of H peaks (cf. also Hualde 1999). Yet, let me note that, at least for the Mexican and Peninsular dialects of Spanish, neither of the two assumptions is completely accurate. On the one hand, if we examine the behavior of Spanish prenuclear accents in tonal clash contexts (cf. Prieto and Shih 1995) we observe that the second L value gets displaced to the right of the onset of its corresponding tonic syllable (hence, the L target is displaced from its anchoring position); on the other hand, recent empirical investigations have revealed that prenuclear H values are aligned systematically with the end of word boundaries; further, their location serves as
a clearcut perceptual indicator for the identification of such a boundary (cf. the perceptual experiments carried out by Garrido, in prep.). Thus, even though H and L points display different degrees of resistance to spreading, they can exhibit both a high degree of stability or, conversely, a displacement from its canonical position. If we want to keep the alleged one-way relationship between “stability” and “starredness”, should both H and L be labelled as starred? Or as unstarred? Should degree of time resistance be encoded phonologically, or is it rather a phonetic consequence of prosodic and segmental pressure on tonal articulation?

Let me express my doubts about using stability of alignment as a diagnostic for starring tones. The Spanish data at hand has revealed such a complex synchronization behavior of L and H values that there is no principled way of telling which one of the two targets should bear a star. Moreover, representing prenuclear accents as L*+H would clearly not be an adequate choice in a language that displays a phonological opposition between L*+H and L+H*/H* of the sort shown in (3). If the main argument to choose the label L*+H is based on the stable anchoring of L to the onset of the stressed syllable, how are we going to account for such relative alignment contrasts? Catalan is exactly this type of language, as it exhibits both a prenuclear declarative accent similar to Spanish and a categorical distinction between an unmarked prenuclear accent (L+H*/H*) and a contrastive prenuclear accent (L*+H). In my view, this fact strongly suggests that the timing stability properties of a given pitch target are completely unrelated to its relative alignment with the text. The crucial difference between pitch accents L+H* and L*+H lies in the relative alignment properties of the tonal gesture in unmarked conditions rather than in the synchronization strength of both targets.

In light of the previous discussion I believe we must seriously reconsider whether Sosa’s transcription of prenuclear accents in Spanish as L*+H constitutes an appropriate choice of form. We believe that the theoretical status of starredness (together with its phonetic implementation properties) deserves to be further investigated, as it constitutes a fundamental issue for a better understanding of the mapping procedure between the phonological form and the melodic continuum.

Finally, let me comment on Sosa’s interesting solution regarding the status of accent range differences between interrogative and declarative sentences. As it

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2 Sosa himself acknowledges that his inventory of pitch accents can be subject to revision: “nuestra interpretación de lo tonal no es por supuesto la única posible, por lo que no descartamos que se pueda reducir este repertorio por medio de estipulaciones o de reglas de implementación, o incluso por mecanismos de sincronización (timing). Análisis alternativos al nuestro podrían seguramente explicar las asimetrías en la distribución de los acentos tonales y colmar los vacíos que encontramos en el inventario de acentos tonales.” (p. 133). In the preceding discussion, several arguments were presented against the L*+H analysis. Basically, we suggested that stability of alignment is probably an independent property of intonation that has nothing to do with relative synchronization with the text.
was already noted informally by Navarro-Tomás and Quilis, one of the traits that can help the hearer discriminate between Spanish interrogative and declarative intonation contours is the greater pitch excursion displayed by the first pitch accent of interrogative sentences. How is this contrast to be expressed in phonological terms? As it is well known, Pierrehumbert’s thesis (together with the standard version of the autosegmental model) treats variations in pitch range as gradient in nature: that is, pitch range is considered to have an expressive use within the language and to directly reflect the degree of involvement of the speaker in the speech act. Yet, recent studies suggest that this strong phonetic view of the phenomenon cannot accommodate certain cases where variations of prominence seem to trigger categorical distinctions in meaning —see recent work and discussions of this issue by Ladd (1990, 1994, 1996) and experiments by Hirschberg and Ward (1992)—. While Sosa assumes the gradient nature of pitch range in his analysis of exclamative sentences (which are interpreted as allophonic variants of versions involving less pitch range), in dealing with interrogative sentences he takes a different option. Sosa’s solution is the following: “La solución que planteamos para dar cuenta de este efecto ha sido postular un efecto de upstep puramente local producido por un tono de juntura inicial opcional H%, restringido a las preguntas absolutas, que elevaría la frecuencia de la primera sílaba acentuada” (p. 152). According to Ladd (1996), the relevance of such an analysis lies in the fact that it constitutes a first step toward phonologization of the pitch range category. The case of Spanish interrogatives thus constitutes an interesting example of the types of linguistic effects pitch range might convey in languages and should be considered in the discussion about its phonological status.

In conclusion, we should welcome this book as an undoubtedly important contribution to the phonological analysis of Spanish intonation and, more generally, to the field of intonational phonology. In addition to its valuable descriptive pool, it tackles several theoretical issues (such as the status that should be given to phrase accents, starredness or pitch range) that represent important thoughts and considerations likely to be elucidated within the next few years. We are certain that this excellent study will attract a wider readership of scholars and students to the field of intonation and encourage further research on this growing area of linguistics.

References


As Pierrehumbert (1980: 17) notes, “English makes considerable use of pitch range, with the result that what is clearly the same basic intonation pattern can be produced in many different pitch ranges. The reader can persuade himself of this by calling out to someone he imagines to be across the room, and then across the street.”


