Can we use categories when investigating interlanguages?

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Keywords*: L2 prosody, continuous phonetic parameters, periodic energy, categorical analysis.*

Introduction. The prosodic marking of information status within noun phrases (NPs) reportedly differs in German and Italian. According to [1, 2], German speakers deaccent post-focal given information, whereas Italian speakers accent the second word of the noun phrase, regardless of information status. This also appears to be the case for Italian learners of German when speaking their L2. However, a categorical analysis of accentuation might not be appropriate, or even possible, for interlanguages, in which categories are constantly updated.

Methods. We elicited two different information structures – given-new (GN) and new-given (NG) – in NPs composed of a disyllabic noun and a disyllabic adjective in L1 German, L1 Italian, and L2 German. We performed a continuous analysis to explore speakers' modulation of F0, focussing on the alignment of the peak and following fall in pitch, and periodic energy mass as a measure for prosodic strength [3]. Mass is the sum integral of the duration and intensity of the periodic component within syllables. Its values are computed with respect to other syllables in the NP, such that weak mass (indicating prosodic attenuation) corresponds to values below one, while strong mass (indicating prosodic enhancement) corresponds to values above one. We complemented this analysis with a ToBI annotation of accentuation and pitch accent types following [4] for Italian and [5] for German and attempt to interpret the F0 and mass values in the interlanguage in categorical terms, both in relation to accentuation (presence or absence of accent) and to accent types.

Results. Averaged F0 contours for the two conditions across language groups are presented in Fig. 1. Aggregated mass values are presented for the third syllable of the NPs (the stressed syllable of the new word in GN and of the post-focal given word in NG) in Fig. 2. Results for L1 Italian show that prosodic marking of information status is not realised through deaccentuation on the second word as in L1 German, as demonstrated by strong mass on post-focal given material (Fig. 2, NG). However, contrary to previous results, Italian speakers do in fact mark information status prosodically. This is achieved by modulating F0 on the first word, with an F0 peak aligned earlier when this word is new (NG condition, Fig. 1). This difference can be interpreted as two different pitch accent types: the first word of the NP can be described as bearing (L+)H* for GN and H*+L for NG, with the trailing L tone added in the latter case to highlight that H is very close to the syllable onset and that the F0 fall occurs mainly on the first syllable. The accent on the second word is similar across conditions and can be analysed as L*. In German L1, results of the acoustic analysis are in line with the literature and provide evidence for the deaccentuation of post-focal given material (with weak mass on the second word of NG, Fig. 2) and the tendency to align an F0 peak with new or focussed elements (Fig. 1, with a "hat pattern" in GN, i.e. a high F0 plateau extending to the stressed syllable of the second word). This peak alignment is generally interpreted as a H* or L+H* pitch accent on the first word of NG, with the post-focal given element being deaccented, while the hat pattern found in GN can be described as H* for the first word and H* or (H+)!H* for the second word. In L2 German, learners prosodically mark information status by modulating the alignment of F0 on the first word analogous to the pattern in their L1 (Fig. 1). Regardless of the information structure, the second word in L2 German NPs was produced with flat F0, which could be interpreted as L*, as can be found in postfocal accents in longer constituents in Italian. This second word was also produced with weak mass values, which could be interpreted as deaccentuation, as in L1 German, but only in the NG condition (Fig. 2). In the L2, the more salient marking of the first word in NG, with an earlier F0 peak, can lead to the perception of lower prominence on the following given word although in isolation these final words in the NP are very similarly produced across conditions.

Conclusion. The current study of continuous parameters revealed patterns for L1 Italian learners of L2 German which did not emerge in previous categorical analyses. Moreover, we found that a categorical interpretation could describe the two L1s well, but was difficult to apply to the L2. Labelling phonological categories entails some degree of subjectivity due to the annotator-specific perception of meaning and expectations based on their native language. As a result, different annotators can make different choices, and the individual-specific bias is even more problematic when labelling an L2. Thus, an investigation of the modulations of continuous acoustic parameters can offer a deeper understanding of linguistic phenomena by providing acoustic evidence for a categorical description. Therefore, the two approaches, continuous and categorical, should complement each other especially when analysing complex and dynamic systems like interlanguages, where categories undergo a continuous process of restructuring based on the input and feedback that learners receive.

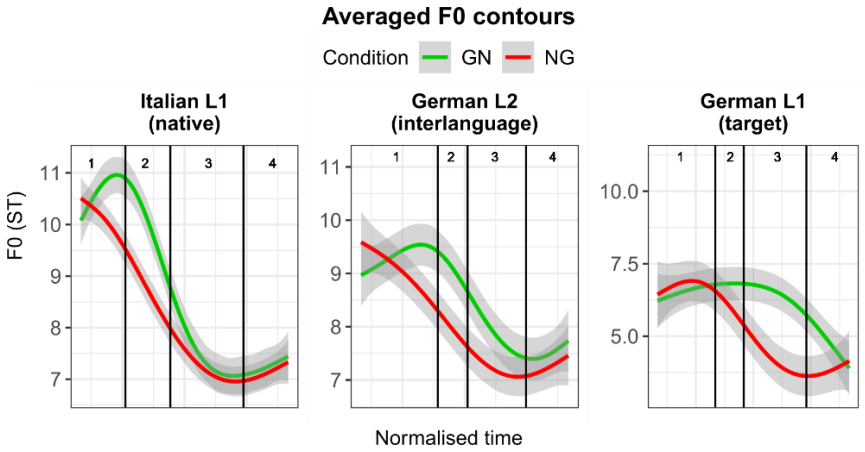

Figure 1. Averaged F0 contours pooled across speakers for each language group. The y-axis shows F0 in semitones, while the x-axis shows normalised time aligned at the boundary between the two words of the noun phrase. Syllables of the noun phrase are numbered from one to four and syllable boundaries are marked by vertical black lines. The grey area around the contours represents the standard error and contours are colour-coded according to their information structure condition: green for given-new (GN) and red for new-given (NG).

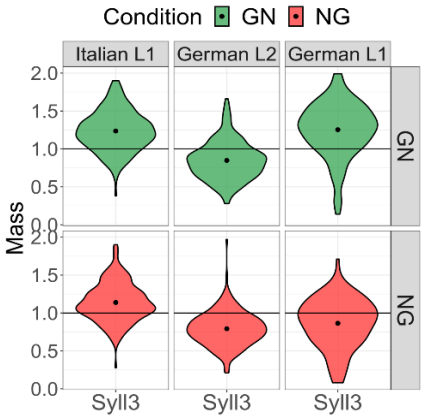

Figure 2. Aggregated values of mass for syllable three across language groups. Mean values are represented by black dots. Information structure conditions are colour-coded and positioned on two separate rows: green for given-new (GN, upper row with Syll3 being a new item) and red for new-given (NG, bottom row with Syll3 being a given item).

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