Transcribing the relationship between degrees of prominence and boundary strength in Maltese

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It has been the task of the project *SPeech ANnotation for Corpora of Maltese*, *SPAN*, to develop standards and conventions for the annotation of spoken Maltese using data from a small corpus of standard spoken Maltese compiled as reported in (Vella & Farrugia 2006). While such standards and conventions for the orthographic transcription of spoken Maltese data are in place (Vella et al. 2007, 2010), work at the prosodic level is still at a preliminary stage.

Developing standards and conventions for the prosodic transcription of spoken Maltese data, on a par with guidelines developed for other languages (cf. e.g. Jun 2005), poses a number of challenges, two of which will be addressed here.

First, different degrees of prominence in Maltese trigger pitch and phrase accent combinations of different sorts. Work in this area to date is clear on the fact that post-nuclear prominences are "marked" by the presence of post-nuclear phrase accents of the sort proposed, for example, by Grice et al. (2000), which are different to nuclear pitch accents in that they are associated with a secondary prominence of some sort (Vella 1995, 2003, 2009a). Whilst it should be possible in principle for differences in degree of prominence to be implicit in the choice of tonal event i.e. a full pitch accent would assume nuclear prominence, whilst a phrase accent would assume an association involving a secondary prominence of some sort, there are many confuting factors which make such implicit labelling undesirable for Maltese.

Second, different types of tonal choice have been postulated to link to different types of prosodic boundary (Vella 1995, 2009b). In the annotation of spoken Maltese data carried out to date, prosodic boundaries have been identified as occurring mainly in the context of different types of silence. A distinction was made between *BR(eak)s* and *PA(use)s* on the basis of criteria such as the duration of the silence and the intonation of the element preceding it. Vella et al. (2011) provide empirical evidence for a 'real' distinction between these *BRs* and *PAs* in Maltese and for a potential mapping of these to Beckman et al. (1997) *ToBI*-style *B(reak)I(ndice)s* having strengths of 3 and 4 respectively. The preliminary attempt at the prosodic transcription of the Maltese data suggests the need to investigate whether the presence of a secondary prominence and an associated phrase accent is linked to a difference in boundary strength when a nuclear prominence is followed by a secondary prominence as compared to when the nuclear prominence occurs finally within the phrase.

To sum up therefore, the two questions under consideration are the following:

1. Do different degrees of prominence need to be annotated, and if so, how should these be transcribed?
2. How should differences in boundary strength, particularly those which are directly related to differences arising from prominence, be transcribed?

Of the guidelines which have been used to date in the transcription of prosody, *ToBI*-style ones normally include information about prominence implicitly in the choices made at the tonal tier (Beckman & Elam 1997). Guidelines for prosodic labelling which attempt to explicitly capture information about prominence and the relationship of this to the presence of phrase boundaries are found in the *IViE* system (Grabe 2001). This system includes a rhythmic structure tier which explicitly identifies the prominent (stressed) syllables, as well as marking the presence of boundaries. In *IViE* however, no distinction is made between different degrees of prominence i.e. prominent syllables are identified only using a *P* for prominence. What is being considered in our case is the use of a tier which incorporates information both about different degrees of prominence and about boundary strength.

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