# Prosodic marking of referential status in Brazilian Portuguese: a preliminary study

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During discourse production, the speaker refers to entities and events from the real world using linguistic forms. A mental model is built as new information is added and integrated to previous information. There are at least three cognitive dimensions to which the terms 'given' and 'new' information are attributed. The first dimension has to do with the knowledge assumed to be shared by speaker and hearer (Haviland and Clark, 1977). The second dimension has to do with to what the speaker assumes to be in the hearer's mind during discourse (Chafe, 1976, 1994). The third one has to do with what the speaker considers to be predictable at a certain point in the discourse (Prince, 1981). These studies, among others, have shown that the traditional dichotomy between new and given information status is not applicable to real world discourse referents. Prince (1981) proposed a three-part taxonomy called Assumed Familiarity Scale, adding the concept of inferable (or bridging) anaphora. Chafe (1994) proposed that identifiable referents can be classified according to its level of activation in the hearer's mind. The first level, called 'new', refers to an item not activated in the working memory. The second, called 'given', refers to an item previously activated. The third level, called 'accessible' (in some works the term 'inferable' is used, with a slight difference in concept), refers to a pre-activated item by association with a previously activated item. Gernsbacher (1991) investigated conceptual anaphors and concluded that sometimes that the morphosyntactic marking of the referents can be misleading and that the hearer solves the reference resolution problem through heuristics. Later works like Gundel et al. (1993) tried to explore the relation between the form of the referents to their cognitive statuses. Baumann & Grice (2002) and Baumann (2006) show that the informational status or activation level of a referent can be either lexically or acoustically marked. For instance, in English and German, the acoustic cue of the three levels are pretty distinct. New referents tend to be marked with a phrasal accent (H*), and given referents tend to be deaccented. Accessible referents tend to be marked with an intermediate phrase accent (H+L*). The acoustic marking of the accessible status is sensitive to the semantic relationship between the previous item and the referent. Using an ERP experiment, Schumacher & Baumann (2010) tested how the prosodic information can affect reference processing. They analysed the N400 and a late-positivity components of sentences in three conditions: new, given and accessible. In two conditions (new and given), the phrase accent of the target was acoustically manipulated to become closer to the typicallly accessible phrase. The results show that reference processing regards prosodic information, besides semantic or morphosintactic marking. The N400 and late-positivity results lead to conclude that the three-way classification of the informational status makes difference not only for production, but also for perception.

The acoustic marking of informational status is scarcely studied, especially in BP. Arantes and Barbosa (in preparation) show that there are some prosodic differences between new and given referents like (a) longer duration in new referents and (b) new referents tend to present a rising F0 contour at the beginning of the NP whereas in given referents these F0 variation is less prominent or even absent. The aim of this paper is to investigate how different degrees of informational status are prosodically marked along the speaker's discourse. For this study, we designed a corpus of approximately 12 groups of sentences, distributed into three conditions: given, new and accessible. For each group of sentences, we set one target word, which is embedded in a control phrase. Preceding text determined if the target NP was given, new or accessible. The sentences below illustrate the construction of the informational status from the context:

Um terremoto causou destruição [new] em boa parte da costa leste. Várias cidades não tinham um programa de evacuação, o que deu trabalho para as equipes de resgate. (An earthquake caused destruction in a huge part of the East coast. Several cities did not have an evacuation program, which caused problems to the rescue teams)

O governo decidiu fechar a usina nuclear após o terremoto ocorrido no mês passado. O terremoto causou destruição [given] no núcleo do reator, aumentando o risco de contaminação. (The government decided to shut down the nuclear plant after the earthquake occurred last month. The earthquake caused destruction to the reactor nucleum, increasing the risk of contamination.)

Estudiosos da Sismologia têm procurado analisar os dados de tremores para prever novas ocorrências. O terremoto causou destruição [accessible] sem que ninguem pudesse se prevenir.
(Seismology experts have tried to analyse the tremors data to predict new occurences. The earthquake caused destruction without any one being able to prevent it.)

This study analysed word duration, global F0 measures and time-normalized F0 contours of the DP of the target word. Current results show that the F0 contours associated with the three giveness levels are different, especially those elicited by given and new referents. The accessible referent, however, is more sensitive to its semantic relation with the prime word e.g. hyperonym, metonymy, and further investigation is needed to confirm the current findings.

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