

## **The fragile left edge of noun phrases in first language acquisition.**

How the interface between syntax and pragmatics is determined by prosodic structure:  
evidence from a hearing impaired population

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### *1. Noun Phrases are syntactically and prosodically marked for Speech Act roles*

In Speas & Tenny (2003), it is argued that there are 3 pragmatic roles that are syntactically represented, namely SPEAKER, HEARER and one logophoric role. In the literature, the information status of discourse elements has often been defined in terms of Hearer-centric models: new information is typically what the Speaker believes that the Hearer does not have in his or her consciousness (see a.o. Chafe 1974, 1976). Furthermore, the information status is said to have influence on the sentence level as well as on the DP-internal level, determining not only the surface order of arguments and the semantic role they can take, but also the nature of the D-element by which they are headed. Overgeneralizing, one could say that subject DPs tend to be definite and old, whereas object DPs are often indefinite and new (Hirschberg 2006):

(1) I saw *a black cat* yesterday. *The cat* looked hungry.

From a prosodic point of view, it is well documented that focus is placed on syntactic constituents that are informationally novel (Hirschberg 1995, Prince 1981, Terken & Hirschberg 1994, Swerts e.a. 2002, Welby 2003), by marking them with a pitch accent in or near the lexically stressed syllable of one of its lexical elements, combined with a longer duration of ca. 10% of the word in question (Sluiter 1995, Sluiter & van Heuven 1995). Listeners appear to be looking for these local intonation cues (falling or rising tones) to identify new referents in the discourse. They typically show a faster response time in the case of accentuated noun phrases (Terken & Nootboom 1987, Swerts e.a. 2002). From a theoretic point of view, it thus seems that HEARER, as one of the 3 grammatically relevant pragmatical roles, imposes particular restrictions on the definiteness nature as well as on the prosodic structure of arguments of the verbal predicate.

### *2. How syntax, prosody and interpretation combine in the acquisition of D*

A number of studies in the domain of first language acquisition have advanced the hypothesis that young children may rely on prosodic information to bootstrap predictions on grammatical classes of words as well as the acquisition of word order (see a.o. Durieux & Gillis 2001, Christophe e.a. 2003, Mazuka 1996). The hypothesis put forward in this paper is that in addition to this, the relative prominence within phonological phrases also helps the child to infer pragmatic-syntactic properties of particular functional elements. If it is indeed the case that in running speech, prosodic prominence systematically falls on referents that are new to the Hearer and furthermore, that indefinite noun phrases are ideal candidates to represent these new referents in syntax, we predict that children will acquire indefinite noun phrases before definite ones. The

analysis of first emergence and frequency use of definite and indefinite determiners in longitudinal (monthly) spontaneous speech data of 12 hearing Dutch-speaking children from 1;06 to 3;06 shows that this prediction is indeed borne out.

### *3. The fragile left edge of noun phrases: evidence from hearing impaired children*

The left edge of CP/DP borders being at the interface of syntax, pragmatics and phonology, its complex functioning can be easily disturbed. In the field of the neuropsychology of language for instance, Friedmann 2005 shows that brain damaged patients with a left cerebral hemisphere lesion show dissociations between structures depending on high parts of the CP, which are impaired, and lower structures, which are preserved. In the present study we argue, on the basis of hearing impaired populations, that the left edge of noun phrases is equally prone to deficits. Cochlear implanted (CI) children, i.e. children wearing an electronic device that replaces the cochlear function via electrical stimulation of the auditory nerve, have difficulties to use pitch information when listening to running speech (Fearn 2001, Faulkner e.a. 2005). We therefore expect them to be less guided by local intonation cues, but to rely more on discourse and cognitive information: entities that have already been evoked in the discourse or are known both to Speaker and Hearer will be more prominent than informationally new elements marked by a pitch accent. The analysis of the data of 10 Dutch-speaking children wearing a CI, implanted between 0;05 and 1;09, show that this is indeed the case: for all children, the definite determiner emerges before the indefinite one. As such, the fine-grained analysis of determiner acquisition in both populations contributes to the discussion of issues debated in current work on the interfaces at work in the left periphery, proving the need for a model in which it is assumed that syntactic constituents map onto both phonology and pragmatics at the same time. Ideally, such a model should be perception based, with phonology and pragmatics acting as aids to processing and parsing and thus also as an instruction to possible syntactic constituents.

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