

The acquisition of Italian prepositions: a study a study on children's early spontaneous speech

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This paper investigates the acquisition of functional and lexical prepositions (Ps) in Italian by looking at children's natural early productions. As well-known, languages make systematic distinctions between two types of Ps, i.e. functional and lexical prepositions, which exhibit different morpho-syntactic, semantic, and phonological properties (van Riemsdijk 1990; Giorgi 1991; Cinque & Rizzi 2010, a.o.). Whereas functional Ps are usually monosyllabic, must occur with their complement, and tend to be semantically vague, lexical Ps tend to be polysyllabic, can be used adverbially, and have a rich semantic content (Cinque 2010:4). However, a categorization of Ps into the functional/lexical class is by no means uncontroversial and is subject to cross-linguistic variation (Grimshaw 1991; Zwarts 1997; Den Dikken 2010). A vast body of research has indeed proposed that a more fine-grained classification of Ps is needed in order to capture the various behaviors that prepositional items exhibit both within a single language as well as across languages (Svenonius 2006; Terzi 2008; Garzonio & Rossi 2020). Building on these theoretical premises, two questions are here addressed: (Q1) Is the divide between functional and lexical Ps reflected in acquisition in terms of frequency and order of production?; (Q2) Do functional and lexical Ps behave uniformly as two groups or do we need a subtler classification of prepositional items for acquisition data as well?

Previous acquisition studies have provided mixed results on the development of lexical and functional Ps in children's production, depending on the language under investigation. An earlier production of lexical Ps and a delay in the production of functional ones have been reported for English and Greek (English: Rice 1999, 2003; Littlefield 2005, 2006; Greek: Xypolias and Christopoulos 2004; Alexaki et al. 2009). Conversely, acquisition studies on Spanish Ps have found the opposite acquisition trajectory: children are reported to produce functional Ps before lexical ones (Chavarría 2002; Rodríguez-Mondoñedo 2006; Stewart 2016). Since no studies we are aware of have investigated the acquisition of Italian Ps and cross-linguistic variation have been observed in theoretical studies, it is open what the development of Italian Ps would be. In addition, since previous studies have mainly focused on one or two functional and few lexical Ps, it is unclear whether a bipartite typology of Ps can account for the acquisition data or whether finer differences among prepositional items emerge in early development.

In order to address these issues, we performed a longitudinal analysis of the spontaneous productions in three CHILDES corpora (Anselmi, Calambrone, Tonelli). We collected data from seven typically developing monolingual Italian-speaking children ranging from age 1;5 to 3;4. We defined "lexical Ps" those Ps that can appear without its complement, i.e. all the polysyllabic Ps and the monosyllabic *su* 'on'. The others, which must occur with a lexicalized complement, were classified as "functional Ps". The transcribed recordings were read and manually searched for both production and omission of Ps. The list of collected Ps comprises (a) monosyllabic Ps, i.e. *a* 'to/at', *di* 'of', *da* 'from/by', *in* 'in', *con* 'with', *su* 'on', *per* 'for', *tra* 'between' and (b) polysyllabic Ps, i.e. *dentro* 'inside', *sopra* 'on/above', *sotto* 'under', *contro* 'against', *senza* 'without'. In addition, we found the following polysyllabic Ps co-occurring with functional Ps, i.e., *sopra di* 'above of', *sotto a* 'under at/to', *dentro a/in* 'inside at/in', *senza di* 'without of'. Following the conventional guidelines for utterance inclusion and exclusion (Brown 1973), 1952 children's productions were

collected and analysed. Three major results are reported. (i) Frequency. Statistical analyses (linear mixed-effect models followed by Tukey multiple comparison) revealed a significant effect of P type ($p < .000$): functional Ps were produced significantly more frequently than lexical ones at all ages. The model also signalled a significant effect of age in the production of functional Ps, whose frequency increased with age. On the other hand, the rate of lexical Ps remained fairly low and constant across age groups ($p = .16$). An individual analysis showed that all children produced functional Ps and the monosyllabic lexical P *su* 'on'. Conversely, a great variation was observed in the number of children producing lexical Ps as well as in the type of polysyllabic lexical Ps that were produced by each child. (ii) Order of production. For all children, the production of functional Ps preceded that of lexical Ps. Children produced lexical Ps with a delay ranging from three to eleven months after the appearance of functional Ps. However, a closer examination of the prepositional items revealed that not all functional Ps were produced before the lexical ones: only *a* 'at/to', *con* 'with', *in* 'in', and *di* 'of' appeared before lexical Ps in all children's utterances. As for lexical prepositional items, (a) the monosyllabic lexical P *su* 'on' appeared prior to the other lexical Ps; (b) the production of *senza* 'without' preceded that of *dentro/sotto/sopra* 'inside/under/above'; (c) those lexical Ps that allowed for a double structure, e.g., *sopra (di)* 'on/above of', were first produced without the functional P. (iii) P omission. All children omitted functional Ps with a frequency that decreased with age ($p < .000$). P omission is optional since those omitted Ps were also lexicalized by each child at the same production stage. The omitted Ps corresponded to various functional ones: *a* 'at/to', *con* 'with', *da* 'from', *di* 'of', *in* 'in', *per* in *per terra* 'to the ground'. In addition, in 10 instances the lacking P could plausibly be interpreted as the lexical P *su* 'on': *non ci va più ___ l'altalena* 'he does not go anymore ON the swing' (Diana, 011007.cha, line 1035).

Our findings demonstrate that the bipartite typology of Ps is reflected in the Italian acquisition data in terms of both frequency and order of acquisition. Functional Ps are produced earlier and significantly more frequently than lexical ones. In the earlier developmental stage omission and lexicalization of the same Ps co-exist: the optionality of functional Ps and *su* 'on' patterns with that reported in the literature for other functional elements, e.g., articles, auxiliaries (Caselli et al. 1999). In their developmental path, Italian Ps are thus similar to Spanish Ps (Stewart 2016) but differ from English and Greek ones (Littlefield 2005; Alexaki et al. 2009). This result may suggest that the degree and the order in which functional elements appear in the early stages of development depends on the morphological richness of the language (Clark 2017). Alternatively, the different acquisition orders in Romance vs. English/Greek may be taken as evidence that functional and lexical Ps in the two language groups are syntactically different and instantiate diverse (portion of) structures as suggested in some theoretical studies (Garzonio & Rossi 2020, in press). Finally, our results also demonstrate that functional and lexical Ps are not two monolithic classes. Monosyllabic functional Ps come in two flavors in early development: (i) *a/di/in/con* which appeared before lexical Ps and (ii) *da/per/tra* which are produced concomitantly or later than lexical Ps. Similarly, lexical Ps seems to fall into three types: (a) the monosyllabic lexical P *su* 'on', which behaves in-between lexical and functional Ps; (b) the polysyllabic lexical P *senza*, whose production preceded that of the other lexical Ps; (c) the other lexical Ps, which appear later and can be further refined wrt the presence/absence of a following functional P. We can thus conclude that a subtler typology of both functional and lexical Ps along the lines of Rizzi (1988) and Garzonio & Rossi (2020) is reflected in children's early production.

Selected References: Cinque Guglielmo & Luigi Rizzi (2010). *Mapping Spatial PPs. The Cartography of Syntactic Structures vol. 6*. OUP. *Garzonio Jacopo & Silvia Rossi (2020).

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