The acquisition of determiners: Evidence for the Full Competence Hypothesis*

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1. Introduction

This paper addresses the following question: Are functional projections subject to maturation or are they already present at the very earliest stages of acquisition?

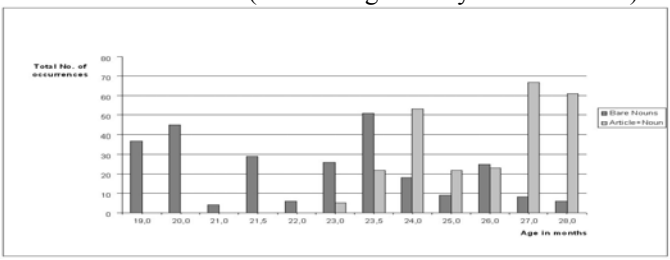
Assuming that phonology is acquired in stages (cf. Demuth 1996, 2001, Selkirk 1996, Lleó 2000, and Gozzi 2004 a. o.), if PF "filters out" the production, missing functional words may be present in the syntactic structure even if missing at the interface level. We take this as the "null hypothesis".

In the minimalist program, syntax should at best be derivable from properties "imposed by the sensorimotor (S-M) system and the conceptual-intentional (C-I) system" (Chomsky 2005:10). The two interfaces (PF/LF) should therefore provide a "filtering effect" in language acquisition and language processing, as well as on the output in language production. In this paper, we focus on the "filtering" effect of PF on early productions and claim that even at early stages there is no strong reason to doubt that syntactic structure is not fully present.

Our claims are grounded on original data collected by Roberta Gozzi in 2003-4 in the Gaia corpus, which consists in 15 video-recordings of spontaneous speech of an Italian child from 19 to 30 months of age, complemented by diary notes.

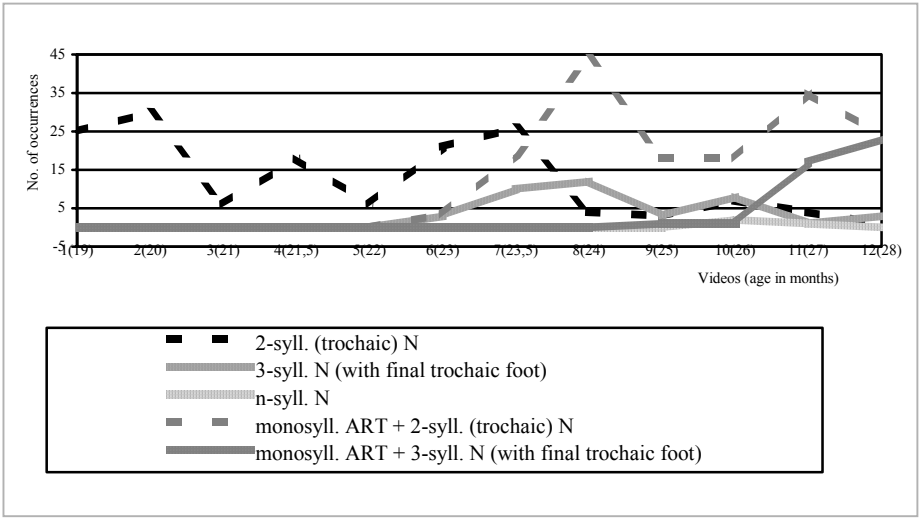
We also claim that counting the occurrences of bare nouns and articles with no reference to the length of the lexical noun obscures one important fact, namely that articles and word-initial weak syllables appear at the same time and are at first in complementary distribution. If the phonological context is not taken into consideration, the Gaia corpus presents the same tendency that has grounded the hypothesis that early occurrences of articles are "fillers", that there is a stage in which article omission co-exists with article insertion, as shown in chart (1).

(1) Occurrences of articles (with no regard to syllable structure):



However, if utterance length is taken into consideration with regard to syllable structure, the results are more straightforward, as is shown in table (2):

(2) Occurrences of articles with regard to syllable structure



In graphic (2), recording #5, trisyllabic nouns (with a trochaic final foot) with no article and trochaic nouns with a monosyllabic article appear at the same time as the first occurrences of the article, which at this time only precedes trochaic nouns. The correlation is straightforward: in both cases the PF output is a structure with a weak syllable preceding a trochey. Only three months later, in # 9, we have the first occurrence of a monosyllabic article appearing with a trisyllabic noun. The second occurrence of which is in the next recording (#10), where a polisyllabic noun also appears for the first time. The option of the resulting polisyllabic structure with a weak trochaic foot preceding a strong trochaic foot is exploited in #11 and #12 respectively in many occurrences.

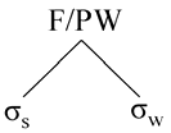
If we can show from the analysis of the context that after the stages in which the article is phonologically possible in a give syllabic structure its lack is due to independent semantic factors (e.g. maturation of semantic competence), we can claim that the functional structure to merge the article is there from the very beginning (Full competence) and what is to be acquired in order to obtain an adult-like distribution is its morphology, and its semantics but not its syntax. Unfortunately this cannot be done in this short paper, but at a first recognition it appears to be probably the case.

2. Four stages in the acquisition of prosodic structure

The Gaia corpus (Gozzi 2004) reflects what is already known of the acquisition of prosodic structure in Romance languages (cf. Lléo 2000). Our main contribution here is to observe these stages in the perspective of the appearance of articles. Under the heading *Adult language*, the tables provide an article in brackets when needed by the context. Elements glossed without an article target like. Gozzi 2004 identifies four main stages.

At Stage 1 (age 1;7-1;10), utterances do not extend beyond the Prosodic Word (PW) and consist in no more than one trochaic foot, as in table (3). Articles are never produced at this stage. Our claim is that this is because articles are weak proclitic syllables (σ_w) and cannot initiate the PW. For this reason they "get lost" at the PF interface in (3b,c,e) due to the same restructuring process which affects the word initial weak syllable/foot of lexical words such as those in (3a,f,g):

(3)	*Child*	*Adult target*	*Gloss*	*Prosodic structure*
a.	tàto	tabàcco	tobacco	
b.	pùpo	[il] prosciùtto	[the] ham	
c.	òa	[un']olìva	[an] olive	
d.	tàta	àcqua	water	
e.	ài/àli	[i] cereàli	[the] cereals	
f.	nìni	fiorellìni	little flowers	
g.	tènta	attènta	careful (fem.)	



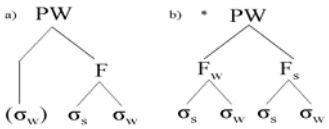
Notice that gender and number are always correctly represented, as exemplified by the Adjective in (3g) and the plural masculine Nouns in (3e,f). This suggests that the functional structure projected by these features is present in the syntactic representation at this early stage.

At Stage 2 (age 1;10-1;11), the PW is still the maximal level available. At this stage the appearance of the earliest articles coincides with the first production of trisyllabic bare nouns as in (4). All definite articles and indefinite *un* appear at the same time. This is in favour of Full Competence interacting with a PF filter which blocks a prosodic structure such as (4b). We see no other reason for the avaidance of *una*, given that gender agreement is target-like already at the previous stage and the indefinite article (*un*) is attested and semantically appropriate to the context.

The articles only appear with trochaic nouns. Trisyllabic nouns with the prosodic structure in (4a) are produced freely; but none of them is preceded by any article. This would create (4b) which is not available yet, as shown by the restructuring of quadrisyllabic nouns such as *cucchiaino*. Notice that the bisyllabic *caffè*, appearing with no article in (4g), does not contradict the Full Competence

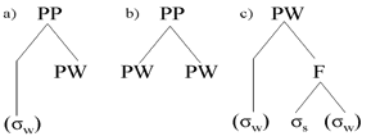
Hypothesis. The syllabic structure that would be enhanced with the insertion of an article is a version of (4b), with a trochaic weak foot preceding a strong monosyllabic foot. Such a structure is predicted not to be present at this stage.

(4)	*Child*	*Adult target*	*Gloss*	*Prosodic structure*
a.	e nòci	le nòci	the nuts	
b.	a tàta	la tàta	the little girl	
c.	un patto	un piatto	a dish	
d.	soddìno	[un] soldìno	[a] coin	
e.	cuchìno	[il/un] cucchiaìno	[the/a] little spoon	
f.	ontìna	[la] lontrìna	[the] little otter	
g.	tattè	[il] caffè	[the] coffee	



Stage 3 (age 1;11-2;2) involves the possibility to prosodify an article at the level of Prosodic Phrase (PP), resulting in an unfooted syllable merged at the left of a PW, as in (5a). This procedure does not apply freely, but appears to be a last resort to express other functional features such as gender and number. In fact, the first articles to appear with trisyllabic nouns are inserted with nouns that do not bear overt gender (*pampam, baubàu*) or whose gender is ambiguous (*signoe*, which is either femm. pl. or masc. sing.). The ban on (4b) above persists, as in *Popìmo* (targ.: *Topolìno*). From this, we conclude that the PW is still constrained to no more than one unfooted syllable preceding either one trochaic foot or a single strong syllabe (5c):

(5)	*Child*	*Adult target*	*Gloss*	*Prosodic structures*
	Popìmo	Topolino	Mickey Mouse	
	a nànna	a nanna	to bed	
	da sòla	da sola	by [my]self	
	i pampàm	i *onomat.*	the *on. for balls*	
	i baubàu	il *onomat.*	the *on. for dogs*	
	e signòe	le signore	the ladies	
		cf. il signore	*vs. the gentelman*	



At this stage, simple Prepositions also appear for the first time. We can conjecture that they do not appear at the previous stage because prepositions are not prosodified at the PW level but only at the PP level. The PP level appears to be bootstrapped by the functional requirement of syntax to make gender and number features visible. When these uninterpretable features are visible on the noun, the occurrence of the article with trisyllabic words is still avoided. The semantic choice for definite or indefinite articles is arbitrary since both appear in turn in

repetitions. This suggests that, at least in early syntax, articles are inserted only to realize uninterpretable features (as suggested for adult language in Giusti 2002) and are not directly related to interpretive properties to be computed by the C-I system, also subject to maturation (cf. Chierchia, Guasti and Gualmini, unpubl).
At stage 4 (from age 2;2 on), we finally find the contemporary appearance of words with four or more syllables. All articles are inserted independently from the phonological shape of the nouns. At this level, we also find articulated prepositions, adjectival modification, Quantifiers and Demonstratives merged in the DP, as in the examples given in (6) all target-like:

(6) a. *un tato con la sua mamma. [#] che ciuccia le poppe della sua mamma*
a child with his mum. [#] that sucks the tits of his mum. (2;2.10)
b. *un ciuccio grande del tato* (2;2.28)
a pacifier big of the child (target-like)
c. *la gallina + … non c'è il suo amico, # il gallino* (syntax taget-like, *il gallino* non-target but morphologically well formed)

This stage still misses the dactilic foot which is restructured into a trochey (7a). For this reason, verbal 3rd person plural morphology is non target (7b):

(7) a. àbo [target: albero, *tree*] pùnco/puzza [target: puzzola, *polecat*]
b. bévo [target: bévono, *they drink*] prènde [target: prèndere, *to take*]

From this we conclude that the fourth stage is not the final one in the multiple-phase spell-out system. Further research is needed to establish the details of the maturation of multiple spell-outs.

3. Conclusions

With respect to the two functional layers of nominal structure (the inflectional layer AgrP and the complementation layer DP), our conclusion is that they are present in core syntax since the very earliest stage, according to the Full Competence Hypothesis. Our conclusion is that articles can be missing for the following reasons: a) they are merged but unpronounced due to incomplete maturation of the S-M system; b) the semantics of articles is not yet acquired due to incomplete maturation of the C-I system; c) the lexical forms of articles are not yet acquired. None of the reasons above have to do with maturation of core syntax, but are dependent on maturation at the interfaces and of lexical learning.

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