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ECONOMY PRINCIPLES WITHIN CHILD SPEECH: WHEN THE NOMINATIVE CLITIC DOES NOT SURFACE

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Throughout the years, one central objective of Generative Grammar has been to improve the descriptive and explanatory forces of its successive frameworks (e.g. Chomsky, 1993 for Minimalism). While doing so, economy has proven particularly pervasive, impacting on the evolution of representational, derivational, and computational devices (Chomsky, 1998). As far as acquisition is concerned, it is stated that "Economy Principles guide the language learner in constructing his or her internal grammar" (Gelderen, 2009:99). Relying on recently collected data from French children, this contribution presents an illustration of this process. Indeed, it is argued that the null subject phenomenon found in L1 typical acquisition of French can be accounted for in terms of computational economy. In turn, this hypothesis supports the morphological analysis of the nominative clitics in Colloquial French (e.g. Culbertson, 2010) and proposes to recast the Pro-drop Parameter (Chomsky, 1981).

The outline is as follows. Section 1 lays the theoretical and empirical background to this study. Section 2 examines the new data, focussing on the children's verbal paradigms and their null subject utterances. Section 3 then details the analysis accounting for the null subject phenomenon in terms of quantitative and qualitative economy principles applied by the children in correlation with the morphological richness of certain verbal paradigms. Finally, Section 4 discusses these results in connection with the morpho-syntactic status of the nominative clitics and the Pro-drop Parameter.

1. Background

The child null subject phenomenon can be described as follows: children acquiring a non-null subject language such as French, English or German nevertheless go through a period until the approximate age of 3;0 when

they utter subjectless sentences, such as *veux pas ça* '(I) don't want that' (Zoé, 2;5).[1] As far as French is concerned, the omission rate amounts to circa one quarter of the children's utterances (e.g. 26.2% in Rasetti, 1996 and 22.4% in Palasis, 2005).

1.1 Theoretical assumptions

Since the 1980s, a lot of seminal work has been carried out on this phenomenon (e.g. Hyams, 1986 and Rizzi, 1992 among many other references) within the very inspiring Principles & Parameters theory (Chomsky, 1981). Indeed, interlinguistic variation was then formalised in terms of Parameters and a partition was established with regard to subjects in finite clauses between the null subject languages, such as Italian, that license and identify a phonologically unrealized pronoun named *pro* and the non-null subject languages, such as French, that do not (e.g. Rizzi, 1997). Within this framework, French children thus fix the Null Subject/Pro-drop Parameter negatively.[2] However, the morpho-syntactic status of the nominative clitics represents a debated issue in Colloquial French, and hence in child French. Indeed, these elements are analysed either as proper arguments (Rizzi, 1986b and De Cat, 2005, among others) or as agreement markers (Roberge, 1990; Pierce, 1992; Auger, 1994; Culbertson, 2010, among others). In turn, the latter analysis questions the status of Colloquial French with regard to the Pro-drop Parameter since it classifies this type of French as a null subject language, on a par with Northern Italian dialects, such as Trentino, that also display preverbal clitics (Brandi & Cordin, 1989). Various aspects of the actual acquisitional process have also been debated, e.g. the initial value of the parameters and the moment they are set. This work follows Wexler (1998)'s hypothesis on early and correct setting. Alongside these points come the possible but debated correlation between the absence vs. the presence of a syntactic subject in a language and the richness vs. the poorness of its verbal morphology (Taraldsen, 1978) and general economy principles such as the "Avoid Pronoun" principle (Chomsky, 1981).

Minimalism has then particularly focused on economy and, as stated in Chomsky (1998:120), "excess baggage is shed", e.g. parameters "are restricted to formal features of functional categories" (Chomsky, 1995:6) and parametric variation is limited "to a narrow category of morphological properties, primarily inflectional" (Chomsky, 1999:2); a crucial distinction is devised between interpretable and uninterpretable features (Chomsky, 1995); and the status of *pro* is questioned (e.g. Roberts & Holmberg,

2010). In a nutshell, it hence seems theoretically relevant to reconsider the child null subject phenomenon in the light of these assumptions.

1.2 Data

The second motivation to this investigation is empirical. Indeed, whenever new child data are available for analysis, it then becomes somewhat pressing to collate them with previous hypotheses. This research hence relies on two recent sets of spontaneous data collected with two different groups of French-speaking children from the South of France. Corpus #1 stems from five sessions of audio recordings with seventeen children between 2;3 and 3;1 and represents a total of 1,072 verbal utterances (Palasis, 2005). Corpus #2 comes from audio and video recordings with twenty other children between 2;5 and 4;0; it displays 9,748 verbal utterances and was gathered over a period of seven months during thirteen different sessions (Palasis, 2010a). Corpus #2 was further transcribed and coded along the CHILDES formats.[3] It displays a main orthographical transcript tier associated with a morpho-syntactic coding tier (%mor) as well as an "error" tier (%err) accounting for all the children's non-target utterances (Palasis, 2010b). Example (1) provides an illustration of these tiers together with an instance of the transcript and coding of the child null subject phenomenon in this French corpus.

(1) The transcript and coding tiers in Corpus #2:
MAX: euh 0 [*] sais pas .
'er (I) don't know'
%mor: co|euh [*] v:mdllex|savoir&PRES&1SV adv:neg|pas .
%err: 0 = je $LOS $PRO $SUBJ $1S

The present study analyses Corpus #2 in order to test and, if accurate, refine the initial conclusions forwarded thanks to Corpus #1 (Palasis, 2005; Palasis & Oliviéri, 2007). The following sub-section hence briefly recalls what these conclusions were.

1.3 Previous outcome (Corpus #1)

Quite a few assumptions are relatively uncontroversial with regard to the acquisition of French syntax. For instance, it has been widely acknowledged that the first combinations of words emerge around age 18 to 20 months, that these sentences display finite verbs starting around age 20 months, that nominative clitics represent the majority of the subjects in

the early stages, that these clitics are mainly third person singular forms, and that they only surface together with finite verbs (e.g. Prévost, 2009 for details and the corresponding references).

Corpus #1 conforms to these characteristics, thus showing that this set of data is indeed representative of child French. Nevertheless these data also point to a characteristic that has not been particularly emphasized elsewhere, i.e. the peculiar architecture of the verbal system at this stage of acquisition compared to the French adult system. Indeed, despite the fact that the main verbs already correspond to those found in adult speech (e.g. Muller, 1979), Table 1 also shows that the children's full paradigms, being reduced ones in terms of different persons, display an overwhelming rate of morphologically distinctive verbal forms (72.9%), on a par with pro-drop languages such as Italian and hence contrary to what is generally assumed for non-pro-drop systems such as French. It is also highlighted that children actually utter very few Group 1 (regular) verbs at this stage, although approximately 90% of French verbs belong to this group.[4] The subject omission rate corresponding to these paradigms is 22.4%.

Table 1: The child verbal system in Corpus #1 (IPA)[5]

		être 'be'	*vouloir* 'want'	*faire* 'do'	*avoir* 'have'	*savoir* 'know'	*voir* 'see'	Group 1 Verbs
Person	%	48.7	17.2	16.2	7.0	3.6	2.2	5.1
1sg	35.0	**sɥi**	**vø**	fe	**e**	se	vwa	mɑ̃ʒ
3sg	60.9	**e**	-	fe	**a**	se	vwa	mɑ̃ʒ

In Palasis (2005) and Palasis & Oliviéri (2007), the conclusions stemming from these data were: (i) the Pro-drop Parameter is set early to the correct value for French, i.e. <non-pro-drop language> (this accounts for the 77.6% sentences displaying a subject); (ii) however since the majority of the verbs in this reduced system display morphologically distinctive forms with regard to [Person], it is morphologically and computationally uneconomical to add systematic preverbal clitics to these verbal forms.

As far as the disappearance of the phenomenon is concerned, it was related to the fact that children gradually grow out of this reduced system, verb-wise and person-wise. Indeed, more and more different verbs are acquired, including group 1 verbs, which do not display distinctive 1sg and 3sg forms, and it is acknowledged that 2sg and 3pl forms then also gradually emerge. Children hence leave the null subject period when their

linguistic system gets closer to the adult's system. Corpus #2 will now give us indications as to whether these hypotheses are on the right track since the children are slightly older than in Corpus #1 (up to age 4). It is therefore expected that this second set of data will display the following characteristics: more different verbs, more different persons in the paradigms, and fewer null subjects. Additionally, the %mor and %err tiers should give us fine-grained indications as to the characteristics of the null subject utterances in this second corpus.

2. Further data (Corpus #2)

2.1 The verbal system

As far as verbs are concerned, Table 2 illustrates several discrepancies with Corpus #1. Indeed, whereas almost all the verbs present in Table 1 are still at the top of the list in Table 2, it can be noticed that their rates are different. This can be interpreted as the sign of a broader lexical diversification for this group of children, i.e. *être*, initially uttered as a superordinate verb, appears less often because it is replaced with an array of more specific verbs. Indeed, the table also shows that these children utter more different verbs than in Corpus #1, e.g. *aller*, *pouvoir*, *falloir*, and *mettre* enter the list. As far as persons are concerned, the facts are also different since 2sg forms appear in these data (6.3%) whereas Corpus #1 displays a low rate of 2.9% for 2sg. On the other hand, both sets of data are very alike as far as 3sg person is concerned: it remains the most frequently produced form in both corpora. Additionally, plural is equally scarce for both groups of children (Corpus #1: 1.2%; Corpus #2: 1.4%).

Table 2: The child core verbal system in Corpus #2 (IPA)

		être 'be'	*avoir* 'have'	*vouloir* 'want'	*aller* 'go'	*faire* 'do'	*pouvoir* 'can'	*falloir* 'have to'	*voir* 'see'	*mettre* 'put'
Per	%	36.7	21.6	8.9	3.8	3.2	2.0	1.8	1.8	1.7
1	26.4	**sɥi**	**e**	vø	**ve**	fe	pø	-	vwa	me
2	6.3	e	a	vø	va	fe	pø	-	vwa	me
3	65.9	e	a	vø	va	fe	pø	**fo**	vwa	me

If we now contrast these verbal paradigms with those in Table 1, it can be noticed that the presence of 2sg forms makes a significant difference with regard to the richness of the verbal morphology within each

paradigm. Indeed, only three 1sg forms remain distinctive, i.e. *suis*, *ai*, and *vais*, together with the 3sg form of the defective verb *falloir*. The rate of distinctive forms hence drops to 14.01% in this system. In short, it can be concluded that the overall linguistic system of the children in Corpus #2 is broader than the system in Corpus #1, verb-wise and person-wise. Following the hypotheses mentioned in Section 1.3 above, it is then expected that the null subject phenomenon will have partly faded away in Corpus #2.

2.2 The null subject phenomenon

2.2.1 Extracting the relevant data

Table 3 shows the different types of constructions that can display a nominative clitic in Corpus #2 (subject relatives, subject interrogatives, and imperatives are hence left aside).[6] These data are consistent with other child French corpora since nominative clitics represent the dominant category for subjects at this stage. Indeed, they are present in 95.7% of the utterances and break down into two subtypes: they can be uttered either alone (+Clitic: 64.6%) or with another element (+Strong Pronoun or +Noun: 31.1%). Within this system, the average rate corresponding to null subject sentences amounts to 3.9%. This figure is low, as expected from the above morphological analysis of the verbal system.

Table 3: The different types of subjects

Types	*N*	%	Examples	Glosses
+Clitic	5,831	64.6	ah là *j'* ai fait un rêve	oh there I had a dream
+Clitic +Strong Pronoun or Noun	2,804	31.1	*moi je* prends le rouge *c'* est une chenille *ça* et *le chat i* joue *i* veut venir *Téo*	me I take the red it is a caterpillar that and the cat it plays he wants to come Teo
–Clitic –Pron / –Noun	348	3.9	euh *0 [*]* sais pas	er don't know
+DP –Clitic	39	0.4	alors *Max* prend la poule en chocolat	so Max takes the chocolate hen
Total	9,022	100		

Table 4 provides the average rates of null subject sentences per session, showing a clear decrease of the average rate between the first and the last recordings. This is also an expected outcome.

Table 4: The decrease in null subjects, from first to last session (+7 months)

Session	1	2	3	4	5	6	7	8	9	10	11	12	13
Age range	2;5 3;4	2;5 3;5	2;6 3;5	2;7 3;7	2;7 3;7	2;8 3;8	2;9 3;8	2;9 3;9	2;10 3;9	2;11 3;10	2;11 3;11	2;11 3;11	3;0 4;0
Finite verbs	438	704	874	785	838	807	825	870	1022	1084	993	504	1037
Null clitics	23	25	54	35	34	26	31	29	24	22	29	5	11
%	5.25	3.55	6.18	4.46	4.06	3.22	3.76	3.33	2.35	2.03	2.92	0.99	1.06

While coding the data, particular attention was paid to the notion of subject. Consequently, fine-grained codes were devised for this particular corpus in order to be able to distinguish the following characteristics, as shown in (2) hereunder: (a) nominative clitic alone, (b) strong pronoun alone, (c) doubled clitic, (d) doubling strong pronoun to the left of the clitic, and (e) doubling strong pronoun to the right of the clitic. At this stage, no particular analysis is given for these elements with regard to the

morpho-syntactic status of the clitic and the notion of dislocation, "doubled/doubling" only meaning "not alone".

(2) The %mor coding scheme for subject related pronouns (examples for 1sg items only):
   a. pro:cli:nom|je&1S: *j'* ai perdu l(e) chien . '*I* have lost the dog'
   b. pro:ton:nom|moi&1S: *moi* 0 [*] veux ça les cartes . '*Me* want the cards'
   c. pro:cli:d:nom|je&1S: attends *je* l' ai *moi* . 'Wait *I* have it *me*'
   d. pro:ton:dg:nom|moi&1S: *moi j(e)* suis jaune ! '*Me I* am yellow!'
   e. pro:ton:dd:nom|moi&1S: *j'* ai perdu *moi* . '*I* have lost *me*'

These %mor codes can then be crossed with the %err tier. This handling allows us to now scrutinize the phenomenon.

2.2.2 Identifying the contexts

First of all, the different types of sentences that are non-target as far as the subject is concerned can be described. Five contexts thus stem from these extractions, as shown in Table 5, and two main contexts emerge: the total absence of any kind of constituent (71.6%) and the ungrammatical presence of a preverbal strong pronoun (26.1%). The latter structure mainly features the 1sg form of the verb *vouloir* "want", as exemplified in the table.

Table 5: Non-target subjects

Descriptions	*N*	%	Examples	Glosses
No constituent	249	71.6	euh sais pas	er (I) don't know
Preverbal strong pronoun	91	26.1	*moi* veux partir	me (I) want to leave
Postverbal strong pronoun	5	1.4	veux *moi*	(I) want me
Postverbal noun	2	0.6	oh est pas là *la grenouille*	oh (it) is not there the frog
Pre- and postverbal strong pronouns	1	0.3	*moi* veux regarder ça aussi *moi*	me (I) want look at that too me
Total	348	100.0		

In order to provide an appropriate description of the ungrammaticality in the above utterances, it is important to compare these sentences with their adult equivalents. Since children this age produce *spoken* language – as opposed to written language (Miller & Weinert, 1998; Palasis, 2011)– these utterances have to be compared with *oral* French only (e.g. Blanche-Benveniste, 1994). Their target equivalents hence stand as illustrated in (3).

(3) Target equivalents to the child non-target subjects:
   a. euh *je* sais pas
   b. moi *je* veux partir
   c. *je* veux (ça) moi
   d. oh *elle* est pas là la grenouille
   e. moi *je* veux regarder ça aussi

In all cases, the phenomenon under scrutiny can hence be described as the absence of a nominative clitic. This is consistent with the oral adult system and the rest of the child system, as illustrated in Table 3. The traditional "null subject" appellation of the phenomenon then calls for two remarks. Firstly, it describes the absence of a syntactic function, hence not mentioning anything about the type of constituent involved. Secondly, it implies a specific theoretical analysis with regard to the status of the clitic (syntactic) and the position of the strong pronoun/noun phrase in the structure (dislocated). At this stage of this investigation, the appellation is deliberately kept neutral with regard to these long-standing debates in French linguistics (ever since Kayne, 1975) and the term "nominative null clitic" is preferred due to its descriptive adequacy whatever theoretical stance is taken on these matters.[7]

2.2.3 Identifying the persons

Pursuing the investigation thanks to the double-levelled coding, a second characteristic can be established with regard to the kind of person involved in this null clitic phenomenon. Indeed, the seven different %err codes provide the breakdown reported in Table 6. It is hence established that the omissions mainly imply 1sg and 3sg clitics and that they only affect singular forms (with only one very uncertain exception for 3pl).

Consequently, as far as the [Plural] feature is concerned, a correlation could be envisaged between the emergence of the plural clitics and the disappearance of the omissions. However, after having tested this correlation within the data, it was abandoned since it appears that children

can utter plural clitics and still omit singular ones. The fact that clitic omission is limited to singular forms could then simply be due to the fact that the whole system is mainly singular. Other leads were also followed and abandoned in Palasis (2010a), such as the correlation between clitic omission and child egocentrism (e.g. Piaget, 1923) since 62.93% of these omissions are 1sg. However, this hypothesis does not explain the remaining 37.07%.

Table 6: Breakdown of the omissions per person

Persons	Missing clitics	*N*	%	*N*	%
1sg	je	219	62.93	219	62.93
2sg	tu	11	3.16	11	3.16
3sg ref	il, elle	35	10.06	115	33.05
3sg expl	il	71	20.40		
3sg dem	ce	9	2.59		
3 pl	ils, elles	1?	0.29	1?	0.29
Indeterminate	?	2	0.57	2	0.57
	Total	348	100.00	348	100.00

The initial hypothesis linking verbal morphology and nominative clitics hence remains plausible. We turn now to the verbal forms actually affected by clitic omission in Corpus #2.

2.2.4 Identifying the verbs

Table 7 presents the list and figures relating to the verbal forms that are actually involved in null clitic sentences. These figures are detailed per form and per child. It is interesting to note that *aller* and *faire*, which are ranked before *pouvoir* and *falloir* in Table 2, are not affected by the phenomenon (this matter is addressed in Section 3.4 hereafter).

Table 7: Breakdown of the omissions per child and per verbal form

	Children																	
Verb	Q	L	LE	E	EK	T	I	TO	J	C	LU	N	A	R	AL	EM	M	Z
veux	9			1	1	17	1	42	3	1	3	2	2	23	20	6	10	2
faut		2	1	1	1		1	7	1	2	8	2	10		5	15		1
peux					1	1		12			1	2			3	1	5	
est						7	1	1			2			2	1	5	1	1
a					1	2		1				2	1		6	1		2
sais											4		1				2	1
Total	9	2	1	2	4	27	3	63	4	3	18	8	14	25	35	28	18	7

These figures are summarized in Table 8, which gives the proportions for the different verbal forms affected by clitic omission.

Table 8: Proportions per verbal form involved

Verbs	*veux 1sg*	*faut*	*peux 1sg*	*est*	*a*	*sais 1sg*
%	52.8	21.0	9.6	7.7	5.9	3.0

3. Outcome

3.1 The verbal paradigms: Overall analysis

Table 9 hereunder presents two types of information. First, it displays the total occurrences per verbal form (whether a clitic is associated with the form or not) for the verbs involved in clitic omission (as presented in Table 8). Secondly, the bold font in the table highlights the forms actually involved in clitic omission within each paradigm. For instance, within the 590 occurrences of *veux*, some of them appear with subject clitic omission.

Table 9: Total occurrences per verbal form (with and without a clitic)

Persons	*vouloir* 'want'	*falloir* 'have to'	*pouvoir* 'can'	*être* 'be'	*avoir* 'have'	*savoir* 'know'
1sg	**590**	-	**72**	79	951	**76**
2sg	67	-	57	33	151	59
3sg	123	**163**	48	**3110**	**803**	8

Table 9 brings up two important observations: (i) clitic omission only affects one form per paradigm, (ii) the affected form corresponds to the most frequently produced form within each paradigm, e.g. for *vouloir* the most frequently produced form within the paradigm is 1sg *veux* and it is precisely this form, and only this one, that is affected by clitic omission. There is only one exception to this first generalisation, i.e. the *avoir* paradigm, since the most frequently produced form is the 1sg one, whereas the null clitic form is the 3sg one.[8]

On the whole, the clitic omissions correspond to the most frequently produced verbal forms within each paradigm. This first generalisation can be interpreted as a quantitative economy principle applied by the children to their system. This is consistent with the initial hypothesis as far as economy principles are concerned. We turn now to the morphological aspect of our hypothesis.

3.2 The verbal paradigms: Morphological analysis

As far as verbal morphology is concerned, three types of verbal paradigms are affected by clitic omission: one defective "paradigm" (*falloir*), two paradigms presenting two homophonous singular forms (*être* and *avoir*), and three paradigms displaying three homophonous singular forms (*vouloir*, *pouvoir*, and *savoir*).

3.2.1 *faut*

The defective "paradigm" for the verb *falloir* 'have to' provides one perfectly distinctive and interpretable 3sg form [fo]. A straightforward economy principle can hence apply here, i.e. "avoid unnecessary material", formulated as the "Avoid Pronoun" principle in Chomsky (1981). The clitic can easily be dropped and indeed Table 7 shows that this expletive is omitted by nearly all the children and that, for the older children (in the left-hand part of the table, apart for Q: Quentin), it is the

last clitic to remain omitted. This is not surprising owing to adult speech which also displays such an economy strategy, e.g.:

(4) KAT: 0 *faut* fermer les yeux pour pas tricher . (adult, Corpus #2)
'(One) must close his eyes in order not to cheat'

Nevertheless, it has to be noted that not all the expletives are omitted in this system. Indeed, children only drop the proper "expletive" clitics (in the sense of Rizzi, 1986a), not the "quasi-argumental" ones found with the meteorological verbs hence illustrating the fact that children correctly analyse their language as a non-pro-drop system (according to the assumptions given in Section 1.1 and discussed in Section 4).[9]

3.2.2 *est* and *a*

The singular paradigms for *être* 'be' and *avoir* 'have' both display two homophonous forms, i.e. *est* (3sg) / *es* (2sg) [e] and *a* (3sg) / *as* (2sg) [a]. Table 10 shows that the children all omit the same clitic within each paradigm and that these omissions only occur with the most frequently produced of the two verbal forms.

Table 10: Homophonous verbal forms with corresponding null clitic rates

être 'be'	Total *N*	Null Clitics %	*avoir* 'have'	Total *N*	Null Clitics %
t(u) es	33	0.00	*t(u) as*	151	0.00
(il) est	3110	0.68	*(il) a*	803	1.99

Within each paradigm, the two homophonous forms are hence distinguished thanks to an economy strategy, i.e. producing a nominative clitic with only one of the two forms. This can be characterized as a qualitative economy principle on top of the quantitative one since it results into two distinctive utterances as far as [Person] is concerned: [te] 'be 2sg' ~ [e] 'be 3sg' and [ta] 'have 2sg' ~ [a] 'have 3sg'. Indeed, this is sufficient and more economical than adding clitics to both forms (e.g. Oliviéri, 2010 for similar conclusions in Occitan dialects).

3.2.3 *veux*, *peux* and *sais*

The singular paradigms for *vouloir* 'want', *pouvoir* 'can', and *savoir* 'know' all display three homophonous forms, i.e. *veux*/*veux*/*veut* [vø], *peux*/*peux*/*peut* [pø] and *sais*/*sais*/*sait* [se]. Table 11 shows that the behaviour of *savoir* matches that of *avoir* and *être*, i.e. only one clitic omission is found within this paradigm and it corresponds to the most frequently produced verbal form (1sg). In the output, the distinctiveness of the three forms is hence also preserved as within the smaller paradigms of *être* and *avoir*.

Table 11: Homophonous verbal forms with null clitic rates

vouloir 'want'	Total *N*	Null Clitic %	*pouvoir* 'can'	Total *N*	Null Clitic %	*savoir* 'know'	Total *N*	Null Clitic %
(je) veux	590	24.24	*(je) peux*	72	36.11	*(je) sais*	76	10.53
tu veux	67	0.00	*(tu) peux*	57	10.53	*tu sais*	59	0.00
(i) veut	123	6.50	*(i) peut*	48	8.33	*i sait*	8	0.00

On the other hand, the data are less clear-cut for *vouloir* since two different clitics are omitted within the same paradigm (1sg and 3sg). As far as *pouvoir* is concerned, neither the quantitative nor the qualitative hypothesis seems tenable against the data insofar as all three clitics present omission rates within this paradigm. These data hence seem to falsify the initial hypothesis. Nevertheless, pursuing with a child-by-child survey of the data for *pouvoir* sheds different and interesting light on the matter and eventually enables us to disentangle the apparent falsification.[10]

3.3. The verbal paradigms: Child-by-child analysis

Looking into the detail of the *pouvoir* 'can' forms, it can be noted that 1sg null clitics are produced by eight different children (but essentially one, i.e. Tom) whereas the 2sg and 3sg omissions are exclusively due to one child, i.e. Maxime and Lucie, respectively (hence their absence in the preceding tables). Table 12 details the *pouvoir* paradigms for these three children.

Table 12: Three individual paradigms for *pouvoir*

Persons	Tom		Maxime		Lucie	
	Total *N*	Null clitics *N*	Total *N*	Null clitics *N*	Total *N*	Null clitics *N*
1sg	20	12	8	5	5	1
2sg	3	0	9	6	7	0
3sg	5	0	2	0	11	4
Total	28	12	19	11	23	5

Tom's data exactly match the overall economy strategy proposed in the previous sections. Indeed, within his data, only one clitic is omitted (1sg) and this clitic corresponds to the most frequently produced verbal form within his paradigm (1sg). These findings are hence consistent with the previous overall analysis. Data also become clear-cut for Lucie in Table 12 since, within the *pouvoir* paradigm, she produces a majority of 3sg forms and it is shown that it is the most frequently produced form that lacks the clitic (with one exception).

On the other hand, Maxime's data still look rather confusing, since he omits 2sg clitics, which again correspond to the most frequently produced verbal form, but he also omits 1sg clitics nearly as often. Thus, the distinctiveness of each form does not seem preserved in Maxime's paradigm since [pø] can mean 'can 1sg' as well as 'can 2sg'. His data were then double-checked and an explanation for this duality was found in the corresponding %err codes. Indeed, person reversing is also coded within this database, as illustrated in (5) hereunder. It can be hypothesized that Maxime produces the verb inverting the theta-roles since the context clearly indicates that he is asking the addressee to give him the box, whereas he eventually utters a *je* 'I' and a null dative clitic. Consequently, what is initially coded as a 2sg clitic omission turns out to be a 1sg clitic omission.

(5) MAX: 0 [*] peux [/] *je* [*] peux 0 [*] donner la boîte ?
'(You) can [/] I can give the box ?'
%err: 0 = tu; je = tu; 0 = me

To sum up so far, quantitative and qualitative economy principles account for the null clitic phenomenon in the child system. This strategy is quantitatively economical as it is what would be the most frequently produced clitic that is dropped. This strategy is also qualitatively

economical since it enables each child to provide only the strictly necessary information, and no more, in order to preserve the distinctiveness of each verbal form within a paradigm. Apparent exceptions to these economy principles were found and accounted for above. In order to complete the analysis, a step is still missing though. Indeed, comparing Table 2 and Table 8 points to the fact that not all the verbs of the children's system are affected by the null clitic phenomenon.

3.4 The non-affected verbs

A comprehensive hypothesis has to account for the application of a mechanism as well as its non-application, if need be. Table 8 shows that *aller* 'go' and *faire* 'do' are not involved in the null clitic phenomenon. In order to account for this absence, two verbs and their nominative clitics are contrasted. The verbs are *être* 'be' and 'go' *aller* since, according to Table 2, they correspond to the most frequently produced affected and non-affected verbs in the child system. Table 8 further establishes that *être* displays clitic omission with its 3sg form. Clitics accompanying a 3sg verbal form are manifold, contrary to other persons. Indeed, [Person 3] and [Singular] features can surface as *il* 'he', expletive *il* 'it', *elle* 'she', *on* 'one', *ce* 'that', and *ça* 'that'.[11] Additional non-clitic pronouns can also surface with 3sg verbal forms, such as the wh- interrogative and the wh-relative form *qui*. Finally, DPs start to emerge at this stage (Table 3). Chart 1 hereunder provides the exact breakdown for these different elements with the 3rd person (Pe3) verbal form *est* 'is'. It can be seen that this particular verbal form is overwhelmingly associated with one clitic, i.e. *c(e)* (76%). Referential *il*, *elle*, *on*, and the relative *qui* come well behind in terms of frequency. It can then be stated that *c(e)* in this particular context is not very informative and that, whenever this clitic is dropped, it is quite easy to retrieve it owing to the rest of the system.

Chart 1: Pe3 elements with *est*

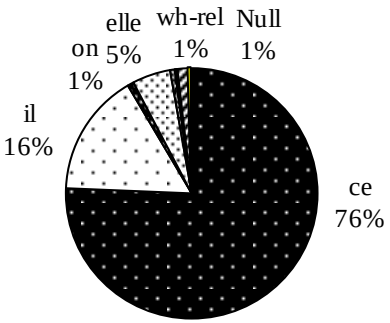
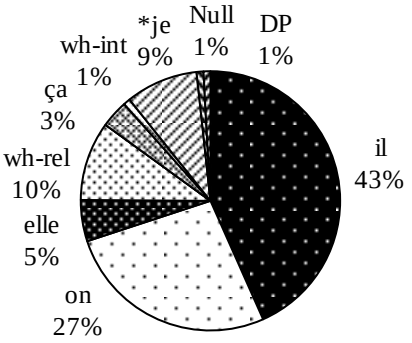


Chart 2: Pe3 elements with *va*



This first picture is in stark contrast to the one displayed in Chart 2 for 3rd person (Pe3) *va* 'goes'. Indeed, the latter presents the following discrepancies with the former: (i) the breakdown is more even (the maximum rate is 43% for *il* vs. 76% for *ce*), (ii) there are more different elements associated with this verbal form, (iii) children frequently associate *va* and 1sg **je*, and (iv) DPs emerge. Under these conditions, if one of these items were dropped, the loss of information would be much higher than with *est* 'is'. Consequently, it is hypothesized that verbs like *aller* 'go' and *faire* 'do' are not affected by the null clitic phenomenon because they appear in contexts displaying a broader array of clitics (and hence of different features) as well as DPs. Such verbal forms, without any preverbal information, would hence not be fully "interpretable" and would cause the derivation to crash.

4. Discussion

The architecture of the child system around 3;0 is quite different from the adult one since children still produce only few different persons and verbs, and few Group 1 verbs at this stage. A crucial effect of this architecture is the morphological richness of the verbal forms within the child system (Tables 1 and 2), which contrasts with that in adult French. This characteristic is given particular attention here since it is argued that the traditionally labelled "null subject" phenomenon is triggered by this morphological richness. Furthermore, these omissions are tagged "null nominative clitic" omissions upon comparison with their equivalents in the *spoken* adult language. They are accounted for by positing that quantitative and qualitative economy principles are in effect in the child

system, i.e. when a nominative clitic conveys morphological information already interpretable on the verb, the clitic can be omitted since it carries redundant information.

It is hence expected that these economy principles evolve with the architecture of the overall child system and, indeed, several stages can be identified: (i) Stage 1 (Corpus #1, up to circa 3;0): the verbal paradigms often reduce to two singular forms, i.e. 1sg vs. 3sg. They are hence often fully distinctive with regard to [Person], the economy principles can apply quite often, and many clitics are dropped (average omission rate: 22.4%); (ii) Stage 2 (Corpus #2, between circa 3;0 and 4;0): the verbal paradigms broaden to include 2sg forms and additional verbs. The verbal paradigms are not as distinctive as at Stage 1. The economy principles can hence not apply as often since many paradigms now display two or three homophonous verbal forms. However, these principles remain active and some clitics are still dropped (average omission rate: 3.9%). Indeed, only one clitic is necessary to distinguish two homophonous verbal forms so one clitic out of the two is dropped and it is quantitatively more economical to drop the clitic corresponding to the most frequently produced verbal form. Applying the same principles, two clitics are necessary to distinguish three homophonous verbal forms so one clitic out of the three is dropped, as summarised in Table 13 hereunder.

Table 13: The actual paradigms (clitics and verbs, IPA)

falloir	*être*	*avoir*	*vouloir*	*pouvoir*	*savoir*
-	ʒəsɥi	ʒe	~~ʒ~~əvø	~~ʒ~~əpø	~~ʒ~~əse
-	tye	tya	tyvø	typø	tyse
~~i~~fo	~~i~~le	~~i~~la	ivø	ipø	ise

Furthermore, it is interesting to note that these economy principles are also active whenever a new paradigm enters a child system. For instance, when Antoine starts to use the three homophonous forms for *vouloir* ‘want’ in the past tense (at 2;10), he only omits one clitic out of the three and this clitic corresponds to the most frequently produced verbal form (1sg), as illustrated in Table 14 hereunder.

Table 14: Antoine and the verb *vouloir* 'want' in past tense

Utterances	Total	Null Clitics
(je) voulais '(I) wanted'	30	11
tu voulais 'you wanted'	1	0
i voulait 'he wanted'	3	0
Total	34	11

Finally, (iii) Stage 3 (prediction[12]): the null clitics disappear almost totally when the children's verbal system broadens further to include a regular use of [Plural] forms as well as additional first-group verbs, hence resembling the adult system (with possible exceptions, as in (4)).

This investigation hence confirms the tight link observed in Corpus #1 between the morphological information regarding [Person] conveyed by the verbal form in a paradigm and the preverbal clitic. When the latter is redundant, it can be omitted. In Minimalist terms, a form such as *suis* 'am' for instance is thus perfectly "interpretable" with regard to [Person] as soon as it is merged into the derivation. Such a configuration thus presents two advantages, i.e. economy –less material and computation than with an additional subject– and optimality –fewer uninterpretable features. The latter consequence pertains to the discussion on the level of perfection of the system with the existence and diversity of these uninterpretable elements (e.g. Martin, 1999) and, more generally, of the Language Faculty (e.g. Chomsky, 2007). It therefore sounds sensible to provide a device in order to, if not dispense with, at least reduce their diversity. Furthermore, it is promising to note that these conclusions are also applicable to other languages due to the peculiar form third person singular often displays cross-linguistically (Benveniste, 1946) and due to the presence of the highly irregular verbs 'be' and 'have' in this reduced list. This work is thus consistent with Radford's (2000) statement that children "seek perfection in the imperfect input they receive."

Moreover, we can see how this hypothesis questions the status of nominative clitics within the child system since they surface in nearly every sentence, only preverbally, and their non-target omission is possible whenever the verb is morphologically rich enough to make the sentence interpretable as far as [Person] is concerned. Owing to these characteristics and others detailed in Palasis (2010a), it is therefore hypothesized that French children consider these clitics to be verbal prefixes. The morphological status of nominative clitics is further conceived to be one of the characteristics that distinguishes Spontaneous (colloquial) French –

acquired initially by all French natives– from Normed (normative) French –whose acquisition is much more unstable (Palasis, 2011). In order to account for this variation, the Pro-drop Parameter is split into two morphological parameters, i.e. the Verbal Prefixation Parameter and the Distinctive Suffixation Parameter. As shown in Table 15, this device does not lead to a binary partition as is the case for the Pro-drop Parameter. Rather, it aims to formalise microvariation, as illustrated with the pairs Spontaneous vs. Normed French and Normed Italian vs. Northern Italian dialects.[13]

Table 15: Splitting the Pro-drop Parameter

Parameters / Grammars	Verbal Prefixation	Distinctive Verbal Suffixation	Examples	Gloss
Spontaneous French	+	–	*i-parle*	speak.3sg
Normed French	–	–	*il parle*	
Normed Italian	–	+	*parla*	
Trentino	+	+	*el-parla*	

In a nutshell: (i) all the French children acquire Spontaneous French as an L1; (ii) Spontaneous French displays verbal prefixation; (iii) verbal prefixation can be dropped under the morphological and computational economy principles described in this contribution. The next step would be to integrate this work into broader investigations on feature interpretability and economy principles since Gelderen (2008:297), for instance, states that interpretable features "are later reinterpreted as uninterpretable ones" and that this process applies to language acquisition as well as to language change.

Notes

[1] All the data come from Palasis (2005) and Palasis (2010a).

[2] The appellation of the parameter varies depending on the analysis (e.g. Rizzi, 1982:173,fn1). This matter is addressed in the course of the article.

[3] Child Language Data Exchange System (MacWhinney, 2000 and the website at http://childes.psy.cmu.edu/).

[4] In both corpora, the data are filtered in order to be representative, i.e. only the verbs uttered by at least three different children are included in the figures. See Palasis (2010b) with regard to generative grammar, data, and representativeness.

[5] The data come from the South of France. This accounts for the transcription of the mid, closed, front vowel [e], e.g. [e] *est* 'is', instead of the standard [ɛ].
[6] I would like to thank one of the reviewers for suggesting this way of looking at these figures.
[7] In fact, "preverbal null clitic" would be the really neutral appellation. However, the term "nominative" is chosen here in order to distinguish these clitics from the other preverbal ones.
[8] However, it has to be mentioned that the numerous [ja] forms in the corpus for *il y a* 'there is/are' are not included in the 803 total since there is no evidence that when a child utters [ja], he/she is handling a nominative clitic and the 3sg form of the verb *avoir*. This form was hence counted separately and amounts to an additional 285 occurrences.
[9] Also see Tuller (2004), where these facts are presented and analysed in adult French.
[10] The analysis for *vouloir* is not detailed here since it presents a similar outcome.
[11] *Ça* can be clitic or strong, e.g. *ça ça va ici* 'this it goes here' (Palasis, 2010a:38-39).
[12] The same twenty children were recorded and videotaped between 4;0 and 6;0. These additional data, once coded and analysed, will tell us whether this prediction is borne out or not within this period.
[13] The discrepancy between *i* and *il* is deliberate since only Spontaneous French shows a strict accommodation pattern of *il* to the phonological environment (Palasis, 2009).

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