*The Importance of Paradigm Formation in Bilingual Acquisition: Evidence from Italian**

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Abstract

This paper argues for a theory of lexical acquisition which takes syntactic transfer effects in bilinguals and overgeneralization in monolinguals to be manifestations of the same underlying mechanism. The theory views both transfer and overgeneralization as epiphenomena of an updating system which spreads newly acquired information across paradigms. A consequence of this set up is that both transfer effects and overgeneralization are only expected to affect members of the same paradigm. Experimental evidence, both old and new, is presented in support of this model.

1 Introduction

Researchers working within the field of Bilingual First Language Acquisition (BFLA) have routinely assumed that if the language system can produce transfer effects at all, then these should be found whenever two languages differ with regard to some property, the idea being that any difference automatically presents a case for transfer.

As a result of this assumption, Paradis and Genesee (1996) recognise a number of possible effects that syntactic transfer should lead to. One of these is known as *acceleration*. On this view, a structure should appear in the speech of a bilingual earlier than in that of a monolingual if such a structure is clearly present in the child's other L1. In other words, the mastering of a structure in L1a should accelerate the development of the corresponding structure in L1b.

Although this may be a logical possibility, the lack of a representational framework makes it impossible for standard theories of BFLA to advance any prediction as to what structures should, if at all, display such acceleration effects.

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This contrasts sharply with the model I proposed in Tamburelli (2004) which strictly limits any transfer effects to lexical items that belong to the same paradigm. This model makes two major claims. Firstly, it proposes that syntactic transfer effects in BFLA and overgeneralization in monolingual acquisition are manifestations of the same underlying mechanism. The second claim is with regard to the workings of such mechanism. This comprises an informationally monotonic system, which I call cascade-updating, and a system of paradigm formation. While the former is responsible for propagating newly acquired information across the lexicon, the latter defines the specific domains within which propagation takes place. I will summarise them in turn.

2 Transfer as Cross-language Generalisation

2.1 Paradigm Formation

In descriptive terms, lexical items that show a similar syntactic or semantic behaviour are often said to form a paradigm. Arguably, items that belong to the same word category form a paradigm as they show a common syntactic behaviour which is different from that of other word categories.

Indeed, there are paradigms within a paradigm, as some verbs, for example auxiliaries, do not quite share the same behaviour as lexical verbs. In the representational sense, I take lexical items to be organised into paradigms based on their categorial features plus other lexical properties they may share. For example, verbs are perceived as a [+V, -N] paradigm in virtue of their sharing such features. Consequently, if a newly acquired item happens to have the features [+V, -N] it will be perceived as part of that paradigm. The larger the number of properties items share, the more specific the paradigm. While auxiliaries will also be perceived as part of the [+V, -N] paradigm, the sharing of a further property, namely [+A] will make them part of a more specific [+V, -N, +A] paradigm. These paradigmatic properties are detected via the conservative principle in (1) which treats lexical items as sets of properties:

(1) Minimal Paradigm
Given a list of sets S_1,…, S_n, identify as the paradigmatic properties the set P which corresponds to the intersection of S_1,…, S_n minimally containing a full[1] bundle of categorical features.

[1] By ‘full’ is meant that it must contain sufficient features to be recognised as belonging to a specific word category. If we adopt the binary system described above, [+V, -N] will be a full bundle while [+V] will not. The status of ‘word category’ as a minimal condition is hardly

A consequence of minimal paradigm is that the developing lexicon will contain a large number of specific paradigms rather than a small number of general ones, unless the input indicates otherwise. Because a paradigm is defined in terms of its paradigmatic properties, it follows that the paradigmatic properties of a paradigm P are the necessary and sufficient conditions for an item to be perceived as a member of P. This consequence is particularly relevant to the acquisition process as it defines the domain within which the second mechanism applies.

2.2 Lexical Updating as a Cascade-Effect

When the language system acquires new information on the basis of a set of input items, it applies this knowledge to other items of the same type, independently of whether these contributed to the acquisition of the new information. Consider, for instance, the [+wh] feature traditionally responsible for triggering I to C movement in English auxiliaries. If a child acquires this feature by being exposed to multiple sentences containing, say, *be* and *can*, s/he will not need to also be exposed to instances of *could* or *will* before these can undergo the same movement. Instead, the newly acquired feature is automatically associated with the whole [+V, -N, +A] paradigm. Moreover, the feature will not be associated with lexical verbs since, given minimal paradigm, they do not possess the necessary paradigmatic properties. I take this to result from the interaction between paradigm formation and a dedicated updating system. First, paradigm formation detects the relevant paradigmatic properties shared by the items that host the newly detected feature. Then, this new feature is automatically assigned to all the items that possess such properties. The constant interaction between these two primitive concepts gives rise to the following effect:

(2) Cascade Updating
A property p that is newly acquired through the input items X, …, Xn will be attributed to item Y iff:
(i) Y possesses the paradigmatic properties common to X, …, Xn at the time when p is acquired and
(ii) Y does not possess a value which is in conflict with p.

The effect of (2i) is that cascade-updating will spread a newly acquired property to a whole paradigm. The statement in (2ii) follows from the informationally monotonic nature of the process as well as its dependency on universal principles (Chomsky 1986a). Cascade-updating can add but cannot, crucially, delete a

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surprising if we consider that it is the main property the system employs when cataloguing lexical items.

property nor can it alter its value. Moreover, as part of the language system it is unable to form a combination of properties that is disallowed by UG.

Due to the nature of cascade-updating, only items that share the relevant paradigmatic properties can affect each other and thus result in either overgeneralization or transfer effects. A strong prediction emerging from this is that both overgeneralization and transfer effects only ever target items of the same paradigm.

The aim of this paper is to argue in favour of this view by providing evidence which suggests that members of separate paradigms do not affect each other, despite the fact that they may serve a remarkably similar purpose on the surface. The phenomenon that I will consider is the Delay of Principle B effect which has been widely discussed in the acquisitional literature. In what follows I will look at some experimental evidence, both old and new, which seems to strengthen the tie between transfer effects and overgeneralization.

3 Delay of Principle B Effect

Much of the acquisitional literature has recently been dedicated to children's development of Principles A and B of Binding Theory (Chomsky 1981, 1986a). Perhaps surprisingly, these studies revealed a divergence in children's development of these Principles. While children respect both the c-command and the locality requirements of Principle A by about age 5:6, they do not seem to obey Principle B until much later (see Chien and Wexler, 1990 and references cited there). In fact, children around age 5;6 often allow a pronoun to be co-referential with a local c-commanding antecedent, an interpretation that is ruled out in adult language.

In a particular study carried out by Chien & Wexler (1990), a group of 156 children ranging between age 2:6 and 6:6 were asked to act out what the puppet Kitty said in a variation of the popular "Simon says" game. The sentences uttered by the puppet included those in (3):

(3) a. Kitty says that Sarah should point to herself.
b. Kitty says that Sarah should point to her.

Children who were at least 6:0 years of age performed almost at adult level for sentences of the type in (3a) answering correctly in 90% of the cases, thus confirming the findings of previous works (see Chien and Wexler, 1990 for a detailed overview). However, the results decreased dramatically for sentences of type (3b). It was recorded that in 36% of the cases even children as old as 6:6 allowed the pronoun to co-refer with the locally c-commanding NP (in this case

Sarah), allowing the sentence in (3b) to yield the interpretation *Sarah should point to Sarah*. For younger children the answers were at chance level.

This phenomenon, known as the Delay of Principle B effect (henceforth DPBE), has been found in children acquiring different languages (see, among others, Avrutin and Wexler 1992, for Russian; Sigurjonsdottir 1992, for Icelandic). These data are hard to reconcile with the claim that Principle B is a principle of Universal Grammar. On the one hand, Binding Principles seem to hold cross-linguistically and therefore would be expected to be universal and to present no difficulty for acquisition. On the other hand, children seem to find Principle B hard to master, indicating that some learning is involved.

An interesting solution has been developed by Grodzinsky and Reinhart (1993) who proposed a theory of competition at the syntax-pragmatics interface based on the distinction between *coreference* and *bound-variable* interpretation. An antecedent and a pronoun, they argue, can refer to the same entity via two separate processes, illustrated by the following (from Grodzinsky and Reinhart 1993:74):

(4) Alfred thinks he is a great cook.
a. Alfred (λx (x thinks x is a great cook))
b. Alfred_i (λx (x thinks he_i is a great cook))

Although the interpretations that arise from the two readings are equivalent, there is a crucial difference at the conceptual level. In (4a) the pronoun is a variable syntactically bound by an R-expression while in (4b) the two expressions corefer by virtue of the fact that the discourse-referent chosen by the pronoun is the same as that introduced by the R-expression. Crucially, the latter reading does not involve a syntactic operation that relates the pronoun to an antecedent and therefore its interpretation is not regulated by Binding Theory.

This raises a question with regard to the structures in (5b) and (5c)[2]:

(5) a. Lucie_i adores her_k
b. *Lucie_i adores her_i
c. **Lucie* adores *her*

Following standard Binding Theory, the ungrammaticality of (5b) does not present a problem as it is a violation of Principle B. On the other hand, coreference is not a syntactic operation and therefore the ill-formedness of (5c) cannot be captured syntactically. Also, note that it is not immediately obvious why coreference should

[2] Since coindexation is ambiguous between coreference and bound variable interpretation, *italics* is adopted to represent the former.

be ruled out in (5c) as it is generally undisputed that it is not necessary for a pronoun to enter a syntactic dependency in order to be coreferential with an R-expression in the discourse. Based on Reinhart (1986), Grodzinsky and Reinhart propose that coreference is ruled out by an LF rule which resolves the competition between syntax and pragmatics:

(6) Rule I: Intrasentential Coreference
NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation.

To put it simply, Rule I is responsible for excluding coreference between a pronoun and some referring expression whenever the intended interpretation can be achieved through binding. The representation in (5c) is therefore excluded since an A-binding alternative is available (i.e. Lucie_i adores herself_i).

A requirement of Rule I is that two LF representations be held in working memory in order to be compared for truth-conditional equivalence. This task, according to Grodzinsky and Reinhart, is beyond children's computational capacity and they are therefore forced to opt for a guessing strategy. This results in their performance being at chance level. The claim is backed by psycholinguistic evidence drawn from priming experiments which showed that children, as well as agrammatic aphasics (who also display DPBE) have a limited working memory compared to the adult population (Grodzinsky et al. 1989).

The experiments that claimed to test children's knowledge of Principle B were in fact testing their ability to apply Rule I (see Chien and Wexler 1990 for a similar claim, though due to a different analysis). Children's non-adult-like performance on sentences such as (3b) does not prove that they have not acquired Principle B and it can therefore be maintained that principle B is innate.

Further support is provided by experimental results reported in Chien and Wexler (1990) who found that children perform in adult-like fashion when tested on sentences where the antecedent is a quantified NP:

(7) Every bear touches him

Since quantified NPs are non-referential, they cannot, by definition, corefer with anything. Unlike the example in (4) where the antecedent was referential, we find that there is only one way in which the quantified NP can relate to the pronoun, namely via a binding relation, illustrated here in (8):

(8) $\forall x\ (Bx \rightarrow x \text{ touches } x)$

Consequently, interpreting (7) does not involve Rule I and therefore children's performance is expected to be highly adult-like. This is indeed what we find.

4 Absence of DPBE: Greek

Recent research has shown that, perhaps unexpectedly, Greek seems to lack DPBE altogether (Varlokosta 2000, 2001). Varlokosta (2000) tested 20 Greek children between the ages of 3;7 and 5;9 using the Truth Value Judgement Task (Crain and Thornton 1990). This task is designed to elicit grammaticality judgements from children by presenting them with context-utterance pairs and asking whether the sentence is a 'true' or 'false' description of the context. The context is created in the form of a short puppet-story. At the end of each story, one of the puppets describes what has just happened asking the child to judge whether the description was correct. The sentences chosen have two possible interpretations, only one of which is compatible with the adult structure. The child's grammar is taken to diverge from the adult's if s/he accepts the non-adult interpretation. On the other hand, the child is taken to have achieved the adult setting if s/he rejects it.

The following is an example of the sentences used (from Varlokosta 2001:784):

(9) O Goofy$_i$ skepase afton$_{j/*i}$.
the Goofy covered him-strong pronoun
'Goofy covered him'

Surprisingly, the children performed in a manner consistent with the target grammar responding correctly 87% of the time.

These facts have important implications for children who are exposed to Greek as well as to a language that clearly displays DPBE, such as English. Since Greek lacks DPBE, Greek-English bilinguals could be expected to display acceleration effects which would allow them to perform better than English monolinguals as far as Principle B is concerned.

Researchers have investigated this possibility as a way of testing whether transfer effects can occur at all. The assumption underlying such research has been often made clear: if acceleration is attested and the children do master Principle B earlier than the respective monolinguals, then transfer has occurred and the two systems must be able to interfere with each other. On the other hand, if acceleration does not obtain, it is proof of the child's inability to transfer from one language to the other, due to the two systems developing completely separately (Varlokosta and Dullaart 2001; Sanoudaki 2002). These, however, are the only two logical possibilities so long as we restrict our options to either the Single System Hypothesis or the Separate Development Hypothesis (see, among others, Volterra and Taeschner 1978; Meisel 1989).

On the other hand, the model presented here maintains that transfer effects are the result of cascade-updating, a strategy used by the language system to propagate information collected during the acquisition process. Cascade-updating is triggered when new information is associated to some members of a paradigm and it has the effect of distributing such information to all the other members of that same paradigm, unless some conflicting properties interfere. Because this architecture restricts generalisation to other members of a paradigm, it dramatically reduces the cases in which transfer effects can be expected. Although it is a truism that if acceleration should be attested it would confirm interference between the two languages, once we assume cascade-updating it no longer follows that lack of acceleration demonstrates lack of interference. It may just be that the environment necessary to trigger cascade-updating never arose.

Since the triggering of cascade-updating is dependent on paradigmatic properties, it is of fundamental importance that we establish exactly what the properties at issue are before any predictions can be made. It is to the properties of Greek pronouns that we now turn.

4.1 Greek Pronouns

Recent studies have argued that the lack of DPBE in Greek pronouns may be due to their lexical specification (Baauw, Escobar and Philip 1997; Varlokosta 2000, 2001; Sanoudaki 2002). Following a number of tests set by Cardinaletti and Starke (1994), it was established that, strictly speaking, Greek does not have third person pronouns, the elements commonly referred to as pronouns being in fact demonstratives:

(10) (from Sanoudaki 2002: 106/7)

i) Demonstratives always have a special morphological marker, never found on personal pronouns: the strong pronoun *aftos, afti, afto* is morphologically identical to the demonstrative pronoun *aftos* 'this'

ii) Demonstratives may refer to non-human entities in contexts requiring strong forms (personal pronouns cannot):

O Yianis vlepi afton. (afton= Bill/ the computer)
the John sees him-strong pronoun.
'John sees him'

iii) Demonstratives, contrary to personal pronouns, cannot overrule their disjointness requirement through accidental coreference -

> Greek speakers in general reject the reflexive reading of [the sentence below], with the meaning 'John loves only himself', even in adequate pragmatic context:
> *O Yianis agapa mono afton*
> the John loves only ?-3sg,masc,acc

iv) Demonstratives typically make spatial distinctions of the far/near type, while pronouns seem never to do that - such a distinction in Greek is probably the *aftos - ekinos* one (where *ekinos* is the 'far' type).

Since DPBE may only occur with pronominal elements, it follows that if a language lacks pronominals it will also lack DPBE. This seems to be the case in Greek. In the next section I will look at what the implications are with regard to transfer in bilingual acquisition.

5 Demonstratives vs. Pronouns: Implications for Transfer

Following the conditions imposed by cascade-updating, any information the bilingual child has acquired through exposure to, say, the demonstrative /afton/ can be transferred to elements in the other L1 provided that they happen to share the relevant paradigmatic properties. As a result, a question arises with regard to children simultaneously acquiring Greek and a pronoun language:

(11) Would bilingual children transfer their knowledge of the Greek paradigm to their other L1 thereby displaying acceleration effects?

Following the discussion in section 4.1, for (11) to be answered positively it is necessary that the pronouns in the other L1 inherit demonstrative status. However, this is not a possible outcome within the cascade-updating model. Firstly, it requires that cascade updating override an existing property by attributing the categorial specification [demonstrative] to elements that are already specified as belonging to a different category, namely [pronoun]. Crucially, this possibility is incompatible with the informationally monotonic nature of the process (cf. section 2.2).

Moreover, recall that categorial features are the minimal condition in identifying a paradigm. As a result, elements whose category is specified as [pronoun] will – by definition – not belong to the same paradigm as elements which are specified as [demonstrative]. Because cascade-updating can only ever target members of the same paradigm, it follows that its application cannot result in cross-categorial

transfer. Consequently, bilingual children are expected to show DPBE in pronoun contexts regardless of whether their other L1 happens to be Greek.

The literature presents two experiments that have been carried out to test this possibility. I will outline each of them in turn.

5.1 Greek-Dutch Bilinguals

Varlokosta and Dullaart (2001) tested 10 Greek-Dutch bilingual children aged 3;3 to 7;6 using the Truth Value Judgement Task (see section 4).

The experiment was subdivided into two parts to allow for testing the children on their knowledge of Greek and Dutch separately. In both cases, the story involved a puppet, Goofy, performing an action on himself (such as covering himself with a blanket). This context was then followed by another puppet uttering a sentence which, in the intended interpretation, would be ungrammatical due to a Principle B violation. The following are examples of the sentences used (adapted from Varlokosta and Dullaart 2001: 787)

(12) O Goofy skepase afton *Greek*
the Goofy covered him

(13) Goofy heeft hem schoongemaakt *Dutch*
Goofy has him cleaned
'Goofy cleaned him'

Given the context introduced above, for the child to accept the sentences in (12) and (13) as 'true', s/he must allow a structure whereby the pronoun/demonstrative co-refers with a c-commanding antecedent, in this case the NP Goofy, which is not possible in the adult language.

5.1.1 Findings. Children's performance on the test conditions for Greek was highly adult-like. However, they performed at chance level on the Dutch sentences, indicating that they had not yet achieved the target setting:

(14) (adapted from Varlokosta and Dullaart 2001: 787):

Language	*Lexical Item*	*Correct responses*
Greek	Demonstrative	19/20 (95%)
Dutch	Strong Pronoun	11/20 (55%)

The results in (14) converge with those obtained for monolingual Greek and Dutch children respectively (Varlokosta 2000; Philip and Coopmans 1996). This provides a negative answer to (11), thus lending support to the cascade-updating model. Because the elements at issue do not belong to the same lexical category, cascade-updating cannot affect them and therefore acceleration does not occur.

5.2 Greek-English Bilinguals

The same experiment has been replicated with Greek-English bilinguals (Sanoudaki 2002). The subjects were 10 children aged between 4;1 and 6;7 who had been acquiring Greek and English simultaneously from birth. The same experimental technique was used. This experiment was also subdivided into two parts to allow for testing the children on their knowledge of Greek and English separately. In this case the story involved a toy character who would cover himself with a blanket. The following are examples of the sentences used:

(15) a. O Goofy skepase afton *Greek*
the Goofy covered him

b. Grandpa covered him *English*

As in the previous experiment, the children performed in a highly adult-like fashion on the test conditions for Greek. However, their performance on the English sentences was just above chance:

(16) (Sanoudaki 2002: 115)

Language	*Lexical Item*	*Correct responses*
Greek	Demonstrative	16/20 (80%)
English	Strong Pronoun	12/20 (60%)

Once again, the results in (16) converge with those obtained for monolingual Greek and English children respectively (Varlokosta 2000, Chien and Wexler 1990), confirming that no transfer has taken place.

5.3 Conclusions

Sections 4 and 5 set out to test a major claim made by the model outlined in section 2, namely that transfer effects only affect items of the same paradigm.

In the literature on BFLA it has often been assumed that transfer ought to be attested whenever the two languages differ with regard to some domain. Based on

this assumption, research has been carried out on bilingual children acquiring language pairs which differ with regard to DPBE, such as Greek-Dutch and Greek-English. Because monolingual Greek children do not display DPBE, it was concluded that, if transfer is at all possible, bilingual children would employ this advantage, thereby improving their performance on Principle B compared to Dutch and English monolinguals of the same age. Even though it is widely agreed that the Greek elements are underlyingly different from their English and Dutch counterparts, this has been tacitly assumed to be of minor importance compared to similarities on the surface. After all, they share some core properties such as being theta marked as the object of a verb and having their interpretation regulated by Binding Theory.

In contrast, the hypothesis outlined in section 2 claims that transfer effects are the result of an updating mechanism which can only affect members of the same paradigm. This gives important theoretical status to the categorial difference that exists between demonstratives and pronouns. Because the two sets of elements carry different categorical features they are in fact expected to develop totally independently of each other. The results presented in (14) and (16) provide important evidence in favour of this view.

6 DPBE in Monolinguals

6.1 Absence of DPBE: clitics

Researchers have reported a number of experiments aimed at testing whether the acquisition of clitics patterns with that of pronouns with regard to Principle B. Notably, McKee (1992) tested a group of children acquiring a pronoun language (English) and another group acquiring a clitic[3] language (Italian). The experiments were carried out using the Truth Value Judgement Task (see section 5.1).

6.1.1 Experimental Evidence. McKee tested 60 children between the age of 2;6 and 5;3 who were acquiring English and 30 children between the age of 3;7 and 5;5 who were acquiring Italian as their first language. After staging a short story, a puppet would utter a sentence which, in the intended interpretation, is ungrammatical in the adult language. The following are examples of the sentences used (From McKee 1990:36):

(17) Smurfette washed her *English*

[3] The term clitic is intended as shorthand for "pronominal object clitic".

(18) Lo gnomo lo lava *Italian*
the elf him$_{CLT}$ washes
'the elf washes him'

English children accepted a co-referential interpretation in sentences such as (17) roughly half of the time, confirming their difficulty with reference resolution (cf. Section 3). However, Italian children performed in an adult-like fashion 80% of the time, raising an important question with regard to the acquisition of clitics (see also Padilla 1990; Jakubowicz 1993; Escobar and Gavarro 1999 for similar results in Spanish, French and Catalan, respectively).

McKee observes that the lack of DPBE in the acquisition of clitics may be related to the syntactic configuration in which they appear. Although she did not offer a successful explanation for this, the idea that clitics' syntactic position may be responsible for their lack of DPBE finds some strong empirical support. Before presenting this, however, some clarification on what constitutes a clitic is in order.

6.1.2 Syntactic v. Phonological Clitics. While defining a clitic is no simple matter, it has often been noted, at least since Zwicky (1977), that there seem to be at least two distinct types of cliticisation, namely *syntactic* and *phonological*.

Although all types of clitics differ from pronouns in that they are typically unstressed, morphologically reduced and form a phonological unit with some other element, syntactic clitics also differ in their syntactic behaviour. As is well known, they often appear in complementary distribution with full pronouns. Romance clitics are a typical example of this:

(19) a. Gianni vede lui
G. sees him
a'. Gianni vede *lo
G. sees him-CL
b. Gianni *lui vede
G. him sees
b'. Gianni lo vede
G. him-CL sees

This is not the case with phonological clitics:

(20) a. John saw him
a'. John saw 'm
b. *John him saw
b'. *John 'm saw

Moreover, phonological clitics pattern with full forms in a predictable manner based on the general phonological processes of the language, while the form of syntactic clitics seems to be entirely a lexical matter (Zwicky, 1977). For example, the difference between the full form [juː] and the phonological clitic [jə] follows the "ordinary reduction of unaccented vowels" (Zwicky, 1977:26) e.g. [tuː] – [tə] for the preposition/marker *to*. (Compare also the relation between [ðem] / [əm] / [m̩] with [ˈdʒenrəl] / [dʒəˈnerɪk] and the development seen, for example, in [beɪkən] / [beɪkn̩]).

It is also interesting to note that while phonological clitics can under no circumstances bear any type of stress, syntactic clitics do lend themselves to contrastive stress (underlining indicates stress):

(21) a. A: But yesterday you said that you know 'er
B: No, I said I know <u>him</u> / *'<u>m</u>

b. A: Ieri hai detto che la conosci
Yesterday have-2SG said that her-CL know-2SG
B: No, ho detto che <u>lo</u> conosco
No, have-1SG said that him-CL know-1SG
'yesterday you said that you know her'
'No, I said that I know <u>him</u>'

Although both types of clitics are unstressed in unmarked contexts, it appears that phonological clitics are in an allomorphic relation with full forms, lack of stress being the necessary condition for their distribution. Syntactic clitics, on the other hand, can in particular circumstances bear stress, indicating that lack of stress is probably a consequence of their functional status rather than a defining property of syntactic cliticisation as such.

Even though this overview is far from comprehensive, it raises an important question with regard to the lack of DPBE. In particular, whether this is a property specific to syntactic clitics, as the Italian and Spanish experiments might suggest, or whether it carries over to phonological clitics as well. If McKee's observation is correct, and lack of DPBE in Italian is due to the syntactic position of the clitic, we would expect phonological clitics to display DPBE just like strong pronouns since, syntactically, they pattern with strong pronouns.

In order to test this hypothesis, Baauw (2002) set up an experiment involving children acquiring Dutch, a language that has phonological clitics of the type exemplified in (20). Using the Truth Value Judgement Task, he tested 15 children between the age of 4;2 and 5;3 who were acquiring Dutch as their first language. The following is an example of the sentences used (From Baauw 2002:129):

(22) Jantje heeft 'm getekend
Jantje has 'm drawn
(J. has drawn 'm)

It was reported that the children rejected a co-reference reading only 53% of the time. These results pattern with those reported for the acquisition of Dutch full pronouns (Philip & Coopmans 1996) and thus eliminate the possibility that lack of DPBE could be a property of clitics in general. This lends empirical support to the observation that lack of DPBE in Romance clitics may be tied to their syntactic distribution. From this point forward I will therefore use the term 'clitic' to refer to syntactic clitics (Zwicky's *special clitics*) unless otherwise stated.

6.1.3 Clitic Placement. Whether movement or base-generation can be held responsible for the distribution of syntactic clitics has long been a matter of debate. Probably the strongest motivation for movement analyses is the complementary distribution between the clitic and its associated theta-position, as exemplified in (19). On the other hand, base-generation analyses have often been proposed in view of clitic doubling phenomena in languages such as Spanish and Greek (see Sportiche 1993 for a detailed overview of both positions). Whilst it is beyond the scope of this paper to attempt to settle this debate, I believe that, as far as DPBE is concerned, we can draw a useful generalisation that by-passes the differences between the two theoretical positions. Notably, both accounts assume that the clitic is in some sort of relation with a dependent element. This is more readily apparent in the case of a movement account (see, for example, Kayne 1975). Following standard assumptions (Chomsky 1973, 1981), it is claimed that the moved clitic leaves behind a trace which it must govern:

(23) $[_{IP}\ [_{DP}$ Gianni$]\ [_{I}\ la_i$ vedrá$_k]\ [_{VP}\ t_k\ [_{DP}\ t_i\ ]]]$
|_____|
Gianni herCL see-FUT
'Gianni will see her'

According to this analysis, the direct object is an A-chain the foot of which is the recipient of the verb's theta-role while the head has moved to a higher position.

Similarly, base-generation views must reconcile the idea that clitics can be generated pre-verbally with the fact that they are interpreted as being in direct object position. This has been done by assuming a relation between the clitic and some empty category which would be the recipient of the verb's theta-role. One such proposal has been developed by Jaeggli (1982) who identifies the empty category as PRO (see Sportiche 1993 for an alternative account):

(24) Lo vediamo PRO
|_____|
himCL see-1ST-PL
'We see him'

Notably, no such relation is claimed to exist for phonological clitics (cf. 20). We could therefore abstract away from the movement *v.* base-generation debate and assume that there is a link between lack of DPBE and *syntactically complex*[4] objects. In fact, the debate arguably disappears within representationally oriented approaches which do not consider traces to be some sort of memory devices which keep track of a movement operation (e.g. Rizzi 1986).

(25) DPBE is absent in contexts where the pronominal element is syntactically complex.[5]

Note that the generalisation in (25) - unlike some of its predecessors (e.g. the 'clitic exemption effect', Baauw 2000) - doesn't just state that clitics lack DPBE but attempts to capture a correlation between lack of DPBE and the clitic's syntactic environment. Interestingly, this view finds some empirical support when we look at Serbo-Croatian, a language which has both clitics and syntactically complex pronouns.

6.1.4 Serbo-Croatian Pronouns. According to (25), clitics lack DPBE as a result of the syntactic structure they are in. This implies that lack of DPBE should not be peculiar to clitics. Consequently, if a language requires that full-pronouns obligatorily attach in a non-theta position, we expect that these too will lack DPBE, even though they may not be syntactic clitics. This scenario is found in Serbo-Croatian.

Firstly, note that unmarked structures in Serbo-Croatian are SVO if the object is a full DP (Perovic 2004):

(26) Marko voli kolace
'Marko loves cakes'

[4] Where complexity indicates that the element is not just a syntactic terminal (i.e. it is in some anaphoric relation with, but does not directly occupy, a theta-position). This is not unlike the notion of CHAIN discussed in Chomsky (1986a).

[5] Please note that this generalisation abstracts away from instances of A'-type movement.

However, if the object is a pronoun, it must attach preverbally, just like a clitic[6]:

(27) a. Marija njega voli
Mary him loves
'Mary loves him'
b. Marija ga voli
Mary him-CL loves
'Mary loves him

Consequently, Serbo-Croatian pronouns - like clitics - must be taken to have a complex syntactic structure which enables a relation between the position they occupy and the post-verbal theta position.

Perovic (2004) tested 37 children aged between 3;3 and 6;11 who were acquiring Serbo-Croatian as their first language and found that they performed in highly adult-like fashion in both clitic (27a) and pronoun (27b) contexts. On the pronoun condition, scores varied between 89%-95%, while on the clitic condition they were between 85%-95%, depending on age group.

These results strengthen the view that lack of DPBE is not peculiar to clitics, but correlates with the syntactic structure of pronominals, in accordance with the generalisation in (25).

6.1.5 Interim. Ideally, one would like to have an explanation for why (25) should hold. However, the purpose of this paper is to assess the empirical consequences of cascade-updating, a mechanism that is assumed to apply within the lexicon. Consequently, the reasons behind (25) are of less importance compared to the questions in (28), which are central to the current research:

(28) (i) What lexical property(-ies) are responsible for the clitic position?
(ii) Can these be transferred to pronouns (and thus cause acceleration effects)?

Note that (28ii) is reminiscent of what we asked earlier with regard to bilinguals (cf. 11). Similarly to the bilingual cases, we might expect that children acquiring a language that has both clitics and pronouns[7] would generalise across the two sets of elements since they share some core linguistic properties such as being theta

[6] Note that the SVO order is allowed in cases where the pronoun is used deictically while clitics are never allowed postverbally, presumably because they are in complementary distribution with elements carrying new information.

[7] I will be using the term 'pronoun' to refer to 'simple' pronominals which, unlike 'complex' pronominals (e.g. 27a), occupy a theta position.

marked as the object of a verb and having their interpretation regulated by Binding Theory. On the other hand, the hypothesis outlined in section 2 claims that it should be possible for clitics and pronouns to develop totally independently of each other if, for example, they belong to separate categories, as was the case for Greek demonstratives on the one hand and Dutch/English pronouns on the other.

Because the application of cascade-updating is dependent on paradigmatic properties, we must first address (28i) before any predictions can be made with regard to (over)generalisation (i.e. 28ii).

I will therefore focus on these particular points and leave aside any question with regard to what underlies (25) (however, see McKee 1992 and Baauw 2002 for proposals in this direction).

7 Clitic Properties

7.1 Introduction

The linguistic literature is filled with views on what lexical-syntactic properties should be associated with clitics, a fact that makes the task of addressing (28ii) far from simple. However, many proposals attribute certain properties to clitics based on theory-internal assumptions. Here I would like to take a step back and look at what is possibly the oldest assumption underlying the term *clitic*, namely that it refers to a lexical category in its own right. Although this is far from uncontroversial, I will give a brief overview of clitic behaviour (mostly drawing from the work of Zwicky 1977, 1985 and Monachesi 1995) in order to show that this seems to be the most likely state of affairs. Notably, this position is increasingly regaining support (e.g. Grimshaw 1997, Gerlach 2002) and probably dates back to ancient Greek grammarians - though credit is due to Zwicky (1977) and Klavans (1982) for more 'recent' observations on the subject. Moreover, I believe that adopting this independently well-motivated position can help us understand some of the facts about monolingual as well as bilingual first language acquisition.

7.2 Categorial Status

The term 'clitic' is often used descriptively (not least in the above sections) though its coinage is far from accidental. In particular, Romance clitics are notorious for having resisted attempts to classify them as part of independent lexical categories. In fact, many analyses have been developed specifically to account for the fact that clitic behaviour appears to indicate that they are hybrids between words and affixes. Although historically clitics have developed from unarguably fully-fledged words, synchronically speaking they do not display all the properties commonly

associated with independent words nor do they seem to be obviously classifiable as affixes.

7.2.1 Non-words. Probably the most well-known fact about clitics is that, unlike independent words, they cannot occur in isolation:

(29) Chi hai visto? Gianni/Lui/Un uomo/*lo
Who have [you] seen? John/him/a man/him-cl

Another property that is unattested in independent words is the occurrence of arbitrary gaps (Zwicky and Pullum 1983, criterion B). One of Chomsky's important observations is that the well-formedness of a string is dependent on the syntactic category of the component words, not on the words themselves. If a VP can be formed by a verb-noun sequence, then *any* verb-noun sequence will be a well-formed VP, irrespectively of its meaning: *eating cakes; growing books, assembling grandmothers*. Zwicky (1977) refers to this as the lack of arbitrary gaps, presumably hinting at the fact that syntax does not impose arbitrary limitations on the occurrence of word pairs. However, Monachesi (1995) observes that Italian clitics do display such gaps in at least two contexts: clitic-verb and clitic-clitic combinations (adapted from Monachesi 1995: 42; see Gerlach 2002 for more examples from other Romance languages):

(30) a. Gli argomenti riguardanti-ci /-mi /-vi
The topics concern.PART-1PL /1SG /2PL
'the topics concerning us/ me/ you(pl)'
b. Gli argomenti riguardanti-*lo /*-la /*-le /?-li /?-ti
The topics concern.PART-3SG.M /3SG.F /3PL.F /3PL.M /2SG
'the topics concerning him/ her /her / them(f)/ them(m)/ you(sg)'

(31) a. Emanuela gli(e) lo/ la/ li/ le presenta
Emanuela 3DAT 3ACC.SG.M/ 3.ACC.SG.F/ 3PL.M/ 3PL.F introduces
'Emanuela introduces him/ her/ them(m)/ them(f) to him'
b. Emanuela gli(e) *mi / *ti/ *ci/ *vi presenta
Emanuela 3DAT 1SG/ 2SG/ 1PL/ 2PL
'Emanuela introduces me/ you(sg)/ us/ you(pl) to him'

The ungrammaticality of (30b) and (31b) cannot be obviously explained if one takes clitics to belong to any traditionally recognised word category whose behaviour is regulated solely by syntax. This suggests that the distribution of clitics is (at least partly) outside the syntactic domain, a property not attested within traditional word categories. This is particularly clear when comparing clitics to

pronouns which, like other independent words, can combine freely with each other without restrictions:

(32) Emanuela presenta me/ te/ lui/ lei/ noi/ voi/ loro a lui
Emanuela introduces me/ you(sg)/ him/ her/ us/ you(pl)/ them to him

Another property that is unattested for independent words is what Zwicky (1985) calls *rigid ordering*. Just as syntax does not impose restrictions on word combinations (e.g. (32) above), it also imposes no absolute ordering restrictions. Clitics, however, always appear strictly ordered with respect to each other (though not always with respect to their host, see section 7.2.2):

(33) (adapted from Monachesi 1995;38):
a. Martina me la ha spedita
Martina 1sg 3sg has sent
'Martina has sent it to me'
a'. *Martina la mi ha spedita
Martina 3sg 1sg has sent

Although some unarguably independent words do undergo some kind of ordering restrictions (e.g. John donated a table to the church / *John donated the church a table) these are clearly imposed by the selecting verb, and do not hold independently. The restrictions exemplified in (33), on the other hand, are closely tied with the clitics themselves and must therefore be acknowledged as peculiar to these lexical items.

Moreover, by comparing (33a) with (34) we see that the order in which clitics appear with respect to each other mirrors that of NPs in unmarked structures:

(34) Martina ha spedito una lettera a Vito
Martina has sent a letter to Vito

In other words, clitics seem to show behaviour typically associated with morphological elements, in that their order mirrors that of corresponding full forms (the Mirror Principle; Baker 1988). Taking this as a starting point, it could be assumed that clitics are in fact inflections[8] whose behaviour is regulated by

[8] The most obvious assumption would be that they are agreement markers (see Monachesi 1995 for a proposal in this direction). However, this raises the question of why, at least in most Romance languages, they are in complementary distribution with the lexical object they supposedly agree with.

morphology rather than syntax. Within this hypothesis, the peculiar behaviour outlined above would be given a straightforward explanation; if cliticisation is not done within the syntactic domain, it follows that clitics will not display the properties of syntactic terminals.

Nevertheless, this hypothesis finds little support when we look at those contexts in which clitics also diverge from affixes, reminding us of the reason why the term *clitic* was coined in the first instance.

7.2.2 Non-Inflectional. As we have just seen, one property which might indicate the affixal status of clitics is that they seem to follow a rigid ordering. However, there are other ordering issues to be considered. In particular, clitics often display a certain amount of freedom with regard to their position relative to the host/stem, a property not commonly associated with affixes[9]:

(35) a. Lo voglio vedere
3SG want-1SG see
'I want to see him'
b. Voglio veder-lo
Want-1SG see-3SG

On the one hand, it seems that clitics - like affixes - show restrictions with respect to their position relative to each other. On the other hand, they show word-like behaviour (e.g. behaving like adverbs) as they display some freedom with respect to their position relatively to the verbal domain[10].

Another property that is hard to reconcile with the idea that clitics are inflections is the total lack of suppletive structures within the supposed paradigm, what Zwicky (1985) calls *morpho-phonological idiosyncrasies*. As is well-known, inflectional paradigms are rich in suppletive forms as well as sub-regularities. However, perhaps surprisingly, clitics never show up in an unexpected form[11]. In the same vein, it is never the case that an object is realised as a 'zero clitic', analogously to 'zero morphemes':

[9] This is attested in structures that contain verb sequences and that have often been analysed as restructuring contexts (see for example Cardinaletti and Shlonsky 2004).

[10] Alternatively, we could look at the data from a derivational point of view where (35a) and (35b) are linked to each other via a movement relation (e.g. Rizzi 1982). Although this would involve a different set of assumptions, it would indicate that, unlike affixes, clitics can be targeted by a syntactic operation, thus illustrating the same point as the argument based on ordering.

[11] Although some clitics have allomorphs, their distribution does not have the properties of arbitrary phonology-semantics mapping.

(36)

	Plural inflection	*Agreement marker*	*Clitic*
Overt	sip / sip-s	throw / throw-s	prendi / prendilo-lo take / take-3SG
Zero	sheep / sheep-	may / may-	?

Consequently, cliticisation does not display blocking effects, another property commonly known to hold for morphological structures (e.g. the existence of *sheep* blocking the formation of **sheeps*).

Yet another issue that casts doubt on the supposed affixal status of clitics is their visibility to syntax. It is generally agreed that morphological structures are invisible to syntax. As far as syntax is concerned, a word is a single constituent regardless of whether it might be morphologically complex. Consequently, syntactic operations can only target words, not parts of words, as these are outside their domain. This point is illustrated by Zwicky's *deletion under identity*. In certain contexts, a syntactic constituent can be deleted if its content can be determined via another (structurally related) constituent. Typical examples of this are *co-ordination* (37a) and *VP ellipsis* (37b):

(37) a. I bought [~~the whole lot~~] and sold the whole lot in less than a week
b. If Bill says he will lend us a penny, then he will [~~lend us a penny~~]

Crucially, the elements being deleted must be syntactic constituents, hence the following ungrammaticalities (adapted from Zwicky 1977: 3):

(38) a. *Yellow[~~ish~~] or greyish
b. *I was sing[~~ing~~] and dancing

In this case too, clitics pattern with syntactic rather than morphological constituents as they can be targeted by deletion:

(39) Lo comprero' e [~~lo~~] vendero' in meno di una settimana
3SG buy-1SG.FUT and [3SG] sell-1SG.FUT in less than one week
'I will buy and sell it in less than a week'

In conclusion, it seems that the term clitic is not just a place-holder. Clitic behaviour indicates that these elements cannot be classified as belonging to any

independently recognised group, be it syntactic or morphological[12]. One strong possibility is that they constitute a lexical category in their own right. Perhaps, a clitic behaves in its own way because it is unlike anything else, and we might have to give up the "uncontrolled but utterly vain desire to see it in terms of something familiar" (Feynman 1967: 127). Elements belonging to the clitic category are a sort of interface elements which can be targeted by both syntax and morphology, hence the peculiar behaviour discussed in 7.2. This also provides a reasonable answer to the point in (28i) above.

7.2.3 A More Complex Alternative. Failing to be catalogued as part of an independently recognised group does not necessarily imply that clitics must belong to a different lexical category. For example, affixes are often assigned an independent syntactic category (e.g. Williams 1981), the fact that they need to attach to a stem is then taken to be a consequence of some other lexical feature. A nominal affix such as *-ness* is therefore specified as a noun, the only difference between it and regular nouns being some feature which specifies its dependent nature:

(40) [+N, -V], bound ↔ /nəs/

Arguably, a similar situation could hold for clitics. For example, clitics could be taken as belonging to the same category as pronouns, in which case some other features(s) would have to be made responsible for their interface behaviour.

However, what these features might be is not immediately obvious. Firstly, clitics must carry a feature[13] which enables them to establish a syntactic dependency, as argued in section 6.1.3. Additionally, they must also carry some feature that can be targeted by morphological operations such as ordering (cf. section 7.2.2). It seems self-evident that one must postulate at least two separate features since there appears to be no general correlation between these operations.

Moreover, if we take clitics and pronouns to belong to the same lexical category we must postulate a further feature as being responsible for the well-known semantic difference they display with regard to the selection of human referents (Delfitto and Corver 1993):

(41) a. Gianni lo vede. (lo = Bill/the tree)
Gianni him-CLT sees

[12] A number of phonological properties have also been argued to be specific to clitics (see in particular Nespor and Vogel 1986). However, I do not intend to discuss these here since the focus of this overview is on morpho-syntactic properties.

[13] Or, alternatively, they must be specified for a particular feature value.

b. Gianni vede lui. (lui = Bill/*the tree)
Gianni sees him

It is generally agreed that this is a consequence of the different specification that these items have with regard to the feature [human]: while pronouns are specified as either + or – [human], clitics are underspecified (i.e. they are [αhuman]).

In brief, if we are to maintain that clitics and pronouns belong to the same lexical category, we must recognise that they differ in at least three respects: (i) clitics must have an extra syntactic feature, call it σ, which pronouns lack, (ii) clitics must also have a morphological feature, call it μ, which pronouns also lack and (iii) clitics and pronouns differ with regard to their specification for the feature [human]. Consequently, the lexical entries for the Italian pronoun *lui* and the clitic *lo* would look as in (42) and (43) respectively:

(42)	variable [+human]	↔	pron, 3sg, masc, acc	↔	/lui/
(43)	variable [αhuman]	↔	pron. σ, μ 3sg, masc, acc	↔	/lo/

Of these features, σ is the one that provides us with an answer to (28i). In the next section I will look at what the implications are with regard to the question in (28ii).

8 Implications for Overgeneralization

8.1 The Role of Lexical Specification

In section 6 we saw that lack of DPBE correlates with the syntactic structure of the object. While simple pronominals display DPBE, those that have an internal syntactic structure do not.

Due to their lexical specification, clitics must merge preverbally and establish a relation with the object position, thus fulfilling the requirements in (25), which grants them immunity to DPBE. We can now address the question posed in (28ii). If - as suggested at the end of section 7.2.2 - pronouns and clitics belong to separate lexical categories, the answer is rather straightforward just as we saw with regard to bilinguals; whatever knowledge the child might have gained with regard to clitics cannot be transferred to pronouns, as this would involve cross-categorial transfer, an impossible outcome within this model. The answer to (28ii) is therefore expected to be negative. If, however, clitics turn out to belong to the same category as pronouns (cf. 7.2.3), we must consider the effects of the σ feature.

8.1.1 Remarks on Sigma. If pronouns and clitics are taken to belong to the same category, lack of DPBE would be tied to the feature σ, since this is responsible for clitic placement.

For (28ii) to be answered positively, it is necessary that the lexical item in (42) somehow erroneously acquire σ. Note that, in light of the Serbo-Croatian data, we must concede that σ is not incompatible with pronouns.

Given the nature of cascade-updating, two conditions have to be met before this feature can be generalised over to pronouns, thereby causing them to be immune to DPBE. The first is a consequence of the informationally monotonic nature of cascade-updating while the second is a necessary condition for cascade-updating to be triggered:

(44) (i) The pronoun must lack a value for σ
(ii) The pronoun must be perceived to form a paradigm with the clitics.

The condition in (44i) could, in principle, be met if we leave aside chronological issues of feature acquisition. The latter condition, however, could not. Recall that, given a list of lexical items, the paradigmatic properties will be the highest number of properties these items share. Consequently, a lexicon that includes a number of clitics and pronouns of the kind exemplified in (42) and (43) will identify two separate paradigms, namely (45a) and (45b) respectively:

(45) a. var. [+human], pron. Acc.

b. var. [αhuman], pron. Acc. μ

In other words, the condition in (44ii) is not met and therefore cascade-updating will not be triggered. Consequently, children are expected to show DPBE in pronoun contexts regardless of whether the language they are acquiring also happens to have clitics. In the next section, I will present an experiment conducted with children acquiring Italian as their first language which was set up to test this prediction.

8.2 The Experiment

The goal of the experiment was to find out whether Italian speaking children show DPBE in pronoun contexts (46a) and clitic contexts (46b):

(46) a. La mamma sta asciugando lei (**NPX-N**)
the mom is drying her

b. La mamma la sta asciugando (**NCX-N**)
the mom her-cl is drying
'The mom is drying her'

8.2.1 The Subjects. 21 children and 3 adults participated in the study. Three more children were excluded as they either did not pay attention or answered 'yes' to most of the control questions.

The child subjects were from the Scuola Materna Adele Palli in Voghera (Lombardy region) and they ranged in age between 3:4 and 5:9 (mean 4:8). The children were all brought up in Italy by Italian speaking parents and were acquiring Italian as their first language. The adults were native Italian speakers and were selected from the same region as the children in order to minimise the effects of dialectal variation between subjects.

8.2.2 Material and Procedure. The experimental technique used was the Yes/No Judgment Task adapted from Chien and Wexler (1990). This is a comprehension test used to elicit grammaticality judgements from children. The task is used to test whether, for a given structure, children allow interpretations that are ruled out by adults.

The experiment consisted of 2 test conditions: one for clitics and one for pronouns. For each experimental condition there were 6 different trials with syntactically identical inputs but which involved 3 different sets of characters and 3 different actions. The three predicates used were: *asciugare* (dry) *lavare* (wash) *pungere* (sting/poke), each of which appeared twice for the test conditions. After presenting the child with a cartoon picture, the experimenter gives a context-setting input by pointing out the characters to the child. Finally, the experimenter asks a question related to the picture to which the child is expected to give a yes/no answer. For example, the experimenter would present the child with a picture of two male characters (clearly representing an adult and a child) one of whom was performing some action. An example of the trial is given in (47):

(47) NPX-N

Experimenter: "Questo e' Pierino seduto per terra e questo e' il vigile dentro la vasca da bagno. Il vigile sta lavando lui?"

(This is Little Peter sitting on the floor and this is a policeman in a bathtub. "Is the policeman washing him?")

Adult response: No

The question in (47) leaves the child with a choice between two meaning-utterance pairs: one is an accurate description of what happened, but it is ruled out by Principle B. The other is a grammatical, but inaccurate description of the story:
Meaning1: the policeman$_i$ is washing him$_i$ [True, though ruled out by Principle B]
Meaning2: the policeman$_i$ is washing him$_k$ [Grammatical but False]

The child's answer is taken to represent his/her competence: children answering "yes" are taken to allow meaning1 and therefore to diverge from adult competence as far as Principle B is concerned.

8.2.3 Control Conditions. The sentence-meaning pairs described above include true-ungrammatical and false-grammatical. In addition to these, three control conditions were also included. These consisted of two sets of true-grammatical pairs (one for clitics and one for pronouns) as well as one set of false-ungrammatical pairs. The 30 items were arranged in a pseudo-random order[14].

[14] This involved feeding question numbers through a 'randomise' computer method and then checking that the resulting order did not include any sequence of (three or more) questions that might elicit a 'yes' response and thus lead to a potential sequence effect.

8.2.4 True-grammatical. A "yes" response to (47) is reconcilable with an adult-grammar. It might just be the case that, although the child considers the sentence ungrammatical, his/her judgement is overridden by the truth value of the sentence. In other words, s/he understands that the speaker must have meant "the policeman is washing himself" and therefore answers "yes". In order to control for this, utterance-meaning pairs of the type true-grammatical were also included for both pronoun (NPM-Y) and clitic contexts (NCM-Y). If it is the case that truth overrides grammaticality, then the child will treat true-ungrammatical & true-grammatical pairs similarly. However, if the child's grammar allows two interpretations, s/he will perform at ceiling in the true-grammatical cases but at chance-level in the true-ungrammatical cases.

8.2.5 False-ungrammatical. These sentence-meaning pairs were included randomly to ensure that the child's "yes" responses were not due to independent reasons (it is well documented that children have a tendency to answer "yes", presumably to please the adult). Given that a false-ungrammatical pair must necessarily elicit a "no" answer, they contributed information about the validity of the data.

8.2.6 Results. All children performed in virtually adult-like fashion in the true-grammatical (NPM-Y / NCM-Y) and false-ungrammatical (ConX-N) control conditions:

(48)

ConX-N	**NPM-Y**	**NCM-Y**
121/126 (96%)	119/126 (94%)	121/126 (96%)

On the test conditions, however, only 5 children performed in adult-like fashion in both pronoun and clitic contexts[15]. Those children who did not perform in adult-like fashion scored considerably high in clitic contexts but performed at chance level in pronoun contexts:

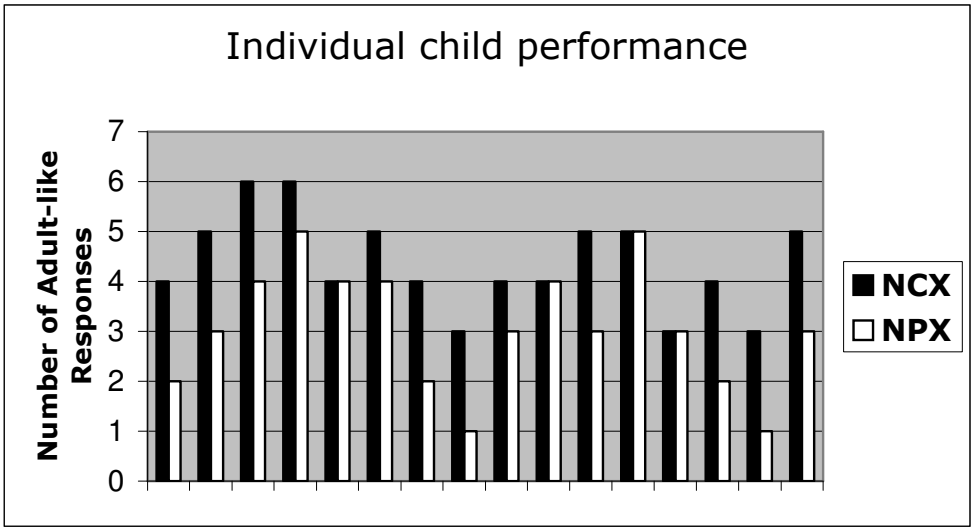
(49)

NCX-N	**NPX-N**	**NCM-Y**	**NPM-Y**
70/96 (73%)	49/96 (51%)	92/96 (96%)	89/96 (92%)

[15] Although three of these children were part of the older group (5;6 – 5;9) there was no clear correlation between age and performance as some of the children who did not perform in adult-like fashion were also approaching their sixth birthday. Presumably, the different performances were linked to their linguistic rather than chronological age, though this could not be established with certainty as they had passed the stage where MLU could be measured and I had no access to the history of their linguistic development.

A t-test revealed that performance in NCX-N and NPX-N contexts differs significantly (p=0.001). The chart in (50) shows that the two contexts differed unidirectionally, with none of the children performing higher in NPX-N contexts:

(50)



8.2.7 Summary. The experiment indicates that Italian children reject Principle B violations significantly more often in clitic contexts than in pronoun contexts. On the test condition for pronouns Italian children perform in a manner consistent with children acquiring a language that does not have clitics, thus providing a negative answer to the question in (28ii). This confirms our expectation that lack of DPBE cannot be transferred from clitics to pronouns and lends further support to the cascade-updating model.

9 Conclusions

This paper set out to evaluate a theory of lexical acquisition proposed in Tamburelli (2004) which takes syntactic transfer effects in bilinguals and overgeneralization in monolinguals to be manifestations of the same underlying mechanism.

An important claim made by this model is that both transfer effects and overgeneralization only ever target items that belong to the same paradigm.

The focus of the investigation was DPBE. It was shown that in Bilingual First Language as well as monolingual acquisition lexical properties are not generalised across paradigms. This strengthens the tie between the two phenomena and provides important empirical evidence in favour of the cascade-updating model.

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