L1/L2 Spanish grammars and the pragmatic deficit hypothesis

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In recent research on primary (L1) and non-primary (L2) acquisition, special attention has been given to whether syntactic development is subject to a continuity condition. While it has been proposed that the continuity condition applies to both L1 and L2 syntactic growth, the changes that take place in developing grammars have sometimes been attributed to other cognitive systems. Specifically, it has been proposed that child grammars are 'underspecified' because they lack a pragmatic principle which determines the range of indices available for establishing verbal and nominal coreference. According to this proposal, a grammar which is underspecified for Number has null subjects and bare NPs only with non-inflected verb forms. Assuming that adults will not have a pragmatic deficit of the kind proposed for children, we have analysed data from child L1 Spanish and adult L2 Spanish. The results of our analysis show that: (1) in child L1 Spanish, the feature Person may encode Number so that when Person is distinctively implemented, root infinitives and bare NP subjects will cease to occur. However, the pervasive morphology of Spanish verbs conspires against the possibility of providing clear-cut evidence for underspecification in the case of child Spanish; (2) the different nature of L1 and L2 root infinitives may provide partial evidence for underspecification in the case of L1 Spanish; and (3) in the case of L2 learners, the distribution of null and overt subjects seems to be partially determined by their L1 rather than by underspecification.

I Introduction

The purpose of this paper is to investigate whether the 'underspecification' of Number, which has been proposed to account for the structural properties of child grammars, can provide an explanation for changes in developing of L1 and L2 Spanish grammars. Hoekstra and Hyams (1995), Hyams (1996) and Hoekstra *et al*. (1997) classify languages according to the features which determine the strength of their morphological paradigms. They maintain that languages vary with respect to the functional heads which are specified in the morphosyntax, so that some

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languages specify Number (English and most Germanic languages), while others specify Person (Spanish, Italian, Catalan) or Tense (Japanese, Korean).

The feature Number is crucial in the implementation of finiteness, which is understood as the morphosyntactic expression of a chain which provides the sentence with a specific temporal interpretation and is a property of both verbal and nominal domains. Hoekstra and Hyams (1995) maintain that child grammars are underspecified with respect to the feature Number, due to the fact that children lack, or may not activate, a pragmatic principle which favours temporal anaphora (temporal interpretation is fixed grammatically) versus temporal coreference (temporal inter-pretation occurs discursively). Grammars that lack the feature Number contain root infinitives (non-finite verbal forms which occur in environments where a finite form would be expected), null subjects and null determiners.

The fact that the morphological paradigm of Spanish (and other languages) implements the feature Person poses a number of interesting questions concerning whether or not child Spanish is also underspecified. For instance, it would be important to determine what the morphological and syntactic characteristics are, if any, of a child grammar which is underspecified for Person and whether there is a relationship between the implementation of Person and the implementation of Number. Hoekstra and Hyams (1995) maintain that, in Romance languages, evidence for lack of temporal coreference may come from the 'avoid plural phenomenon' because child Italian, child Catalan and child Spanish do not contain plural verbal forms at the early stages. Thus, if we assume that child Spanish also lacks the pragmatic principle which favours temporal coreference versus temporal anaphora, it would follow that our child Spanish data should not provide evidence for the cross-categorial effects (root infinitives, pro-drop and determiner drop) which result from underspecification of Number in child Germanic. Nonetheless, our child Spanish data should indeed provide evidence for the 'avoid plural phenomenon'.

In the case of L2 acquisition, the proposal presents an interesting problem because adults, unlike children, do have, or do systematically activate, the pragmatic principle which is lacking in child grammars. Consequently, adult native and non-native production is not expected to show instances of underspecification of the type proposed for child grammars.[1] Thus, in the case of adult L2 acquisition of Spanish, the question would be the following: will

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[1] Adult grammars only show optional specification as a last resort (Hoekstra and Hyams, 1995; Hyams, 1996).

morphological shortcomings prevent the implementation of temporal coreference or will temporal coreference be implemented via the abstract feature system of the first language? If the latter is the case, we expect different results depending on which of the features is implemented by the L1.[2] English speakers, for example, should not show evidence of underspecification of the feature Number, since it is specified in their L1. As for Korean and Cantonese speakers, on the other hand, their Spanish interlanguage should differ from that of the English speakers but should not parallel the child L1 Spanish pattern because yet another feature, Tense, or none of these features is specified in their L1s.[3]

This paper is organized as follows: first, we present (Section II) Hoekstra and Hyams (1995) and Hyams' (1996) typology of languages in terms of the morphosyntactic specification of their functional heads. In Section III, we present the 'underspecification hypothesis' which states that a grammar is underspecified for Number when it lacks the pragmatic rule which determines the range of indices available for establishing verbal and nominal coreference. In Section IV, we present analyses of L1 and L2 spontaneous data produced by 2 child Spanish speakers and 16 Spanish interlanguage speakers from different L1 backgrounds.

II Morphological features and null arguments

Hoekstra and Hyams (1995), Hyams (1996) and Hoekstra *et al.* (1997) propose that languages vary with respect to which functional features are specified in the morphosyntax. Languages such as Spanish and Italian are specified for Person, English and Dutch are specified for Number, and Japanese and Korean are specified for Tense, as illustrated in Table 1.

These are precisely the features which play an important role in the distribution of null and overt arguments crosslinguistically. In fact, the intuition that there is a close relationship between the

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[2] It has been argued that Germanic languages such as Swedish may be specified for Tense rather than for Number. However, since robust RIs effects have been reported for child Swedish, child Danish as well as in child French (Wexler, 1994; Sano and Hyams, 1994), Hoekstra and Hyams (1995) consider that those RIs are a reflection of underspecification of Number.

[3] We thank an anonymous reviewer for pointing out to us that while Korean pairs with Japanese, we may have to treat Cantonese differently because it may not be specified for neither Number nor Person or Tense. This may in fact be the logical implication of Hoekstra and Hyams's (1995) proposal. However, for the purpose of our study, we do not think that it is specially relevant because neither Korean nor Cantonese are specified for either Number or Person. Therefore, the prediction would still be that the Korean and Cantonese Spanish interlanguage should differ from the rest of the interlanguages included in our study.

Table 1 Specification of functional heads

	Person	Number	Tense	
Type-a	m	–	Ø	[Italian, Spanish, . . .]
Type-b	Ø	m	Ø	[English, Dutch, . . .]
Type-c	Ø	Ø	m	[Japanese, Korean, . . .]

presence of null arguments and the morphological features of a given language has been current since Perlmutter (1971) proposed a surface structure filter which made overt subjects obligatory in some languages but not in others. However, it was not always easy to capture or to formalize this intuition (see Huang, 1984; Rizzi, 1986; or articles in Jaeggli and Safir, 1989).

While some languages are awkward or difficult to slot into a clear-cut classification, data from language acquisition might shed light on the way in which these features can be dealt with within the syntax. For instance, Snyder's (1995) analysis of child Spanish data and our own analysis of child data from Magín and María (Liceras *et al.*, 1999) suggest that it is the incorporation of overt features for Gender (and not Number) in the Spanish Determiner which leads to N-drop. Dealing with null subjects is far more complicated because they occur in all early child language, regardless of whether they are possible in the adult counterpart. One approach to early null subjects has been to attribute them to performance limitations (Bloom, 1990; Valian, 1991). However, performance limitations do not account for all null arguments in early grammars (Hyams and Wexler, 1993); hence several competence accounts have been provided (Lebeaux, 1988; Radford, 1990; Guilfoyle and Noonan, 1992; Pierce, 1992; Wang *et al.*, 1992; Hyams, 1994; Rizzi, 1994; Roeper and Rohrbacher, 1995; Hamann, 1996). Some of these competence accounts assume that children produce null subjects with root infinitives because they lack a functional category. However, the underspecification hypothesis (Hyams, 1996) assumes that it is not lack of functional categories but the underspecification of a given feature (Number), due to lack of a pragmatic principle, that accounts for null subjects. Thus, this hypothesis differs from previous accounts of null subjects in that it assumes that child grammars do not differ from their adult counterparts structurally, but rather pragmatically.

In the case of adult L2 acquisition, differences between native and non-native grammars have been attributed to lack of functional categories (Tsimpli and Roussou, 1991; Vainikka and Young-Scholten, 1994; 1996), deficiencies in the overt morphology (Schwartz and Sprouse, 1994; 1996; Epstein *et al.*, 1996; Hazdenar

and Schwartz, 1997; Lardiere, 1998a; 1998b; Prévost and White, in press), lack of access to the L2 feature specification system (Liceras *et al.*, 1997; Liceras and Díaz, 1998), or impairment in terms of feature specification (Eubank, 1994; 1996; Beck, 1997; 1998).

In this paper, we base our analysis of L1 and L2 Spanish on the underspecification hypothesis proposed by Hoekstra and Hyams (1995), Hyams (1996) and Hoekstra *et al.* (1997), our initial assumption being that if this hypothesis is correct, and even if our child Spanish data pairs up with child Romance data in general rather than with child Germanic in terms of productivity of RIs, child Spanish may still provide evidence for underspecification of Number. As for our L2 Spanish data, our initial assumption is that it will not show any of the characteristics of a grammar which is underspecified for Number.

III The underspecification hypothesis

The underspecification hypothesis states that root infinitives and lack of overt subjects or determiners in child grammars are the consequence of a lack of the grammatical encoding of specificity, because Number is underspecified. Finiteness provides a sentence with a specific temporal or finite interpretation and is a property of both verbal and nominal domains. Finite morphology and determiners are 'anchor' points (points at which the sentence fixes itself with respect to discourse). Tense places events relative to the time of discourse and Determiner NPs refer back to familiar entities (discourse referents).

Hyams (1996) draws from Guéron and Hoekstra (1989; 1995) to propose that the dependency between a temporal operator (TO) in Comp and Infl in the verbal domain may be anaphoric as in (1) or pronominal as in (2).

1) TO_i John [$Infl_i$] knows the answer.   (present)

2) TO_i John [$Infl_j$] drove the car.   (past)

Note that only in (1) do TO and Infl share the same index. When Infl is coindexed with a temporal operator, as in (1), it yields a present-time interpretation. When it is contra-indexed with a temporal operator, as in (2), it yields a past interpretation. The function of the Infl-chain is to ensure that the predicate is referential by linking V+Infl to the temporal operator (TO) and from there to the discourse world.

If Infl is not indexed, as indicated in (3), no Infl-chain can be created and the verb has no temporal interpretation.

3) TO_i John [$Infl_{\emptyset}$] drive the car.

Lacking an index is the result of underspecification of the functional feature Number. In this case, the sentence is given a default present-time interpretation, which is what Hyams (1996) suggests for the interpretation of root infinitives.[4] According to Hoekstra and Hyams (1995) and Hyams (1996), nominal specificity also depends on Number, so that, as indicated in Table 2, there is a parallel between verbal and nominal specificity.

In the case of V, specificity is provided via the establishment of a Comp/T/V chain. In the case of N, specificity is provided through the establishment of a Det/X/N chain. If the functional head Number is left unspecified, then specificity is not implemented in a given grammar, be it in the N or the V domains. According to this proposal, Infl is specified via its temporal index – a co-index as in (1) or a contra-index as in (2) – and the fact that it is part of a chain which may have a morphological realization (the *-ed/-s* contrast in English). Thus, if Infl is unindexed or if it is not part of an Infl-chain, it is underspecified. If this is the case, the verb will not have morphological markers, as in (3), where the infinitival receives a temporal interpretation (normally a declarative one) via discourse. In this way, present tense can be anaphoric (temporal anaphora), when it receives a temporal interpretation through binding, as in (1), or it may result from a non-linguistic interpretation (temporal coreference) as in (3).

Children make use of temporal coreference because they are assumed to lack principle 'Rule T' (Reinhart, 1983), a pragmatic principle according to which temporal anaphora, as defined above, takes precedence over temporal coreference.[5] Thus, while adults

Table 2   The grammatical encoding of specificity

(T)OP	Comp	Number	[$_{TP}$	T	[$_{VP}$	V	]]
(N)OP	Det	Number	[$_{DP}$	X	[$_{NP}$	N	]]

[4] As Atkinson (1996) notes, Hyams' (1996) concept of 'underspecification' differs from the one used by Clahsen, Penke and Parodi (1993). While for the latter, a given functional category is underspecified when it contains only a subset of the features which conform to the adult counterpart, for Hyams, underspecification relates to the actual indexing options which a grammar implements;namely, the child grammar tends to choose the default option (the zero indexing option).
[5] Rule 'T' is the verbal counterpart of Reinhart's Rule 'I', which blocks local coreference between NPs and their antecedents.
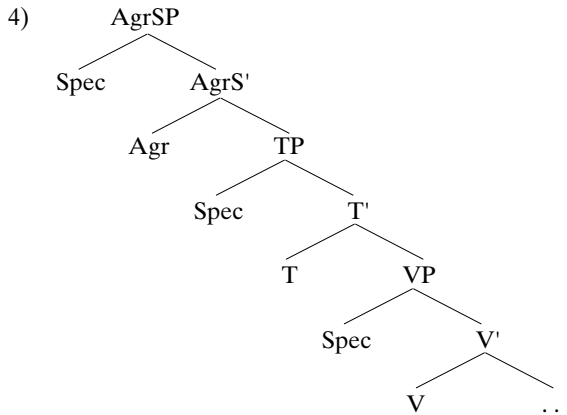
choose (1) over (3) because they obey pragmatic principle 'T', children can choose (3) because they have not yet implemented this principle.

The pragmatic deficit hypothesis predicts that a grammar which chooses a zero indexing as in (3) – the default option according to Hoekstra and Hyams (1995) – will implement the following distribution of null/overt subjects:

1) A subject of a root infinitive (RI) – an uninflected form (infinitival) in a matrix clause where finite forms should occur – will be a null pronoun or a bare NP (with neither Det nor plural marking). This will be the case because in the verbal domain, Number is the result of Spec-Head agreement and consequently encodes the property of the subject. Thus, there is agreement when features are specified but agreement is not expected to occur when features are underspecified.

2) A subject of a finite verb will be a DP with a Det or a plural subject. This follows from the fact that in the same way that unspecified verbs require unspecified subjects, specified verbs require specified subjects. According to Hoekstra *et al.* (1997), pronouns and proper nouns appear in both finite and infinitival forms because they are neither finite nor non-finite.
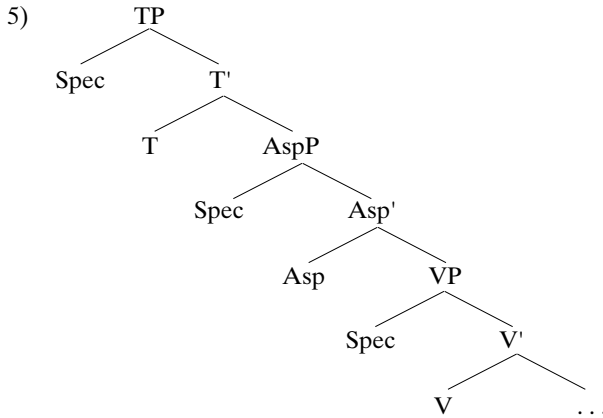
Therefore, in a grammar which is underspecified for Number we expect to find a clear-cut distinction in terms of the relationship between the type of verb (finite/non-finite) and the type of subject (full NPs vs. bare and null NPs).

However, since Spanish is a null subject language, null subjects will normally occur with finite forms. Thus, it will be the presence of subjects in general and subject pronouns (overt subjects) with infinitivals that provide evidence for violation of the finite/non-finite distinction. Furthermore, according to Rizzi (1994), root infinitives occur when the clause is truncated below the TP level. Consequently, they are not possible in languages such as Spanish, Italian or Catalan because the verb (including the infinitival) moves to AgrSP, which implies that TP always has to be present, as shown in (4):

4)

```
                    AgrSP
                   /     \
                Spec      AgrS'
                         /     \
                      Agr       TP
                               /   \
                            Spec    T'
                                   /   \
                                  T     VP
                                       /   \
                                    Spec    V'
                                           /   \
                                          V     . . .
```

   Drawing from Sano and Hyams's (1994) review of the frequency
of RIs in child languages, Hoekstra *et al.* (1997) maintain that
Rizzi's (1994) prediction is confirmed because the percentage of
RIs in child Italian, child Spanish or child Catalan is never robust
(the average rate is 6%), while RIs in Germanic and French reach
much higher proportions (an average rate of 26% to 78%). Thus,
the truncated structures which result in root infinitives are not
possible in Romance because in these languages a full TP has to be
present for the verb (including the infinitival) to move to AgrSP, as
in (4). Thus, both Rizzi (1994) and Hoekstra *et al.* (1997) predict a
lack of robust presence of RIs in Romance. However, while
according to Rizzi (1994) RIs occur with structures that are
truncated below the TP level, the underspecification hypothesis
of Hoekstra *et al.* (1997) states that Tense is always present but
may be underspecified for Number, which results in a robust
presence of RIs. This implies that if Italian or Spanish happen to
have a 'secondary' specification for Number, under-specification
of this 'secondary' feature does not result in a robust presence of
RIs.
   Bel (1997; 1998) argues that RIs in child Catalan and Spanish are
instances of truncated structures resulting from a misanalysis of the
[+strong] feature of the infinitival. In other words, Spanish and
Catalan children (and the same would apply to Italian children)
treat infinitivals as [–strong] and do not raise them to TP but to a
lower projection, AspP (Aspect Phrase), as shown in (5):

5)
```
                    TP
           ┌─────────┴─────────┐
         Spec                  T'
                        ┌──────┴──────┐
                        T            AspP
                              ┌───────┴───────┐
                            Spec             Asp'
                                       ┌──────┴──────┐
                                      Asp            VP
                                             ┌───────┴───────┐
                                           Spec              V'
                                                       ┌──────┴──────┐
                                                       V            . . .
```

Evidence that child Spanish and Catalan RIs are also truncated below TP comes from the fact that they are always declarative (temporal interpretation can be provided by discourse) and may have modal value (precisely because they lack T).

Assuming that Bel is correct and that RIs are instances of truncated structures, how are they to be interpreted within the underspecification hypothesis? First of all, if Spanish is not specified for Number, underspecification of Number cannot explain RIs. However, we would like to hyphothesize that Number is encoded together with Person and that Spanish RIs are instances of underspecification of the feature Person/Number. If this is the case, we expect to find a distinction in terms of the relationship between the type of verb and the type of subject. Alternatively, and following Grinstead (1994; 1998), underspecification of Number in Catalan and Spanish may be realized as absence of plural forms: the so-called 'avoid plural phenomenon', which has also been reported for child Italian (Hoekstra and Hyams, 1995).

IV The study

In order to investigate whether there is in fact evidence for underspecification in Spanish early child grammars and in the Spanish interlanguage of adult speakers, we have analysed two different types of data: data from L1 Spanish and non-native Spanish data from three groups of speakers: Group 1 (speakers of English, Danish and Swedish, languages specified for Number as outlined in Table 1); Group 2 (speakers of English with a high proficiency in French); and Group 3 (speakers of Korean, a language specified for Tense, and Cantonese, a language which

might turn out not to be specified for any of the three features under discussion).

1 L1 Spanish

In the case of L1 Spanish, a language marked for Person, the question to be investigated is whether or not there is any syntactic evidence for underspecification, the rationale being that it is implausible that only children learning type-b languages (languages marked for Number) have pragmatically underspecified grammars at the early stages. As we have indicated above, this question has to be asked in terms of the possible relationship between the features Person and Number. Assuming that the feature Person encodes Number as well, one possible way of investigating the issue is to see whether L1 Spanish will present the finite/non-finite distinction with respect to subject types before the Person feature is fully realized (in terms of contrastive use of both singular and plural inflectional markers).[6]

The L1 Spanish production data that we have analysed comes from two children, María (López-Ornat, 1994) and Magín (Aguirre, 1995) at three different stages, as indicated in Table 3.

Table 3   Subjects description: child L1 Spanish

Name of child	María	Magín
Corpus	López-Ornat (1994)	Aguirre (1995)
Country	Spain	Spain
Stage I	(age)	(age)
	1;7	1;7
	1;8	1;8
	1;9	1;9
Stage II (age)	(age)	(age)
	2;4	2;5
	2;5	2;6
	2;6	2;7
	2;7	
Stage III (age)	(age)	not available
	3;5	
	3;6	
	3;7	
	3;8	
	3;9	

[6] Even though Hoekstra *etal*. (1997) do not elaborate in terms of the possible relationship between these features, it seems to us that there is hierarchy which goes from Type-a languages to Type-c languages as follows:
• Languages marked for Person are secondarily marked for Number and Tense.
• Languages marked for Number are secondarily marked for Tense.
• Languages marked for Tense do not have other secondary markings.

The assumption for establishing the three different stages was based on the fact that there is a gap of several months between each stage, making it likely that substantial changes will have taken place.

Tables 4 and 5 show the distribution of subjects produced with inflected and non-inflected verbal forms in both matrix and subordinate clauses.

Table 4   Child L1 Spanish: Magín

	Inflected				Non-inflected			
	Matrix		Subordinate		Matrix (RIs)		Subordinate	
	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Null	111	447	4	58	17	2	1	50
Bare NP	18	2	–	1	–	–	–	–
N-plural	–	–	–	–	–	–	–	–
DetNP-singular	22	70	–	3	–	–	–	–
DetNP-plural	3	14	–	–	–	–	–	–
Pronouns	8	115	–	4	–	–	–	–
Proper N	11	24	–	3	–	–	–	–
Total	173	672	4	69	17	2	1	50

These data show the following:

1) Root infinitives (RIs) mostly occur at the early stage and they mostly occur with null subjects (Magín produces 17 out of 17 and María 53 out of 70) and bare NPs (María produces 9 out of 70).[7] This indicates that there is a clear preference for null subjects with RIs.[8] Table 6 shows examples of RIs produced both by Magín and María.

[7] We have classified Spanish infinitives as non-inflected because they are not overtly marked for agreement. However, they are inflected as *-ar*, *-er*, *-ir*, which means that Spanish does not exhibit pure stems. This, together with the fact that producing actual stems would imply ending words with a large variety of consonants – some of which would constitute rather alien phonological patterns for Spanish – would make it be very difficult for Spanish children to produce stem forms (uninflected 'root' forms). This has led some researchers (Meisel, 1994) to propose that the third-person singular indicative is the 'root' form, because rather than having any marking for person, it only consists of the stem plus the thematic vowel *a* in *-ar* verbs such as *cantar* (to sing), *e* in *-er* verbs such as *comer* (to eat) and *e* in *-ir* verbs such as *vivir* (to live).
[8] While some of these infinitival forms seem to be answers to questions which are also attested in adult Spanish, a large proportion are produced to initiate an exchange.

Table 5 Child L1 Spanish: María

| | Inflected | | | | | | Non-inflected | | | | | |
| | Matrix | | | Subordinate | | | Matrix (Rls) | | | Subordinate | | |
	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
Null	70	304	260	–	49	65	53	11	–	–	10	51
Bare NP	31	–	1	–	–	–	9	–	–	–	–	–
N-plural	3	–	–	–	–	1	2	–	–	–	–	–
DetNP-singular	17	31	15	–	1	6	2	–	–	–	–	–
DetNP-plural	2	6	4	–	4	4	–	–	–	–	–	–
Pronouns	8	62	54	–	3	10	4	–	–	–	–	–
Proper N	16	15	2	–	7	–	–	–	–	–	–	–
Total	147	418	336	–	64	86	70	11	–	–	10	51

Table 6   Child L1 Spanish: instances of infinitival forms

Magín		María	
amir (*abrir*)	'to open'	*acá* (*caer*)	'to fall'
a guardar (*guardar*)	'to put away'	*a pompá* (*poner*)	'to put'
a ver (*ver*)	'to see'	*apá* (*a tapar*)	'to cover'
a mir (*dormir*)	'to sleep'	*at-pa/a tapá* (*tapar*)	'to cover'
		a amí (*a dormir*)	'to sleep'
		o pí/ao pí/a pí (*pintar*)	'to draw'
		ti/titi (*pinchar*)	'to pinch'
		acar/acá (*a secar*)	'to dry'
		o pis (*a peinar*)	'to comb'

It may be argued (Aguirre and Grinstead, personal communication) that given the fact that *a* occurs before the infinitival forms in a large number of cases, these forms are actual adult forms which have an imperative mood as in (6):

6) Juan, a dormir
   Juan, to sleep.
   'Juan, go to sleep.'

However, it is far from obvious that the infinitival forms produced by Magín and María are adult-like forms. Some of these *a* infinitives have an intentional (modal) or an extentional (descriptive or ongoing activity) value, as suggested by Wijnen and Bol (1995) for child L1 Dutch root infinitives. In fact, Fernández (1994: 33) notes that the first verbal forms in María's production (1;7–1;9) are true imperatives – *ven* (come), *quita* (move) – and *a* infinitives, and that the latter are used with both intentional and extentional values. This is also the case for child Catalan (Bel 1998). The fact that both children produce null subjects in non-finite embedded contexts might suggest that their infinitives are not RIs. However, null subjects in non-finite embedded clauses only occur at the second stage, when the production of RIs drops dramatically (17 vs. two in the case of Magín and 53 vs. 11 in the case of María).

2) Since Spanish is a pro-drop language, the presence of null subjects with finite verbs has to be taken for granted, and it does not go against the underspecification hypothesis. On the contrary, the presence of overt subjects with infinitivals (full NPs and pronominals) in the case of María's data (she produces a total of 8, which is almost as many as bare NPs) should be taken as evidence against the underspecification hypothesis.

3) Bare NPs are rather frequent but only at the early stage,

especially with inflected forms of the verbs, which is also contrary to the underspecification hypothesis. Tables 7 and 8 show the percentages of null and bare NPs produced in the case of finite and uninflected sentences.

4) These data show that it is not clear that underspecification is reflected in terms of the so-called 'avoid plural phenomenon' in Romance. We say this because, as Table 9 shows, there is indeed a very low production of plural verbal forms initially but this is the case both at the first, and at the second and third stage.[9]

5) Given Grinstead's (1994; 1998) claim that there is a stage in L1 Catalan and L1 Spanish in which no overt subjects occur, it is surprising to find such a high percentage of overt subjects at the early stage. Thus, these data do not provide evidence for a stage without subjects.[10]

To conclude this section, predictions are partly met in that RIs, null DP (null subjects) subjects of RIs and bare NP subjects of RIs occur in early child L1 Spanish, before the inflectional plural markers of verbs are used contrastively.[11] Furthermore, the number of null vs. overt subjects in inflected and non-inflected clauses is significant for both Magín (*Chi* 9.0435, *df* 1, *p* = .0026) and María (*Chi* 15.2443, *df* 1, *p* = .0005). However, the predicted distribution of subjects depending on the finite/non-finite nature of the verb does not hold because bare NPs mostly occur with finite verbs, while full NPs and subject pronouns occur with RIs. Therefore,

Table 7   Child L1 Spanish: Magín (percentage of null subjects, bare NPs and full NPs)

	Inflected (Matrix)		Non-inflected (Matrix) (RIs)	
	Stage 1	Stage 2	Stage 1	Stage 2
Null subjects	111/173 (64.16%)	447/672 (66.51%)	17/17 (100%)	2/2 (100%)
Bare NPs	18/173 (10.40%)	2/672 (0.29%)	0/17 (0%)	0/2 (0%)
Full NPs*	44/173 (25.43%)	223/672 (33.18%)	0/17 (0%)	0/2 (0%)

Note:
* Full NPs = all NPs and pronouns

[9] An anonymous reviewer points out that Grinstead's (1994; 1998) subjects may be younger either in terms of age or in terms of MLU. The relevant information concerning age and MLU can be found in Aguirre (1995), Grinstead (1998) and Bel (1998).

[10] See previous footnote.

[11] According to Aguirre (1995: 254) at 1;9;15 Magín is still using third-person singular and third-person plural markers indistinctly. In the case of María (Fernández 1994: 38), contrastive use of singular markers occurs at 1;9 and contrastive use of plural markers between 1;11 and 1;13.

Table 8 Child L1 Spanish: María (percentage of null subjects, bare NPs and full NPs)

	Inflected (Matrix)			Non-inflected (Matrix) (RIs)		
	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
Null subjects	70/147 (47.61%)	304/418 (72.72%)	260/336 (77.38%)	53/70 (75.71%)	11/11 (100%)	–
Bare NPs	31/147 (21.08%)	–	1/336 (0.29%)	9/70 (12.85%)	–	–
Full NPs*	46/147 (31.29%)	114/418 (27.27%)	76/336 (22.61%)	8/70 (11.42%)	0/11 (0%)	–

Note:
* Full NPs = all NPs and pronouns

Table 9 The 'avoid plural phenomenon' in L1 Spanish: singular/plural forms

	Stage 1		Stage 2		Stage 3	
	Singular	Plural	Singular	Plural	Singular	Plural
Magín	149/173 (86.11%)	24/173 (13.87%)	616/672 (91.66%)	56/672 (8.33%)	–	–
María	141/147 (95.91%)	6/147 (4.08%)	387/418 (92.58%)	31/418 (7.41%)	310/336 (92.26%)	26/336 (7.73%)

while the presence of RIs and bare NPs – in contexts which are not possible in adult Spanish – indicates that child Spanish differs from adult Spanish, the distribution of subjects in terms of the finite/non-finite distinction does not support the underspecification hypothesis.

2 L2 Spanish

In the case of L2 Spanish, our hypothesis is that adult learners do not have a pragmatic deficit resulting in a grammar containing the structural properties predicted by the underspecification hypothesis. Instead, L2 learners will assume L1 feature specification. This predicts:

1) If the L1 is a type-b language (specified for Number), the interlanguage will encode Number and have neither instances of root infinitives nor of bare NPs.
2) If the L1 is Type-c (neither specified for Number nor for Person), only Tense (in the case of Korean) and probably no feature (in the case of Cantonese) will be encoded, in which case, root infinitives and bare NPs should alternate with finite verbs and full DPs.

We have analysed interlanguage data produced by 12 adult native speakers of Type-b languages (Groups 1 and 2) and 4 native speakers of Type-c (Group 3) languages at two different levels of proficiency (beginners and advanced) as shown in Table 10. All beginner subjects had only had 50 hours of formal contact with Spanish and they scored 45 and below in the SGEL test.[12] All the advanced subjects had had more than 200 hours of formal contact with Spanish when the interviews were conducted and they score 60 or above in the SGEL test. Subjects in Groups 1 and 3 were living in Barcelona and studied Spanish at the Escuela Oficial de Idiomas, while in the case of Group 2 they were living in Ottawa and studying Spanish at the Lycée Claudel or at the University of Ottawa. These data were collected for the project 'Classroom L2 acquisition: beyond parameters' and the pilot study of the project 'The specific nature of non-native grammars and the principles and parameters theory'. All subjects were asked to tell stories based on

[12] The standardized placement test SGEL, published by Sociedad General Española de Librería, Madrid,was given to all subjects. This test has both an oral and a written part. The total score provided is a combination of both. Subject BB1 was included because, even though his written score was extremely low, he obtained the same score as the two other subjects in the oral part of the text. In the case of CA1 and CA2 the score on the written part (not on the oral part) accounts for their lower score with respect to the rest of the advanced subjects.

Table 10 Subjects description: L2 Spanish

	L1	Level	Programme	Age range	Hours	SGEL score	Date of interviews
Group 1							
BB1	English	Beginner	EOI Barcelona	20–30	50	9	July 95
BB2	Danish	Beginner	EOI Barcelona	20–30	50	25	July 95
BB3	Swedish	Beginner	EOI Barcelona	20–30	50	30	July 95
BA1	English	Advanced	EOI Barcelona	20–30	200	76	July 95
BA2	English	Advanced	EOI Barcelona	20–30	200	82	July 95
BA3	English	Advanced	EOI Barcelona	20–30	200	80	July 95
Group 2							
OB1	English/French	Beginner	LC Ottawa	12–14	50	36	Jan–Mar 95
OB2	English/French	Beginner	LC Ottawa	12–14	50	31	Jan–Mar 95
OB3	English/French	Beginner	LC Ottawa	12–14	50	45	Jan–Mar 95
OA1	English/French	Advanced	U Ottawa	20–30	200	75	Oct–Dec 96
OA2	English/French	Advanced	U Ottawa	20–30	200	80	Oct–Dec 96
OA3	English/French	Advanced	U Ottawa	20–30	200	81	Oct–Dec 96
Group 3							
CB1	Cantonese	Beginner	EOI Barcelona	20–30	50	25	Apr–June 96
CB2	Korean	Beginner	EOI Barcelona	20–30	50	27	Apr–June 96
CA1	Cantonese	Advanced	EOI Barcelona	20–30	200	60	Apr–June 96
CA2	Korean	Advanced	EOI Barcelona	20–30	200	60	Apr–June 96

the same pictures. In some of the interviews we used isolated pictures (depicting children singing, people at the beach, a couple dancing, etc.). In other interviews, there was a series of illustrations depicting a story about a family's holiday or a person's day at work.

We will first discuss the results for Groups 1 and 2, those with an L1 specified for Number, which are summarized in Tables 11 and 12. These results indicate that, contrary to our predictions, there are indeed RIs as well as infinitives in embedded clauses. As in the case of the children, the adults favour null subjects with RIs. However, in this case, the proportion of null subjects is similar across finite and non-finite clauses for Group 1, who produced a total of 42.10% with null subjects in inflected matrix clauses and a total of 40.74% of null subjects with RIs (Table 13). In the case of Group 2, more null subjects are produced with inflected matrix clauses (44.96%) than with non-inflected matrix clauses (25%), as indicated in Table 14.

As examples (7)–(9) show, the RIs produced by the non-native subjects differ from the ones produced by the children in that they never have the vowel *a* and they are used in the same contexts as actual inflected verbs, including coordinate clauses as in (7) and embedded inflected clauses as in (9).

7) Helena está de vacaciones y *tomar* el sol. [#1/BB1/July 1995]
   'Helena is on holidays and (to take) is getting a sun tan.'

8) Dos personas son amigos. Estas personas quieren dancir. *Ellos se inscribir* en un contexto a la biblioteca municipal... [#1/OB1/January 1995]
   'Two people are friends. These people want to dance. They [to register] register for a context at the Public Library.'

9) Una madre prepara la comida por su rincón, ¿rincón?, y ella, ella . . . Esta comida es, es muy deliciosa que dice el marido y dice también que él, que *él . . . deber trabajar*, que *él debe trabajar* al, en la oficina. [#1/OB3/ January 1995]
   'A mother prepares the meal at her corner. Corner?, and she, she . . . This meal is so delicious says her husband and he also says that he . . . [to have] has to work, that he has to work at, at the office.'

The specific nature of these RIs, which are indeed very different from the RIs produced by the Spanish children, seems to go in the same direction as Prévost and White's (in press) findings. That is, RIs in adult L2 acquisition are instances of missing inflection, occurring as substitutes for inflected forms.

These L2 data also differ from the child Spanish data in that no bare NP subjects were produced by any of the acquirers and in that the proportion of RIs with full NP (all NPs + pronouns) subjects

Table 11 L2 Spanish: Group 1

| | Inflected | | | | Non-inflected | | | |
| | Matrix | | Subordinate | | Matrix (RIs) | | Subordinate | |
	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced
Null	32	39	1	33	11	–	9	21
Bare NP	–	–	–	–	–	–	–	–
N-plural	1	–	–	–	–	–	–	–
DetNP-singular	7	18	1	3	1	–	–	–
DetNP-plural	8	11	–	4	4	–	–	–
Pronouns	18	8	1	3	4	1	–	–
Proper N	10	2	–	–	7	–	–	–
Total	76	78	3	43	27	1	9	21

Table 12 L2 Spanish: Group 2

| | Inflected | | | | Non-inflected | | | |
| | Matrix | | Subordinate | | Matrix (RIs) | | Subordinate | |
	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced
Null	58	108	11	33	1	–	12	–
Bare NP	–	–	–	–	–	–	–	–
N-plural	–	–	–	–	1	–	–	–
DetNP-singular	29	47	2	8	–	1	1	–
DetNP-plural	21	9	–	2	–	–	–	–
Pronouns	12	14	4	1	2	–	4	–
Proper N	9	16	–	2	–	–	–	–
Total	129	195	17	46	4	1	17	–

Table 13   L2 Spanish: Group 1 (percentage of null subjects, bare NPs and full NPs)

	Inflected (Matrix)		Non-inflected (Matrix) (RIs)	
	Beginners	Advanced	Beginners	Advanced
Null subjects	32/76 (42.10%)	39/78 (50%)	11/27 (40.74%)	–
Bare NPs	–	–	–	–
Full NPs*	44/76 (57.89%)	39/78 (50%)	16/27 (59.25)	1/1 (100%)

* Full NPs = all NPs and pronouns

Table 14   L2 Spanish: Group 2 (percentage of null subjects, bare NPs and full NPs)

	Inflected (Matrix)		Non-inflected (Matrix) (RIs)	
	Beginners	Advanced	Beginners	Advanced
Null subjects	58/129 (44.96%)	108/195 (55.38%)	1/4 (25%)	–
Bare NPs	–	–	–	–
Full NPs*	71/129 (55.03%)	87/195 (44.61%)	3/4 (75%)	1/1 (100%)

* Full NPs = all NPs and pronouns

is considerably higher (Group 1: 16/27; Group 2: 3/4; Magín: 0/17; María: 8/70). This is also the case for the subjects of inflected verbs, since full NPs and pronominal subjects always constitute a higher percentage of the total subjects than in the case of the children (Tables 13 and 14 vs. Tables 7 and 8). This pattern differs from the L1 pattern because in the early stage (beginners) there was no significant difference in the number of null subjects vs. overt subjects produced in inflected and non-inflected clauses (Group 1: *Chi* .0153, *df* 1, *p* = .9016; Group 2: *Chi* .6263, *df* 1, *p* = .4287). We interpret this as a result of morphological insecurity which prevents identification of null subjects via Spanish f-features (the morphological markers).

The results for Group 3 differ from those of Groups 1 and 2 as follows:

1) RIs (Table 15) continue to occur at the advanced stage.
2) Unlike Groups 1 and 2 these subjects produce a considerable amount of bare NPs, mainly with inflected forms (Table 16). In fact, the proportion is higher than in the case of child Spanish, and it decreases significantly at the advanced level. Given the fact that Groups 1 and 2 do not produce any bare NP subjects, this striking difference between the two groups of learners may be due to L1 influence plus the fact that lexical learning may

Table 15 L2 Spanish: Group 3

| | Inflected | | | | Non-inflected (RIs) | | | |
| | Matrix | | Subordinate | | Matrix | | Subordinate | |
	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced	Beginners	Advanced
Null	13	53	2	9	7	5	–	6
Bare NP	18	3	–	–	1	–	–	–
N-plural	2	–	–	–	2	–	–	–
DetNP-singular	4	27	–	8	1	2	–	–
DetNP-plural	2	12	–	1	3	–	–	–
Pronouns	2	10	–	1	1	–	–	1
Proper N	3	8	–	–	–	–	–	–
Total	44	113	2	19	15	7	–	7

Table 16   L2 Spanish: Group 3 (percentage of null subjects, bare NPs and full NPs)

	Inflected (Matrix)		Non-inflected (Matrix) (RIs)	
	Beginners	Advanced	Beginners	Advanced
Null subjects	13/44 (29.54%)	53/113 (46.90%)	7/15 (46.66%)	5/7 (71.42%)
Bare NPs	18/44 (40.90%)	3/113 (2.65%)	1/15 (6.66%)	–
Full NPs*	13/44 (29.54%)	57/113 (50.44%)	7/15 (46.66%)	2/7 (28.57%)

* Full NPs = all NPs and pronouns

be more difficult for the Korean and Cantonese learners than for speakers of English, French or German (Liceras and Díaz, 1998; Liceras and Díaz, 1999).

3) The proportion of Full NP subjects with RIs is higher than in the case of child Spanish but not as high as in the case of Groups 1 and 2. In fact, since Korean and Cantonese are null topic languages, one would expect that identification via null topics would make full NPs less relevant than in the case of Type-b languages. In other words, L1 speakers of [–null subject] languages would tend to rely on overt subjects while L1 speakers of [+null topic] languages would feel comfortable with null subjects. In fact,as shown in Table 16, null subjects are more likely to occur with RIs (46.66% vs. 29.54%), which is not the case for Groups 1 and 2. This could lead us to conclude that Korean and Cantonese speakers are less dependent on overt subjects or overt verbal morphology because they transfer their null topic strategy into Spanish. However, if this were the case, why would they produce (Table 17) so many overt subjects with inflected clauses at the early stage?

A possible answer is that they need to mark constantly the topic with these overt subjects because the interviews consisted of pictures with different characters, as the constant use of overt subjects (10) seems to suggest.[13]

10) Las, *las niños*, los niños, contar, con ... son español ... *los chicos* baila, bailar ... son amigos ... [...] *María*, María es mujer, mujer de Calos, *ella*, ella tenes cocinas ... [CB1 INT#1]
    'The, the boys, the boys, [to count] to sing, with ... are Spanish ... the boys dances, to dance ... are friends ... Maria, Maria is wife, wife of Carlos, she, she (you have) kitchens.'

[13] This results in a lot of redundancy. However, when speakers of null topic languages organize their own discourse (talk about a movie) the transfer of their identification strategy (null subjects are identify via null topics) to L1 Spanish conveys the opposite result from Spanish (Liceras and Díaz, 1998; 1999). Namely, the Spanish interlanguage contains chains of null subjects which are not acceptable in native Spanish.

Table 17   Proportion of null vs. overt subjects (percentages in brackets)

	Matrix inflected		Matrix non-inflected	
Magín	Stage 1	Stage 2	Stage 1	Stage 2
Null subjects	111/173 (64.16%)	447/672(66.51%)	17/17 (100%)	2/2 (100%)
Overt subjects	62/173 (35.83%)	225/672(33.48%)	0/17 (0%)	0/2 (0%)
María				
Null subjects	70/147 (47.61%)	304/418(72.72%)	53/70 (75.71%)	11/11 (100%)
Overt subjects	77/147 (52.48%)	114/418(27.27%)	17/70 (24.28%)	0/11 (0%)
	Beginners	Advanced	Beginners	Advanced
Group 1				
Null subjects	32/76 (42.10%)	39/78 (50%)	11/27 (40.74%)	–
Overt subjects	44/76 (57.89%)	39/78 (50%)	16/27 (59.2%)	1/1 (100%)
Group 2				
Null subjects	58/129 (44.96%)	108/195(55.38%)	1/4 (25%)	–
Overt subjects	71/129 (55.03%)	87/195(44.61%)	3/4 (75%)	1/1 (100%)
Group 3				
Null subjects	13/44 (29.54%)	53/113(46.90%)	7/15 (46.66%)	5/7 (71.42%)
Overt subjects	31/44 (70.45%)	60/113(53.09%)	8/15 (53.33%)	2/7 (28.57%)

In the case of the advanced learners, the proportion of overt subjects is closer to that of Groups 1 and 2, which may indicate that these speakers are in the process of changing their discourse patterns and consequently their need to mark topics. This change from the beginning to the advanced level is only significant in the case of Group 3, as shown by the results of a Chi-square test conducted on the number of null and overt subjects per level shown in Table 18.

As predicted, these L2 data do not provide evidence for underspecification of Number due to a lack of the pragmatic principle 'T' because the relationship between type of subject and finiteness (null and bare NP subjects/non-finite verbs vs. full NPs/finite verbs) does not hold. Evidence for underspecification of Number does not come from the so-called 'avoid plural phenomenon' either (see Table 19) because:

Table 18   Chi-square test results on the number of null and overt subjects per level

	Chi-square value	*df*	*p*	Significant
Group 1	0.9655	1	.3258	No
Group 2	3.3761	1	.0661	No
Group 3	3.9157	1	.0478	Yes

Table 19 Groups 1 and 2: production of singular and plural forms

	Beginners			Advanced	
	Singular	Plural		Singular	Plural
L2 Spanish: Group 1					
BB1	41/52 (79%)	11/52 (21,15%)	BA1	23/26 (88.46%)	3/26 (11.53%)
BB2	12/13 (92%)	1/13 (7.69%)	BA2	17/25 (68%)	8/25 (32%)
BB3	5/11 (45%)	6/11 (54.54%)	BA3	23/27 (85.18%)	4/27 (14.81%)
Total	58/76 (76.31%)	18/76 (23.68%)	Total	63/78 (80.76%)	15/78 (19.23%)
L2 Spanish: Group 2					
OB1	40/54 (74.07%)	14/54 (25.92%)	OA1	37/57 (64.91%)	20/57 (35.08%)
OB2	28/34 (82.35%)	6/34 (17.64%)	OA2	55/73 (75.34%)	18/73 (24.65%)
OB3	21/41 (51.21%)	20/41 (48.78%)	OA3	47/53 (88.67%)	6/53 (11.32%)
Total	89/129 (68.99%)	40/129 (31%)	Total	140/183 (76.50%)	44/183 (24.04%)

1) The production of plural forms is rather high even at the beginners level.
2) There is considerable variation in the proportion of singular vs. plural forms produced by the individual learners.
3) The advanced learners do not produce more plural forms than the beginner learners, neither proportionally nor in absolute terms.

V Conclusion

In conclusion, in child Spanish, there is only a partial relationship between the type of subject and the finite/non-finite distinction. Namely, root infinitives occur with null subjects and bare NPs rather than with full DPs. These root infinitives are not possible in adult Spanish and differ from L2 infinitives in at least three ways:

1) They do not occur in embedded clauses introduced by a complementizer.
2) They decrease dramatically when adult-like infinitivals in subordinate clauses emerge.
3) They may be preceded by an *a*.

There is no relationship between the type of subject and the finite/non-finite distinction in that null subjects and bare NPs occur as subjects of inflected verbs. While the presence of null subjects is expected because Spanish is a null subject language, bare NPs are not present in the input and are not possible in adult Spanish. Thus, they have to be accounted for. One possible way of accounting for them is to say that lexical learning of determiners has to take place. However, since these bare NPs coexist with full NPs, in the same way as RIs coexist with inflected forms, we would like to propose that these bare NPs and RIs would be the only evidence for underspecification as a choice of the default option (the zero indexing option resulting from lack of principle 'T') in child Spanish. Furthermore, it is the rich morphology of Spanish verbs and the fact that it is a null subject language which explain why child Spanish, unlike child Germanic, does not contain clear-cut evidence for underspecification.

Our non-native Spanish data does not provide evidence for underspecification of the feature Number because the relationship type of subject and finite/non-finite distinction does not hold. Furthermore, the fact that all three groups produce RIs cannot be taken as partial evidence for underspecification because these adult L2 Spanish RIs are different from the ones produced by the Spanish children. As for bare NPs, they only show up in the Group 3 data,

which looks similar to the L1 data in this respect because bare NPs decrease dramatically past the early stage. However, since Group 3's RIs are similar to those of Group 1 and 2 (due to morphological impairment and not to syntactic or pragmatic impairment), we would like to suggest that Group 3's bare NPs are possible because Type-c languages are neither marked for Person nor for Number. In other words and as predicted, learners in Groups 1 and 2 (with a Type-b L1) do not produce bare NPs because their L1 is specified for Number and they transfer this feature specification to their early L2 grammar. Learners in Group 3 transfer their L1 feature specification to their early L1 and therefore produce bare NPs.

L1 influence may also explain the two different patterns that emerge in the distribution of null and overt subjects with inflected verbs: production of null vs. overt subjects is always balanced in the case of Groups 1 and 2 while Group 3 learners, whose L1s are null subject languages, produce an unexpectedly high number of overt subjects at the early stage. We have suggested that the null topic nature of Korean and Cantonese leads these learners to mark topics by using overt subjects or to identify null subjects via null topics, depending on the type of discourse pattern they engage in.

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