The Imperative as RI Analogue: New Data and Competing Theories*

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As is well known, child Italian does not show a typical Root Infinitive (RI) stage (Guasti 1994), in contrast to German, Dutch, etc. Salustri and Hyams (2003) proposed that in Italian the imperative verb is an analogue to the German (Dutch, etc.) RI. We hypothesized that this is true for null subject languages in general, none of which shows a typical RI stage. In this paper, we present data from 4 additional null subject languages, Spanish, Catalan, Slovenian, Hungarian - in support of the Imperative Analogue Hypothesis (IAH). We also present relevant data from Icelandic and Dutch, both RI languages, which further support the IAH and we test two competing analyses of the IAH against these data.

1. The Imperative Analogue Hypothesis

Based on data from several monolingual Italian and German-speaking children, as well as a bilingual German-Italian child, Salustri and Hyams (S&H) (2003) proposed that the very high frequency of imperatives in child Italian represents an RI stage in this Romance language. Table 1 shows the proportion of RIs and imperatives in the 2 languages of the bilingual child, Leo.

Table 1. Percentage of RIs and Imperatives: Leo

	German		Italian	
Age	*RI*	*IMP*	*RI*	*IMP*
2;0-2;4	51/63 (81%)	1/63 (1%)	1/45 (2%)	25/45 (56%)
2;6-2;7	28/46 (61%)	3/46 (6%)	2/29 (7%)	10/29 (35%)

Table 1 shows that RIs are very frequent in Leo's German corpus. Between the ages of 2;0 and 2;4, 81% of all of Leo's verbs are imperatives, dropping to 61% several months later. At the same time, the percentage of RIs in Leo's Italian corpus goes from 2% to 7%, very low at both points. Conversely, imperatives are very frequent in the Italian corpus and virtually absent in German. Examples of Leo's German RIs and Italian imperatives are given in (1).

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(1) a. Enzo malen
Enzo draw-inf.
'Enzo wants to draw'
b. Questo mettilo via mamma
this put-imp-it-cl. away mom
'Put this away, mom!'

The patterns observed in Leo's language mirror results from several monolingual German and Italian children. S&H showed that the proportion of imperatives in monolingual Italian-speaking children peaks at around 40% between the ages of 2;0 and 2;4, while the rate of imperatives in the German monolinguals remains at around 10% between the ages of 1;6 and 2;6.[1] German is not the only RI language that shows a very low rate of imperatives. Blom (2003) observes that the rate of imperatives in Dutch child language is under 10% for the 6 children she studied, while the average rate of RIs for these children is 73%.

The generalization that emerges is that imperatives are very frequent in the early stage of languages without an RI stage, but very infrequent in the RI languages. New data from Icelandic confirms this generalization. Sigurjónsdóttir (2004 and p.c.) calculates the rate of imperatives and RIs in Eva between the ages of 1;1 and 2;4. These results are reported in Table 2.

Table 2. Percentage of RIs and Imperatives in Icelandic: Eva

Age	*RI*	*IMP*
1;1-	1254/1927 (65%)	25/1927 (1%)
1;8-	620/2565 (24.1%)	30/2565 (1%)

A further observation is that in many RI languages the majority of RIs have a modal or irrealis interpretation, expressing the child's wish, need, or intention with respect to the eventuality expressed by the verb (e.g. Wijnen 1997; Lasser 1997; Becker & Hyams 1999). This modal reference effect (Hoekstra & Hyams 1998) is illustrated in Leo's German RIs: 89% of Leo's RIs had a future/modal meaning (cf. Berger-Morales, Salustri and Gilkerson 2003). Finally, it has been observed that RIs are largely restricted to eventive verbs (Wijnen 1997; Lasser 1997; Hoekstra & Hyams 1998; Becker & Hyams 1999). This is also exemplified in Leo's German data; 100% of Leo's RIs were eventive, while his finite verbs verb split between eventive and stative (cf. Berger-Morales, Salustri and Gilkerson 2003).

As argued in S&H, RIs are tenseless, they often have an irrealis interpretation, and they are restricted to eventive predicate. Thus, prima facie, the imperative is a plausible candidate as an RI analogue because it shares these essential RI properties. First, imperatives have irrealis meaning, that is, they express a direction to bring about a state of affairs that is unrealized at speech time. We adopt Han 's (2001) description of the imperative as a form that is

[1] The Italian children were Francesco 1;5-1;8 (Roma corpus, CHILDES), Denis 1;5-2;2 (from Leonini 2002), Martina 1;10-2;7, Diana 1;8-2;6 and Viola 2;1-217 (Calambrone corpus, CHIDLES); the German children were Caroline 1;3-2;6, Kerstin 2;0, and Simone 2;0-2;7 (Nijmegen corpus, CHILDES).

marked with an irrealis feature that contributes an unrealized mood interpretation, and a directive feature encoding directive illocutionary force. Also, they are restricted to eventive predicates and lack a tense specification.

Unlike RIs, however, imperatives are fully grammatical in adult language and so their simple appearance in the child's language is not remarkable. But if the imperative in child null subject languages represents an RI analogue, as we suggest, we expect it to have some distinguishing properties. Two possibilities suggest themselves: First, we expect that in null subject languages imperatives will occur significantly more often in child language than in the adult language. The logic behind this prediction is that over time some portion of imperatives (which express irrealis mood) will be replaced by modals, just as RIs trade off with modals (Blom 2003). This prediction was confirmed by S&H for Italian. In fact, our data showed that imperatives in the Italian child data constitute around 40% of verbal utterances, while imperatives in the adult input to the children make up only 13% of all verbs. The second prediction of the IAH is that in comparing different child languages, imperatives will occur significantly more often in null subject languages than in the RI languages. A similar reasoning gives rise to this prediction, viz. if RIs and imperatives both express irrealis mood, then RIs might bleed imperatives in RI languages. This prediction was also borne out, as discussed earlier. There are significantly more imperatives in Italian (40%) than in German (10%), even in the bilingual child.

Note that we are not claiming that imperatives and RIs are functionally equivalent in early grammar. RIs express various modal meanings including volition, future/intention, and obligation. Imperatives express only the latter. Rather, our claim is that RIs and imperative verbs are formally related in that they both have an irrealis feature (cf. also Han 2001), that is, they denote eventualities that are unrealized at speech time, which we take to be defining characteristic of the irrealis class.

In the following section, we extend the empirical base of the IAH by discussing several other null subject languages. We begin with two Romance languages, Spanish and Portuguese and then turn to Hungarian and Slovenian, which are also null subject languages.

2. Imperatives in Other Null Subject Languages

2.1 Spanish and Catalan

An RI stage is not attested in the acquisition of Spanish and Catalan (Grinstead 1998, Bel 2001, and Montrul 2003). Table 3 (based on Bel 2001) shows that the incidence of RIs in Catalan and Spanish is very low, under 4% for each child.

Table 3. Proportion of RIs in Catalan and Spanish-speaking children (1;7-3;0)

Catalan		*Spanish*	
	% RI		*% RI*
Gisela	0% (0/627)	Maria	2% (39/1956)
Pep	2% (25/1248)	Emilio	0 (0/1588)
Julia	3% (22/720)	Juan	2% (6/335)

On the other hand, as noticed by Grinstead and Montrul, imperatives are attested from the very onset of language acquisition and they occur very frequently. Some examples of imperatives produced by the Catalan-speaking children are given in (2). These examples are particularly noteworthy because they show that the children correctly position the verb with respect to clitics, that is, the imperative verb has raises to a position to the left of the clitic.[2]

(2) a. Ajuda'm
help-imp. me-acc.cl
'Help me!'

b. Da me
Give-imp. Me-acc.cl.
'Give me!'

The percentage of imperatives is very high initially and decreases with age. Table 4 (based on Grinstead 1998) shows the percentage of imperatives at earlier and later data points for several Catalan-speaking children. Two of these children, Gisela and Pep, are among the children studied by Bel whose RI data were presented above in table 3.

Table 4. Percentage of imperatives in child Catalan

Child	*Age*	*%*	*Age*	*%*
Laura	1;7-	41%	2;4-3;0	31%
Pep	1;3-	41%	2;1-2;7	26%
Gisela	1;0-	25%	2;2-3;0	22%
Guillem	1;0-	56%	1;11-	33%

To determine the rate of imperatives in Spanish child language we turn to data presented in Arbisi (2004). Arbisi analyzed the verbal system of two Spanish-speaking children, Maria (Childes, Lopez 1994), Emilio (Childes, Vila 1985). Imperatives constituted a large percentage of verbal utterances in the children's corpora. This percentage decreased over time approaching adult frequency of 17%.[3] These results are presented in table 5.

Table 5. Percentage of imperatives in Spanish

	Age	*%Imp*
Emilio	2;1-2;3	41% (108/265)
	2;5-2;9	30% (149/482)
Maria	1;7-	28% (149/524)
	2;1-2;2	20% (138/687

Note that at this stage modals are unattested in both Emilio's and Maria's data, consistent with our hypothesis that modals eventually drive out some of the imperatives. RIs are also absent from Emilio's data. Maria, on the other hand, shows a relatively high RI rate of 20% between the ages of 1;7 and 1;9, which decreased rapidly to under 5% after that point.[4]

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[2] As we will discuss below, Italian children also position clitics correctly.

[3] The adult imperative rate was calculated on the basis of the adult input in the Childes files.

[4] This very early use of RIs has been reported for other children acquiring Romance languages. Bel (2001) observes that both Maria (Spanish) and Julia (Catalan) showed a relatively high rate of RIs before age 1;9, after which time they decrease dramatically (cf. also, Torrens 2002; Davidson &

Summing up the discussion thus far, an RI stage is not attested in the acquisition of Spanish and Catalan (but cf. note 4). On the other hand, imperatives are quite frequent in the early stage and decrease over time. These data support the IAH which posits a complementarity between RIs and imperatives. In the next section, we discuss data from two non-Romance languages null subject languages, Hungarian and Slovenian.

2.2 Hungarian and Slovenian

Like the Romance languages just discussed, RIs are virtually unattested in child Hungarian and Slovenian, as reported by Londe (2004) and Rus and Chandra (2004), respectively. Data from two Hungarian-speaking children and 15 Slovenian-speaking children are presented in Table 6 (based on Londe 2004 and Rus and Chandra 2004, respectively).

Table 6. Percentage of RIs in Hungarian and Slovenian.

		Age	*% RI*
Hungaria	Miki	2;1-2;4	0%
n	Andi	2;1-2;5	1%
Slovenian	15	1;5 -	1%

Table 7. Imperatives in Hungarian.

	Age	*% Imp*
Miki	2;1-2;3	26% (27/104)
	2;4 – 2;7	10% (19/191)
Andi	2;1	21% (40/121)

The RI results lead us to expect a high percentage of imperatives in child Hungarian and Slovenian. This prediction is confirmed. As shown in the Hungarian data in Table 7, imperatives start out high and decrease with age (Miki). Note also that the percentage of imperatives in Hungarian in the adult language (child-directed) is around 8% (Londe 2004).

Similar results hold for Slovenian. In the corpora of the 15 children (age 1;5 -2;0) studied by Rus and Chandra (2004), over half of the verbal utterances (56%) are imperatives. As no data from older children or adults is reported, we do not know if there is a decrease in the use of imperatives, but we strongly suspect that adult imperative usage is under 56%. Examples of Slovenian and Hungarian child imperatives are given in (3a) (from Rus p.c.) and (3b) (from Londe, p.c.).

The empirical data are quite clear. In languages with a robust RI stage (e.g. German, Dutch, Icelandic), imperatives occur infrequently. In non-RI languages, including the Romance null subject languages as well as Hungarian and Slovenian, imperatives occur at an extraordinarily high rate during the early

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Goldrick 2003; Schaeffer 1990). Children acquiring "real" RI languages do not show this pattern. Their rate of RIs is higher and continues well into the third year. It is an intriguing possibility that all children may in fact pass through an RI stage, which, however, ends much earlier for children acquiring null subject languages. In this case, we would still want to know why the two language types show distinct patterns and why imperatives come into play in the null subject languages but not the "RI" languages.

stage of acquisition, both as compared to adult frequencies and to the frequency of imperatives in the RI languages.

(3) a. (Po)krov dej! (Lenart, 1;9)
cover.acc. give.2sg.imp.
'Give me the cover!'

b. Anya, nevessé (l)! (Miki 2;7)
mom laugh 2sg.imp.
'Mom, laugh!'

3. Is the RI-analogue Really an Imperative Form?

We have maintained that in the non-RI languages the imperative is an RI analogue. It has been suggested, however, by Grinstead (1998) and others, that in the Romance languages the 3rd person singular indicative is a default non-finite form for children. Along similar lines, Joao Costa (p.c.) suggests that what we have identified as an imperative is not in fact an imperative, but rather the default indicative form. In the following section, we will consider this hypothesis in more detail. We will also consider the hypothesis that the imperative form constitutes an underspecified form in child language in the distributed morphology sense, along the lines proposed by Wexler et al (2004) for the Dutch RI and English bare verb. We turn first to the '3rd person default hypothesis' or 3D Hypothesis, for short.

3. 1 The 3D Hypothesis

Grinstead (1998) observes that some imperatives are homophonous with the 3rd person indicative. In Italian, for example, this is true of first conjugation (*-are*) verbs, the most common class, as illustrated in (4a,b).

(4) a. Mario **mangia** una mela.
Mario eat-ind.3ps. an apple
'Mario eats an apple.'

b. **Mangia**!
eat-imp.
'Eat!'

Similarly, in Spanish the imperative is homophonous with the 3rd person singular indicative in all conjugation classes. An example is provided in (5).

(5) a. Juan **come** una naranja.
Juan eat-Ind.3ps an apple
'Juan eats an apple.'

b. **Come!**
eat-imp
'Eat!'

Thus, in principle, what we have identified as the imperative could be a default indicative form in these cases. However, in the Italian 2nd (*-ere*) and 3rd (*-ire*) conjugation classes, the imperative is not homophonous with the 3rd person indicative. Table 8 shows the indicative and imperative forms in the 3 conjugations.

Table 8. Italian imperative and 3rd person indicative forms

	-are	-ere	-ire
Imperative	mangia!	*prendi*!	dormi!
Indicative	Mangia	Prende	Dorme

If the 3D hypothesis is correct, we should not find child imperatives from these conjugation classes because they are morphologically distinct from the 3rd person indicative. This prediction is not confirmed. Table 9 provides a breakdown of the imperatives in Diana's corpus. We see that she uses imperatives from all 3 verb classes. In particular, she uses imperatives of the *–ere* and *–ire* classes, which are not homophonous with the 3rd person indicative. This finding is inconsistent with the hypothesis that the RI analogue is a default indicative form.

Table 9. Percentage of imperatives from 3 verb classes: Diana (1;8-2;6)

Verb class	*Imperative*	*Frequency*
-are	Mangia!	114 (66%)
-ere (prendere)	Prendi!	43 (25%)
-ire (dormire)	Dormi!	14 (8%)

However, Table 9 shows that the majority of Diana's imperatives (114/ 171 or 66%) are from the 1st conjugation class. This might be construed as support for the 3D hypothesis, since this is the hypothesized default form. But there are independent reasons why the majority of Diana's imperatives are from this class. The *–are* conjugation is in fact the most productive class in the language as evidenced by the fact that loan words are typically assigned to this class, for example, ***cliccare*** 'to click', ***zippare*** 'to zip' and *scannerizz**are*** 'to scan' (L. Brunetti, p.c.). Also, this class is the most frequently occurring in the language, as shown in Table 10. The figures in Table 10 (from Albright 2002) are based on a calculation of verb frequency in a spoken corpus of half a million words (de Mauro et al 1993).

Table 10. Relative distribution of Italian verb classes.[5]

Verb	*Frequency*
-are	1463 (72%)
-ere	323 (15%)
-ire	197 (10%)

Comparing Tables 9 and 10, we see that the distribution of Diana's imperatives is very close to the overall distribution of the 3 verb classes in the (adult) spoken language. The greater frequency of imperatives from the *–are* class are therefore expected for independent reasons and do not support the 3D hypothesis.

Another source of evidence against the 3D hypothesis is provided by the distribution of clitics in early language. As noted earlier, the position of the clitic differs in indicative and imperative clauses. In the indicative (subjunctive

[5] Although Albright distinguished 4 verb classes, *-are, -ire, and –ere* and *–ére*, we make use of the traditional 3 way classification, collapsing Albright's *–ere* and *–ére* classes, in order to compare the adult and child data. This does not affect the results.

and conditional) the clitic occupies a position immediately preceding the verb, while affirmative imperatives precede the clitic, as exemplified in (6).

(6) a. Mangiala!
Eat-imp. it-cl.
'Eat it!'

b. La mangia
It-cl eat-ind.3.ps
'He eats it.'

Thus, another prediction of the 3D Hypothesis is that children will not correctly position the clitic with respect to the imperative verb, but rather treat it like an indicative. This prediction is also not confirmed in our data. The results in Table 11, from Diana, show that she distinguishes imperatives and indicatives and correctly positions the clitic in both cases.

Table 11. Clitic position in imperative and indicative clauses: Diana 1;8-2;6.

	Proclitic	*Enclitic*
Indicative	27	1
Imperative	0	28

In short, the predictions of the 3D Hypothesis are not supported by our data. Let us turn now to a second hypothesis, that the imperative form is actually an underspecified form, in the distributive morphology (DM) sense.

3.2 The Underspecification (DM) Hypothesis

Based on the theory of distributed morphology (Halle & Marantz 1993), Wexler et al. (2004) propose that the RI in Dutch (cf.7a) and the English bare verb (cf.7b), are overgeneralizations of underspecified forms.

(7) a. Papa schoenen wassen
Daddy shoes wash-inf.
b. Eve sit floor.

The Dutch *–en* form of the verb appears in multiple positions in the verbal paradigm - infinitives and all the plural persons. The morpheme *–en* is thus arguably underspecified with respect to tense and also person. Similarly, the English bare occupies all slots in the paradigm except 3rd person singular. The bare verb would thus be underspecified for tense, number, person, etc. As is well know, during the RI stage, Dutch children use the *-en* form of the verb in contexts that would be ungrammatical in the adult language, viz. with singular subjects and English–speaking children use the bare verb is 3rd person contexts. It is possible, therefore, to think of the *–en* form and the English bare verb, not as RIs per se, but rather as overgeneralized underspecified forms. Pursuing the logic of this approach, we might hypothesize that what we have identified as an imperative is really an underspecified form and that the high frequency of "imperatives" in the non-RI languages is in fact an overgeneralization of an underspecified form.

This Underspecification Hypothesis (UH) leads to two predictions. First, we expect a higher frequency of imperatives in languages in which the imperative is homophonous with other forms in the paradigm. The Italian,

Catalan and Hungarian data are consistent with this hypothesis since in these languages the imperative is not a unique form.[6] Conversely, in languages with a specific form for imperatives, that is, a form that is not homophonous with other forms in the paradigm, we do not expect a high frequency of imperatives. The Slovenian data are a counterexample to the UH, however, since the forms of the imperative paradigm (singular, dual, plural) are not homophonous with other forms in the language. The Slovenian indicative and imperative paradigms are given in (8).

(8) Slovenian imperative and indicative paradigm (from Rus 2004)

	2sg.	1dual	2dual	1pl	2pl
present	delas	delava	delata	delamo	delate
Imperative	delaj	delajv	delajta	delajmo	delajte

The Underspecification Hypothesis and the 3D hypothesis converge with respect to aone final prediction and this concerns the use of irregular imperative forms. As illustrated in (5), Spanish imperatives are typically homophonous with the 3rd person indicative. However, there is a small set of verbs (e.g. *tener* 'have/hold, *venir* 'come', etc.) that have an irregular imperative form (e.g. *ten!, ven!*) distinct from all other verbal forms in the language and hence also distinct from the 3rd person indicative (e.g. *tiene, viene*). If imperative analogue effects are due to an overgeneralization of an underspecified form, we do not expect to find irregular imperatives in their early language since these are specific forms. Rather, we expect an overgeneralization of the least specified form in the paradigm, which is the 3rd person indicative (based on the fact that this form occupies several slots in the paradigm including 3rd person singular indicative, imperatives na subjunctive). In (9) we list the irregular imperative and 3rd person indicative form of the verbs with an irregular imperative that are likely to be used by children.

(9) Spanish irregular imperatives

	Imperative	Underspecified/default form
tenir	ten	tiene
venir 'come'	ven	viene
ir 'go'	ve(te)	va
poner 'put'	pon	pone
hacer 'make/do'	haga	hace

To test this hypothesis we searched all imperative contexts the files of the 3 Spanish-speaking children studied by Arbisi (2003). for occurrences of the irregular imperatives as well as the hypothesized underspecified/default forms. These results are in Table 12. It is quite clear from these results that children use the correct form of the irregular imperative and do not overgeneralize the default/underspecified form. This argues strongly that the early imperative is indeed an imperative

[6] In Hungarian the imperative forms are homophonous with the subjunctive and indicative forms in the 3rd per.sing. and plural forms (e.g. *adja, adjuk, adjatol, adjak*, while the infinitive is a specific form, *adni* (to give).

Table 12. Spanish irregular imperatives and. overgeneralized forms

	Imperative	Overgeneralized
Maria	18	1
Emilio	33	0
Koki	43	2
Total	94	3

4. Final Remarks

We have seen that the predictions of the IAH are confirmed by the Italian, Catalan, Spanish, Hungarian, and Slovenian-speaking children considered here. We have also shown that the imperatives attested in those child languages are real imperative forms and not default indicative or underspecified forms. The obvious question for the IAH is: Why do some child languages avail themselves of the imperative as an RI analogue, while others are true RI languages? One possibility, suggested in van Kampen (2004), is that the difference is input-driven. On its face, this is problematic since German-speaking children, for example, hear plenty of imperatives in the input, but nevertheless adopt the RI option. According to S&H, the rate of imperatives in the German adult input is 35%. Van Kampen, however, proposes that Dutch children hear many imperatives of the form given in (12a), in which there is a "light" imperative auxiliary followed by an infinitive. If children simply ignore the auxiliary, what they are left with is a root infinitive with imperative force. Italian children, on the other hand, mainly hear simple imperatives of the form in (12b) so that is what they produce.

(12) a. Ga 'ns eten jij!
Go particle eat-inf.
'Go ahead and eat! (roughly)

b. Mangia!
'Eat!'

While this hypothesis is more nuanced, hence more appealing, it still leaves unexplained why the Dutch (and German) children ignore the simple imperatives, such as (13), in that occur robustly in their input.

(13) a. Ruim je speelgoed ('ns) op
pick-imp. your toys (part.) up
'Pick up your toys'

b. Was je handen 'ns even
Wash-imp your hands part.

Why don't we find <u>both</u> RIs and imperatives in these child languages? While it is possible that the input plays some role, this cannot be the whole story. S&H suggested that children choose the most economical option available to them given the constraints of the early grammar. According to this proposal, the imperative and the infinitive (and the subjunctive) form a natural 'irrealis' class

(cf. also Han 2001). Imperative analogue effects arise when the more economical RI option is blocked, as in the null subject languages.[7]

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[7] We do not take a position here on why RIs are blocked in NS languages, but see Rizzi (1993/4), Wexler (1998) for suggestions. See also Hyams and Salustri (2005).

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