

Looking for the universal core of the RI stage

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As it 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) provided evidence from 3 monolingual Italian children and 1 bilingual German-Italian child that there exists an analogue of the RI stage in this language. We argued that the RI analogue in Italian is the imperative. In this paper, we present data from 4 additional null subject languages, Spanish, Catalan, Slovenian and 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. Finally we will evaluate two competing theories of the IAH against these data.

1. Introduction

Much recent acquisition research within the principles and parameters framework has focused on early morphosyntactic development. To the extent that parametric variation is tied to functional categories (cf. Borer 1984; Chomsky 1981), we expect that this will be a locus of learning for children and of variation among different child languages. Indeed, there is substantial evidence that children acquire the specific morphosyntax of the target very quickly. Parameters such as V to I, V2, and so on are set very early. Early English is essentially English, early German is essentially German, and so on. These findings of “early morphosyntactic convergence” (Hoekstra & Hyams (H&H) 1998) seem to fly in the face of stage theories, which purport to show that there are universal syntactic stages in acquisition. Yet, there is also substantial evidence that children acquiring different languages show similar developmental effects. Root infinitives (RIs), such as those in (1), are a case in point.

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|--------|-----------------------------------|---------|
| (1) a. | <i>Papa schoenen wassen.</i> | Dutch |
| | Daddy shoes wash-INF | |
| b. | <i>Auch Teddy fenster gucken</i> | German |
| | also Teddy window look-INF | |
| c. | <i>Jag också hoppa där å där.</i> | Swedish |
| | I also hop-INF there and there | |

d. *Kisa finna dúkkinni*
 cat find-INF the-doll

Icelandic

In the various languages that show an RI stage, the phenomenon is quite robust and relates to a number of other salient properties of early language. For example, RIs tend to occur with null subjects and they occur in declarative clauses but not in *wh*-questions or topicalized structures, for example, in Dutch and German (cf. Hoekstra & Hyams 1998 for review of relevant literature). In terms of their semantics, RIs often have a modal or irrealis meaning (either of volition or necessity) and are largely restricted to eventive predicates (Wijnen 1997; Hoekstra & Hyams 1998; Ferdinand 1996). These various properties and contingencies provide strong evidence that RIs are not the result of production limitations or other performance factors, but are a genuine grammatical effect. That said, they nevertheless fall short of universality. There are various child languages that do not show an RI stage, notably the Romance null subject languages, Italian, Spanish, Portuguese, Catalan, and this despite the fact that the adult languages have an infinitival form (cf. Sano & Hyams 1994; Rhee & Wexler 1995).

The question we consider in this paper is: Is there some sense in which the RI stage is universal (and if so, what is the appropriate level of grammar at which to capture this universality)? In this paper we will argue that there exists an analogue of the RI stage in the null subject languages. We argue that the RI analogue in these languages is the *imperative*. We refer to this as the Imperative Analogue Hypothesis (IAH). We will propose that what is universal about the RI stage is the mapping of irrealis mood onto a tenseless clausal structure.

The paper is organized as follows. We begin by reviewing some of the salient properties of RIs in Section 2. In Section 3 we first compare German and Italian with respect to the Root Infinitive (RI) phenomenon. We provide evidence from 3 monolingual Italian children and a bilingual Italian-German child that supports the IAH. Next, we expand the empirical base of our hypothesis by considering data from 4 more null subject languages, Spanish, Catalan, Slovenian and Hungarian. We also present relevant data from Icelandic and Dutch, both RI languages, which further support the IAH. Finally, in Section 4, we discuss possible analyses for the observed imperative analogue effects.

2. RIs

As a point of departure, we focus on three salient properties of RIs. First, and most obviously, RIs are non-finite, non-agreeing forms that occur in root contexts. In addition, they are characterized by the two important semantic properties noted above. First, RIs typically have a modal (or irrealis) interpretation expressing desires, intentions and needs. Examples are provided in (2).

- (2) a. *Enzo malen* (Leo 2;1, Berger-Morales & Salustri 2003)
 Enzo draw-INF
 Context: Enzo wants to draw
- b. *Peter bal pakken* (Peter 2;1, Blom 2003)
 Peter ball get-INF
 Context: Peter wants to get the ball
- c. *Op kist zitten* (Josse 2;8, Blom 2003)
 on box sit-INF
 Context: Josse wants his mother to sit on the box

This modal reference effect (MRE – Hoekstra & Hyams 1998) has been described for Dutch (Hoekstra & Jordens 1994; Kramer 1993; German: Ingram & Thompson 1996; Becker & Hyams 1999; Lasser 1997; Behrens 1993; Swedish: Plunkett & Strömquist 1990) among other languages. Wijnen (1997), for example, reports that 86% of Dutch RIs have a modal meaning (compared to 3% of finite verbs that have modal meaning) and Blom (2003) finds that modal RIs constitute about 73% of all RIs in Dutch.

Hoekstra and Hyams (1998) proposed that the modal meaning associated with RIs comes from the infinitival morphology, which carries an irrealis feature. More recently, however, Hyams (2005b) has proposed that RIs optionally contain a null non-finite modal that gives rise to an irrealis interpretation.¹ We will assume some version of the null modal analysis of RIs here though nothing really hinges on this.

Turning now to the eventivity constraint (EC – H&H 1998), Wijnen (1997) (cf. also Blom 2003; Ferdinand 1996) reports that 95% of Dutch RIs are eventive, while finite verbs are evenly split between eventive and stative verbs. The EC is also reported for German (Becker & Hyams 1999) and French (Ferdinand 1996) and Russian (Brun & Babyonyshev 2004). The robustness of the RI stage and the strength of associated effects such as the MRE and the EC suggest that there is some universal basis for the phenomenon. It is therefore interesting to see if an RI analogue can also be found in those languages that seem at first blush not to have one, specifically the null subject languages.²

3. The Imperative Analogue Hypothesis

We propose that there is such an analogue – the imperative. *Prima facie*, the imperative is a good candidate because it shares the essential RI properties: Imperatives have modal meaning, that is, they express obligation or volition with respect to some eventuality; they are restricted to eventive predicates; and they are tenseless (and arguably non-agreeing). We adopt Han's (2001) description of the imperative as a form that is marked with an 'irrealis' feature that contributes an unrealized mood interpretation and a 'directive' feature encoding directive illocutionary force. In terms of syntax, we assume that the imperative verb checks the irrealis feature in MoodP and the directive feature in ForceP, part of the extended left periphery (Rizzi 1997). Again following

Han (2001), we further assume that infinitives/RIs check an irrealis mood feature (cf. Note 1) but can have directive force (cf. (2c)) through pragmatic inference. It is thus possible to cancel the directive illocutionary force of infinitives and to generate some other force with unrealized interpretation (cf. (2a, b)).

Imperatives are fully grammatical in adult language – in contrast to RIs – and so the simple appearance of imperatives in the child's language is not remarkable. If, however, the imperative in child null subject languages does represent an RI analogue, we expect it to have distinguishing properties. Two possibilities suggest themselves. First, we expect that the imperative will occur more frequently in the child language than in adult language, and second, we would expect it to occur more frequently in child null subject languages than in the RI languages. These two predictions are stated in (3).

(3) Predictions of the IAH

- (i) In null subject languages imperatives will occur significantly more often in child language than in adult language.
- (ii) In child language imperatives will occur significantly more often in the null subject languages than in the RI languages.

The logic behind (3i) is that over time some of the imperatives will be replaced by modals, just as RIs trade-off with modals in Dutch (cf. Blom 2003). A similar reasoning gives rise to (3ii): if RIs and imperatives both express irrealis mood, then RIs might bleed imperatives in languages such as German and Dutch where RIs are known to have a high rate of occurrence.

Before turning to our data, we wish to clarify one point. 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.

3.1 Italian and German

To test the predictions in (3) we compared imperatives in child and adult Italian and imperative and RI frequency in Italian and German child language, in both monolingual and bilingual development. In Table 1 we provide information about the children whose files we examined.

We also examined adult data from two sources: naturally occurring adult-directed language from several Italian adults engaged in informal discourse³ (transcripts provided by Sandro Duranti), as well as child-directed adult language taken from the adult tiers of two of the Childe transcripts we examined (diana5 and diana1) and from Leo's data.

Table 1. Subject information

Child	Age-range	Language	Source
Francesco	1;5-1;8	Italian	Childes, Roma corpus
Denis	1;5-2;2	Italian	Leonini 2002
Martina	1;10-2;7	Italian	Childes, Calambrone corpus
Diana	1;8-2;6	Italian	Childes, Calambrone corpus
Viola	2;1-2;7	Italian	Childes, Calambrone corpus
Caroline	1;3-2;6	German	Childes, Nijmegen corpus
Kerstin	2;0	German	Childes, Nijmegen corpus
Simone	2;0-2;7	German	Childes, Nijmegen corpus
Leo	2;0-2;7	Italian-German	Berger-Morales & Salustri 2003

Table 2. Italian imperative and 3rd person indicative forms

	<i>-are</i> <i>mangi-are</i> 'eat'	<i>-ere</i> <i>prend-ere</i> 'take'	<i>-ire</i> <i>dorm-ire</i> 'sleep'
Imperative	<i>mangia!</i>	<i>prendi!</i>	<i>dormi!</i>
Indicative	<i>mangia</i>	<i>prende</i>	<i>dorme</i>

To test the predictions of the IAH given in (3) we searched the child and adult data for all occurrences of imperatives. In Italian the imperative is sometimes homophonous with the indicative. Thus, in the first conjugation class (*-are*) the 2nd person singular imperative is homophonous with the 3rd person indicative form, as shown in (4).

- (4) a. *Mario mangia una mela.*
 Mario eat-IND.3PER.SING an apple
 'Mario eats an apple.'
- b. *Mangia!*
 eat-IMP
 'eat!'

In the 2nd (*-ere*) and 3rd (*-ire*) conjugation classes, however, this is not the case. The imperative has a distinct form. Table 2 presents the indicative and imperative forms in the 3 conjugation classes.⁴

Although imperatives in Italian sometimes have the same morphological form as indicatives, they have a special syntax. Consider, for instance, the position of the clitics. In Italian, clitics immediately precede finite verbs in indicative mood, as in (5a), but they follow the imperative, as in (5b).

- (5) a. *La mangi, la mela*
 it-ACC.CL-eat, the apple
 '(you) are eating the apple'

- b. *Mangiala ora!*
 eat-it-ACC.CL now
 'Eat it now!'

German imperatives have a similar morphosyntax to Italian imperatives in that they raise to a Force position in the left periphery. For the majority of verbs the imperative form is identical to the stem. The only overt morphological marking of the imperative in German is a stem vowel change, and this occurs with only a few verbs, such as *geben* (give) and *nehmen* (take), whose imperative forms are *gib* and *nimm*, respectively. As in Italian, the German imperative is also identifiable by its syntactic position. It occurs in first position, in contrast to indicatives, which typically occur in second position (when there is no topic drop). The German imperative is illustrated in (6).

- (6) a. *Kauf das Buch!*
 buy-IMP the book
 'Buy the book!'
- b. *Er kauft das Buch*
 he buy-3PER.SING the book
 'He buys the book.'
- c. *Komm bald nach Hause!*
 come-IMP soon to home
 'Come home soon!'
- d. *Er kommt nach Hause*
 He come.3PER.SING to home
 'He comes home.'

Thus, imperatives in the child and adult data were identified by the context of use, their morphology (where distinguishable) and syntax, including the position of clitics in Italian and verb position in German.

Turning now to our results, the first prediction of the IAH (cf. (3i)) is that imperatives will occur less frequently in adult language than in child language. Table 3 shows the rate of imperatives in Italian for adults in both adult-directed and child-directed language.⁵

As we might expect, imperatives are more frequent in child-directed language (15%) than in adult-directed language (5%). We will use the higher child-directed rate as our adult norm.

Turning to the Italian child data, imperatives are among the first verbal forms used. For example, between the ages of 1;5 to 1;8, 40% of Francesco's verbs are im-

Table 3. Frequency of imperatives in adult Italian (all forms)

Discourse context	Imperatives		Total verbs
	Tokens	%	
Adult-directed	36	5.6	950
Child-directed	82	14.9	550

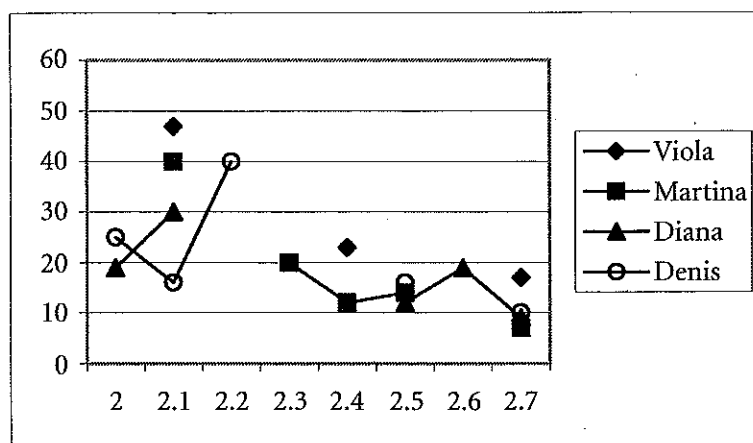


Figure 1. Frequency of imperatives in 4 Italian children (ages 2;0 to 2;7)⁶

perative. Similarly, in Denis' corpus at 1;5 to 1;8, 78% of his verbs are imperatives. However, at this young age there are few utterances overall and it is likely that many of the imperatives such *Guarda!* (Look!) are rote forms. We therefore focus on the older children (Viola, Martina, Diana, and an older Denis) whose data is presented in Figure 1.

We see that even in the older children the proportion of imperatives is still quite high as compared to 15% adult norm. The child rates peak at about 40% somewhere between the ages of 2;0 and 2;4 and then drop to adult-like levels by about age 2;6 or 2;7. Thus, as predicted (cf. (3i)), the rate of imperatives is considerably higher for children than for adults, even in child-directed language.

Two further points are worth noting. First, the child frequencies do not at all mirror the adult frequencies despite the salience of imperatives in the input (e.g. special prosody, first position) (Newport, Gleitman, & Gleitman 1972). This argues against an account of these effects in terms of statistical learning or input matching. This will be clear in the German data as well. The second point is that the rate of imperatives in Italian child language is higher than in adult language despite the fact that adults have the full imperative paradigm (cf. Note 4) while the children use only the 2nd person singular imperative. Thus, if we were to compare only the singular imperative forms in the two groups, the difference in frequencies would be even greater.

The proportion of imperatives in the Italian child data should be compared to the very low rate of RIs, as shown in Table 4.

Table 4. Frequency of imperatives and RIs in early Italian

Child	Age	% RI	% Imp	Total verbs
Denis	2:0-2:7	2.8	31.1	318
Martina	2:1-2:7	0	17.5	513
Diana	2:0-2:7	0	16.4	863
Viola	2.1-2:7	0.2	30	198

Table 5. Frequency of imperatives in adult German⁷

Files (from Childes)	Imperatives	Total verbs
K2010613.cha	189 (61%)	309
KE720905.cha	118 (32%)	366
KE020005.cha	300 (36%)	836
Total	538 (36%)	1511

We note, finally, that the “overuse” of imperatives happens at the same age as the RI stage in the RI languages (roughly between the ages of 2 and 2;6), further suggesting an analogue analysis.

Let us now turn to the German data. Table 5 presents the frequency of imperatives in child-directed adult German. We see that this proportion is quite high, about 36% on average.

It is therefore remarkable to observe that German-speaking children use imperatives very infrequently. Figure 2 presents the proportion of imperatives for 3 German-speaking children (Caroline, Kerstin, & Simone). For the purposes of this analysis we counted as imperative, verbs (i.e. stems) that had clearly raised, as in (7).

- (7) a. *Mach auf!*
 Open *prefix*
 b. *Beiss mal*
 Bite *particle*
 c. *Trink Milch!*
 Drink (the) milk

In (7a) the verb has raised across the prefix *auf*; in (7b) the verb across the particle *mal*; and in (7c) across the object. We did not count as imperative stems that clearly had not raised to a higher position such as those in (8).

- (8) a. *Aufmach*
 b. *Mal beiss*
 c. *Milch trink*

Single word utterances were counted only when it was clear from context that they were imperative.⁸

Figure 2 shows the frequency of imperatives for the German-speaking children between the ages of 1;6 and 2;7. We note first that, as predicted, the overall rate of imperatives is quite low as compared to German adults and as compared to Italian children. Also, the frequency of imperatives remains fairly constant at around 10% across all data points. We do not find the same peak during the first half of the 3rd year as we do for the Italian children.

Thus, both the predictions in (3) are confirmed by the monolingual acquisition data, consistent with the hypothesis that the imperative is the RI analogue in languages such as Italian.

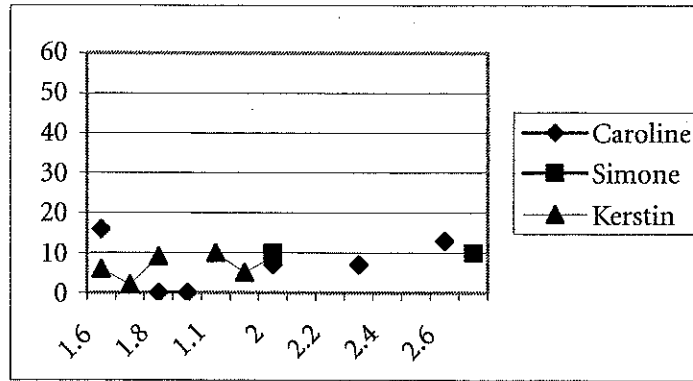


Figure 2. Frequency of imperatives in 3 German children (ages 1;6-2;7)

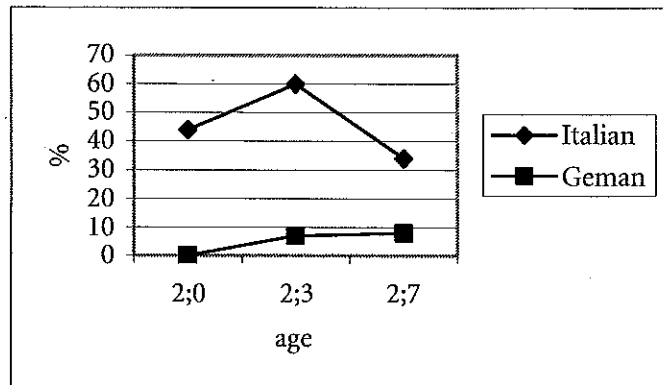


Figure 3. Frequency of imperatives bilingual Italian-German

We also examined the frequency of imperatives and RIs in a bilingual German-Italian child, Leo. The bilingual child is the perfect matched pair (de Houwer 1995). Leo is the child of a German mother and Italian father living in Florence, Italy. He was equally exposed to both languages. As shown in Table 6, there are very few imperatives in Leo's German during the relevant period, (1.5%–6.5%) while in his Italian corpus between 34% and 56% of the verbs are imperative.

Figure 3 illustrates that Leo is also like the monolingual Italian-speaking children in showing a peak in imperatives at around age 2;3.⁹

Table 7 shows that Leo only uses RIs in German and that the frequency is comparable to monolingual German-speaking children (cf. Figure 2).¹⁰

Table 6. Frequency of imperatives (bilingual child)

Imperatives Stage	German		Italian	
	Tokens	%	Tokens	%
2;0-2;4	1/63	1.5	25/45	55.5
2;6-2;7	3/46	6.5	10/29	34.4

Table 7. Frequency of root infinitives (bilingual child)

RI Stage	German		Italian	
	Tokens	%	Tokens	%
2;0-2;4	51/63	81	1/45	2
2;6-2;7	28/46	61	2/29	7

Table 8. Percentage of RIs in Dutch: 6 children, from Blom 2003¹¹

Age	RI
1;7-2;1	572/810 (70.6%)
2;1-2;6	993/4921 (20.1%)

Table 9. Percentage of RIs and Imperatives in Icelandic: Eva

Age	RI	IMP
1;1-1;7	1254/1927 (65%)	25/1927 (1%)
1;8-2;4	620/2565 (24.1%)	30/2565 (1%)

Thus, Leo perfectly mirrors the cross-linguistic differences that we observe in the monolinguals. His data also clearly support the hypothesis that bilingual children develop separate grammars for each language (Meisel 1990).

3.2 Dutch and Icelandic

German is not the only RI language to show a 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. The average rate of RIs across children is reported in Table 8.

Similarly, Sigurjónsdóttir (2004 and p.c.) calculates the rate of imperatives and RIs in an Icelandic-speaking child, Eva, between the ages of 1;1 and 2;4. The Icelandic results are reported in Table 9.

The data presented thus far are thus consistent with our hypothesis that the imperative is an RI analogue in Italian. 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 Catalan, and then turn to Hungarian and Slovenian, which are also null subject languages.

3.3 Spanish and Catalan

An RI stage is not attested in the acquisition of Spanish and Catalan (Grinstead 1998; Bel 2001; and Montrul 2003). Bel (2001) analyzed the language of 3 Catalan and 3 (continental) Spanish-speaking children (ages range 1;7-3;0). Table 10 (based on Bel 2001) shows that the incidence of RIs on Catalan and Spanish is very low, under 4% for each child.

Table 10. Frequency of RIs in Catalan and Spanish-speaking children

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

Table 11. Percentage of imperatives in child Catalan

Child	Age	% Imp	Age	% Imp
Laura	1;7-1;8	41%	2;4-3;0	31%
Pep	1;3-2;0	41%	2;1-2;7	26%
Gisela	1;0-1;9	25%	2;2-3;0	22%
Guillem	1;0-1;9	56%	1;11-2;9	33%

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 (9). 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 raised to a position to the left of the clitic.¹²

- (9) a. *Ajuda'm*
 help-IMP me-ACC.CL
 'Help me!'
 b. *Dame*
 Give-IMP me-ACC.CL
 'Give me!'

The percentage of imperatives is very high initially and decreases with age. Table 10 (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 and whose RI data are presented in Table 11.

To determine the rate of imperatives in Spanish child language we turn to data presented in Arbisi-Kelm (2005). Arbisi-Kelm analyzed the verbal system of two Spanish-speaking children, Maria (Childes, Lopez Ornat 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%.¹³ These results are presented in Table 12.

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.¹⁴

Table 12. Percentage of imperatives in Spanish (based on Arbisi-Kelm 2005)

	Age	%Imp
Emilio	2;1-2;3	108/265 (41%)
	2;5-2;9	149/482 (30%)
Maria	1;7-1;11	149/524 (28%)
	2;1-2;2	138/687 (20%)

Table 13. Percentage of RIs in Hungarian

Language	Child	Age	% RI
Hungarian	Miki	2;1-2;4	0%
	Andi	2;1-2;5	1%
Slovenian	15 children	1;5-2;0	1%

Table 14. Imperatives in Hungarian

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

Summing up the discussion thus far, an RI stage is not attested in the acquisition of Spanish and Catalan (but cf. Note 13). On the other hand, imperatives are quite frequent in the early stage and decrease over time. The generalization that emerges is that imperatives are very frequent in languages without an RI stage but very infrequent in the RI languages. These data support the IAH which suggest a complementary relation between RIs and imperatives. In the next section, we discuss data from two non-Romance languages null subject languages, Hungarian and Slovenian.

3.4 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 (2004), respectively. Data from two Hungarian-speaking children (Londe 2004) and 15 Slovenian-speaking children (Rus 2004) are presented in Table 13.

Given the rarity of RIs in Hungarian, the IAH leads 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 14, 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 (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 the proportion of imperatives is lower than 56%. Examples of imperatives in child Slovenian are given in (10) (from Rus 2004) and the Hungarian examples in (11) (from Londe, p.c.).

- (10) a. *(Po)krov dej!* (Lenart, 1;9)
 cover-ACC give-2SG.IMP
 'Give me the cover!'
- b. *Tuki glaj.* (Vesna, 1;7)
 here look-2SG.IMP
 'Look here!'
- (11) a. *Tè is játsszál!* (Miki 2;7)
 you too play-2SG.IMP
 'You play too!'
- b. *Anya, nevéssé (l)!*
 mom laugh-2SG.IMP
 'Mom, laugh!'

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

4. 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.

4.1 The 3D Hypothesis

Grinstead (1998) observes that some imperatives are homophonous with the 3rd person indicative. As we noted earlier, in Italian, for example, this is true of first conjugation (*-are*) verbs, the most common class, as illustrated in (5), repeated below in (12a, b).

Table 15. Percentage of imperatives from 3 verb classes: Diana (1;8–2;6)

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

- (12) 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 (13).

- (13) a. *Juan come una naranja.*
 Juan eat-IND.3PS an apple
 'Juan eats an apple.'
- b. *Come!*
 eat-IMP
 'Eat!'

Thus, in principle, in these cases, what we have identified as the imperative could be a default indicative form. However, as was shown in Table 2 in the Italian 2nd (-*ere*) and 3rd (-*ire*) conjugation classes, the imperative is not homophonous with the 3rd person indicative. Thus, if the 3D Hypothesis is correct, we should not find imperatives from these conjugation classes because they are morphologically distinct from the 3rd person indicative. This prediction is not confirmed. Table 15 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.

However, Table 15 also 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, *clizzare* 'to click', *zippare* 'to zip' and *scannerizzare* 'to scan' (L. Brunetti, p.c.). Also, this class is the most frequently occurring in the language, as shown in Table 15. The figures in Table 16 (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 16. Relative distribution of Italian verb classes¹⁵

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

Table 17. Clitic position in imperative and indicative clauses: Diana 1;8-2;6

	Enclitic	Proclitic
Imperative	27	1
Indicative	0	28

Comparing Tables 15 and 16, 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. Diane's 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 shown earlier in example (5), the position of the clitic in Italian differs in indicative and imperative clauses. In the indicative (subjunctive and conditional) the clitic occupies a position immediately preceding the verb, while affirmative imperatives precede the clitic. 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 17, from Diana, show that she is able to distinguish imperatives and indicatives and correctly position the clitic in both cases (cf. also Guasti 1993/1994).

Some examples are provided in (14).

- (14) a. *Portamielo!* (Diana 2;6)
bring-IMP it-ACC.CL to me-DAT.CL
'Bring it to me!'
- b. *Io ti lavo i capelli* (Diana 2;6)
I to you-DAT.CL wash the hairs
'I (will) wash your hair'
- c. *Mettilo!* (Diana 2;1)
put-IMP it-ACC.CL
'Put it!'
- d. *Ti metto le cappe* (Diana 2;6)
to you-ACC.CL put-1PER.SING the shoes
'I (will) put your shoes on'

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 sense.

Table 18. Dutch verbal paradigm

	Sing.	Pl.	
1p	0	-en	Inf. -en
2p	-t	-en	Imp. 0
3p	-t	-en	

Table 19. English verbal paradigm

	Sing.	Pl.	
1p	0	0	Inf. 0
2p	0	0	Imp. 0
3p	-s	0	

4.2 The Underspecification (DM) Hypothesis

Based on the theory of distributed morphology (Halle & Marantz 1993), Wexler et al. (2004) propose that the RI in Dutch, as in (15a) and the English bare verb, as in (15b), represent overgeneralizations of underspecified form.

- (15) 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 – on infinitives, and in all the plural persons, as shown in Table 18. The morpheme *-en* is thus underspecified with respect to tense and also person.

As is well known, during the RI stage in Dutch, children use the *-en* form of the verb in contexts that would be ungrammatical in the adult language, viz. with singular subjects. It is possible, therefore, to think of the child's *-en* form, not as an RI per se, but rather as an overgeneralized underspecified form. Similarly, in English, the bare form occupies most slots in the verbal paradigm – all except 3rd person singular, as shown in Table 19.

The bare verb is an underspecified form as well – underspecified for tense, number, person, etc. Thus, as suggested for the Dutch RI, we can think of the English bare verb that occurs in 3rd person contexts in early language not as an RI per se (as originally proposed in Wexler 1994), but rather as an overgeneralized underspecified form. Following the logic of this approach, we might hypothesize that the imperative is an underspecified form and that the high frequency of imperatives in the non-RI languages is due to overgeneralization of an underspecified form.

The 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.¹⁶ Conversely, languages with a specific form for imperatives, that is, a

Table 20. Slovenian imperative and indicative paradigm (from Rus 2004)

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

Table 21. Spanish irregular imperatives

	Imperative	Underspecified/default form
<i>tener</i> 'have/hold'	ten	tiene
<i>venir</i> 'come'	ven	viene
<i>ir</i> 'go'	Ve(te)	va
<i>poner</i> 'put'	pon	pone
<i>hacer</i> 'make/do'	haga	hace

form that is not homophonous with other forms in the paradigm, should not show imperative analogue effects. In other words, we do not expect a high frequency of imperatives. However, the Slovenian data are a counterexample to the UH 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 Table 20.

A final prediction of the Underspecification Hypothesis, as well as the 3D Hypothesis, concerns the use of irregular imperative forms. As illustrated earlier in (14), 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 (e.g. *ten!*, *ven!*) that is 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 would expect an overgeneralization of the least specified form in the paradigm, which is the 3rd person indicative (cf. Pertsova & Salustri 2004). The UH and the 3D Hypothesis converge with respect to this prediction. In Table 21 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.

All imperative contexts were examined in the files of 3 Spanish-speaking children studied by Arbisi-Kelm (2005) (Maria, Emilio, Koki) for occurrences of these irregular imperatives as well as the hypothesized underspecified/default forms. These results are in Table 22.

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.

Table 22. Spanish irregular imperatives vs. overgeneralized forms

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

5. Concluding 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, that is, it is an effect of the frequency of difference structures in the input to children acquiring RI and non-RI languages. On its face, this is problematic since German-speaking children, for example, receive plenty of imperatives in the input (the rate of imperatives in the adult input is 35%), but nonetheless adopt the RI option and fail to produce imperatives in any significant proportion. Van Kampen, however, proposed that Dutch children hear many imperatives of the form given in (16a), 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 (16b) so that is what they produce.

- (16) a. *Ga 'ns eten jij!*
 Go PART eat-INF you
 '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 in their input such as (17).

- (17) 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 both RIs and imperatives in these child languages? While it is possible that differences in the input of the sort suggested by van Kampen play some role, this cannot be the whole story.

The complementary of the two forms suggest a competition, consistent with an approach based on economy considerations. Salustri and Hyams (2003) suggested that children choose the most economical option available to them given the constraints of the early grammar. Earlier we proposed that both the imperative and the RI check an irrealis feature. An assumption we make, which we think is relatively uncontroversial, is that the derivation of an RI is more economical than an imperative derivation in that imperatives involve verb movement (to Mood and Force) while the RI does not. We would thus expect that in a language in which RIs are a grammatical option (e.g. Dutch, German, etc.), they would win out over imperatives as the expression of irrealis mood. Imperatives, on the other hand, are realized when the more economical RI option is blocked. Following ideas of Guasti (1992) and Rizzi (1993/1994) (based on Belletti 1990), we propose that RIs are blocked in Italian because Italian infinitives have (abstract) Agr features that must be checked. The specification of Agr entails the specification of Tense (either because they are part of the same node, or because AgrP is above TP).

Notice that the competition between imperatives and (root) infinitives is not restricted to child language. There are many adult languages in which infinitives have an imperative or imperative-like function. This occurs when the true imperative is blocked out for some reason (cf. for example, Zanuttini 1997). Italian negative imperatives are a case in point. Second person imperatives cannot be negated in Italian (and many other languages). Negative imperatives are thus formed with the infinitive, as illustrated in (18).

- (18) a. *Mangia la pasta!*
Eat-IMP the pasta
b. **Non mangia la pasta!*
Not eat-IMP the pasta
c. *Non mangiare la pasta!*
Not eat-INF the pasta
'Don't eat the pasta'

Han (2001) has suggested that infinitives can function as imperatives precisely because imperatives and infinitives (and subjunctives) share an irrealis feature. Imperatives differ from infinitives in that they are also grammatically marked as 'directive' and this is responsible for their imperative syntax, i.e. driving the verb to ForceP. Infinitives, on the other hand, when they are directive, get their directive force through pragmatic inference, as noted earlier. This analysis extends quite naturally to the child language facts under discussion, assuming that in the early grammar as in the adult grammar, ForceP must be specified in all root clauses (e.g. as directive, interrogative, assertive, negative) and second, that the specification of Force must be compatible with the Mood specification of the clause. The irrealis feature of the RI is compatible with 'directive' Force

(as in adult imperatives), hence we find 'directive' RIs (cf. (2c)). The irrealis feature is also compatible with assertive force when this involves an expression of desire or intent, in other words, hence the volitional and intentional RIs (cf. (2a, b)).

Summing up, we assume that RIs are the most economical expression of irrealis mood in child languages in which the grammar allows this option. The irrealis feature on the RI is compatible with directive illocutionary force as well as volitional and intensional meanings. Where RIs are precluded, as in the 'rich Agr/null subject' languages, imperatives check irrealis mood features, and also a directive force feature. This means that from a functional point of view RIs and imperatives overlap to a fair degree, but not completely in that imperatives have a more restrictive semantic specification. Thus, economy considerations together with language specific morphosyntactic factors give rise to the imperative/RI split among languages. From this perspective, we would say that what the universal core of the RI stage is the mapping of irrealis mood onto a tenseless structure.¹⁷

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Notes

1. The null AUX/modal hypothesis is originally due to Boser et al. (1992). Hyams (2005b) departs from Boser et al. in several respects. Most importantly, she assumes that the null modal is non-finite.

2. Greek 2-year olds use a "bare perfective" form (ungrammatical in the adult language), as in (i), that shares the central properties of RIs.

- (i) *Ego katiti* (Spiros 1;9, Childe, Stephany 1997)
 I sit-PERF.3SING
 'I am going to/want to sit'

The bare perfective is arguably non-finite, it expresses modal meaning, and it is overwhelmingly eventive. Greek is a null subject language but it does not have an infinitival form, hence it is distinct from the languages discussed in this paper. Hyams (2002, 2005a) has proposed that the bare perfective is the Greek RI analogue. For reasons of space we will not discuss the Greek bare

perfective here, but see Hyams (2005a) for extensive discussion and comparison with “true” RI languages.

3. These transcripts were kindly provided by Sandro Duranti. A total of 1232 verbal utterances were coded in the analysis of the adult transcripts.
4. There is also a 1st person plural imperative, e.g. *Andiamo* ‘Let’s go’ and a polite imperative e.g. *Vada pure!* (Go ahead and eat (roughly)), the latter form is homophonous with the 2nd person indicative form in the 1st conjugation. Since the children in our study produced only the 2nd person singular familiar imperative shown in Table 2, we do not discuss these other types of imperatives.
5. This and subsequent frequencies are calculated the proportion of imperatives (or RIs) out of all verbal utterances.
6. We do not have figures for every data point for each child.
7. These figures are based on the adult tiers in the Kerstin corpus.
8. German has more potential for indeterminacy than Italian because the bare stem in one word utterances can be an infinitive lacking *-en*, an imperative, or a 1st person singular. Only one child shows a relatively high percentage of indeterminate forms.
9. For this analysis we did not include the files in which the total number of verbs is less than 10.
10. Like monolingual children (cf. Section 2), Leo’s RIs show both a modal reference effect: 89% of his RI have a future/modal meaning, and the eventivity constraint: 100% of Leo’s RIs were eventive while his finite verbs verb split between eventive and stative (cf. Berger-Morales, Salustri, & Gilkerson 2003).
11. The children are Abel, Daan, Josse, Laura, Matthijs and Peter. These findings are in line with Wynen (1997) who found an overall RI rate of 73% for the children he studied.
12. As we will discuss below, Italian children also position clitics correctly in imperative clauses.
13. The adult imperative rate was calculated on the basis of the adult input in the Childe files.
14. 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 1995 and 2002; Davidson & 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.
15. Although Albright distinguished 4 verb classes, *-are*, *-ire*, *-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.
16. In Hungarian the imperative forms are homophonous with the subjunctive and indicative forms in the 3rd person singular and plural forms (e.g. *adja*, *adjuk*, *adjatok*, *adjak*, while the infinitive is a specific form, *adni* (to give).
17. Another avenue to explore is the possibility that there is also a lower Force projection to the left of VP in the area that Belletti (2004) calls the ‘clause internal periphery.’ According to Belletti, there is a VP periphery, corresponding to the CP left periphery proposed in Rizzi (1997),

which contains Topic and Focus positions. It is possible that RIs are an expression of a Focus position within the VP periphery, and that this is the more economical option than raising to the CP periphery in languages which permit this option, viz. the non-pro-drop languages. Space limitations prevent us from developing this idea further.

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