

Two in One: Evidence for Imperatives as the Analogue to RIs from ASL and LSB

Diane Lillo-Martin^{1,3} and Ronice Müller de Quadros^{2,3}

¹University of Connecticut, ²Universidade Federal de Santa Catarina, and

³Haskins Laboratories

In this paper, we investigate the hypothesis put forward by Salustri and Hyams (2003, 2006), that (in some languages) imperatives function as an analogue to root infinitives, being used to express irrealis meanings in languages which typically do not show a significant root infinitive stage. We investigate this hypothesis by looking at longitudinal production data from American Sign Language (ASL) and Brazilian Sign Language (LSB), languages in which there are two verb types – only one of which is predicted to behave like Italian in showing an imperative analogue. Our results provide support for the Imperative Analogue Hypothesis. In addition, our results provide support for the analysis of sentences with these verb types proposed by Quadros (1999) on the basis of adult data.

1. Background

It has frequently been observed that young children produce non-finite verb forms (with appropriate syntax) alongside correctly inflected forms around the age of 2 years. Poeppel & Wexler (1993) give the example in (1) from Andreas, age 2;01. In (1a), the verb *hab* is correctly inflected and in the proper V2 position for inflected verbs. In (1b), the verb *haben* is in the infinitive form and in the sentence-final position appropriate for infinitival verbs (which would ordinarily appear in root clauses only with an auxiliary in V2 position). Wexler calls such examples as (1b) Optional Infinitives, while Rizzi uses the term Root Infinitive. In this paper, both terms will be used.

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- (1) a. Ich hab ein dossen Ball.
I have a big ball
- b. du das haben
you that have

It has also been observed that the degree to which children produce such forms varies considerably by language (see among others, Guasti (1993/4), Phillips (1995), Wexler (1998), Buesa Garcia (2007), and Grinstead (2008)). Wexler (1998) concluded that the languages in which children are most likely to go through a significant OI stage are in fact the non-null subject languages. He captured this observation with the generalization in (2). Note that NSLs do not completely lack RIs, but children learning such languages use them much less frequently than children learning non-NSLs, and they pass through the RI stage much more quickly.

- (2) *NS/OI Generalization*: Children in a language go through an OI stage if and only if the language is not an INFL-licensed null-subject language.

However, Salustri & Hyams (2003, 2006) observe that RIs typically have a modal/irrealis interpretation, and are eventive. For these and other reasons they argue that RIs are grammatically-based and thus should be expected universally. According to them, there is a ‘universal core’ of the RI stage, such that all children are similarly constrained in their acquisition of mood. What is universal about the RI stage is the mapping of irrealis mood onto a tenseless clausal structure. For children learning NSLs, a similar tenseless structure will be used for the expression of irrealis mood. For some such NSLs, they argue, the imperative form is used as an analogue to the RI.

Salustri & Hyams do not claim that for children, imperatives convey the full range of interpretations found in RIs. For example, imperatives are not generally used to express pure future intentions. However, they are irrealis and eventive, and in this way parallel to RIs for children learning non-NSLs. In support of their claim, Salustri & Hyams show that imperatives are used much more frequently in the acquisition of non-NSLs than NSLs. To show that this is not simply a cultural effect, they show that the same difference is found even in children who are bilingual in one language of each type. Their bilingual Italian-German subject used imperatives 30-60% of the time in Italian, but less than 10% of the time in German, over the period 2;0-2;7.

2. Verbal morphology in ASL and LSB

We tested the Imperative Analogue Hypothesis of Salustri & Hyams by looking at the acquisition of languages which have two verb types, one of which permits (agreement-licensed) NSs and the other of which does not. American Sign Language (ASL) and Brazilian Sign Language (LSB) both have person-

and location-agreeing verbs, which license null subjects, and non-agreeing 'plain' verbs, which do not license null subjects (Lillo-Martin 1986; Quadros 1997).

LSB and ASL (like most sign languages) have different types of verbs, which vary according to whether or not they are modified to indicate verbal arguments, and if so, which ones. The description of verb agreement used here is a modification of that proposed by Meir (1998, 2002). Verbs indicate their arguments by the direction of their facing and by their initial and final locations in signing space. Locations in signing space can be associated with person or locative referents. Then, *person agreeing* verbs (generally verbs of transfer) face their objects, and move from the location associated with their (+human) subject to the location associated with their (+human) object. *Spatial* verbs (verbs of movement and location) move from the location associated with their source argument to the location associated with their goal argument. *Plain* verbs do not require modification to indicate subject or object, although they may optionally be signed in a location indicating the location of the event, and thus acting like location agreeing verbs.

This modification of the location and movement of verb signs is known as verb agreement, and is illustrated in Figure 1. (See also Padden 1988[1983]).

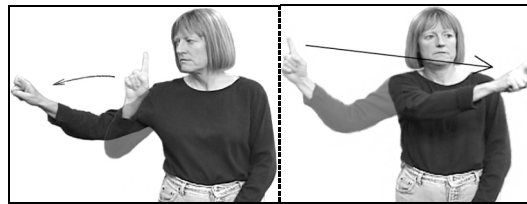


Figure 1. Verb agreement in ASL a. I-ASK-HER b. SHE-ASKS-HIM

Both person- and location-agreeing verbs INFL-license null arguments (Lillo-Martin 1986; Quadros 1997). For the present purposes we group together all agreeing verbs into one class, as opposed to non-agreeing verbs.

3. Research Question 1

3.1 Background

Given the existence of two types of verbs in ASL and LSB, our first research question asks whether the use of imperatives is different for the two types, as summarized in (3).

- (3) Are imperatives used as an analogue to infinitives with agreeing verbs, but not with non-agreeing 'plain' verbs, in ASL and LSB?

The Imperative Analogue Hypothesis (IAH) makes different predictions from a No Analogue Hypothesis (NAH), on the assumption that there is no

particular reason to expect a difference in the use of imperatives across verb types under the latter view (see (4)).

- (4) Predictions
IAH – imperatives with agreeing verbs > imperatives with plain verbs
NAH – imperatives with agreeing verbs = imperatives with plain verbs

3.2 Participants

We examined the development of verbal morphology in two Deaf children who are acquiring sign language from their Deaf parents. We analyzed data from Sal, who is acquiring ASL, between the ages of 1;07 and 2;03, and from Leo, who is acquiring LSB, between the ages of 1;09 and 2;05. The children were filmed in longitudinal spontaneous production interacting with a fluent signer.¹ The number of analyzable utterances with a verb for each month of observation is given in Table 1.

Table 1. Number of analyzable utterances with a verb

Age	Leo	Sal
1;07		17
1;08		85
1;09	56	69
1;10	17	6
1;11	34	19
2;00	25	112
2;01	69	
2;02	121	159
2;03	79	93
2;04	92	
2;05	110	

3.3 Method

It is important to note that in ASL and LSB stative verbs are usually plain, and agreeing verbs are usually eventive. Since imperatives are generally eventive, this means that we would expect more imperatives with agreeing verbs

¹ These data were collected as part of a broader study on the acquisition of ASL and LSB, within the University of Connecticut Cross-Linguistic Early Syntax Study. See Lillo-Martin and Quadros (in preparation) for a more extensive explanation of the data collection and transcription methods.

than with plain verbs on this basis. Therefore, we cannot simply compare the number of plain vs. agreeing imperatives. We must consider plain vs. agreeing imperatives in the context of eventives. For this reason, all the results reported here distinguish between the use of imperatives with eventive agreeing vs. plain verbs.

We hand-coded each declarative utterance with a verb for eventivity, identifying it as eventive or stative. We then classified all eventive verbs as imperative or non-imperative. Context and stress were used to identify imperative forms.

3.4 Results

The results of our analysis are given in Figure 2.

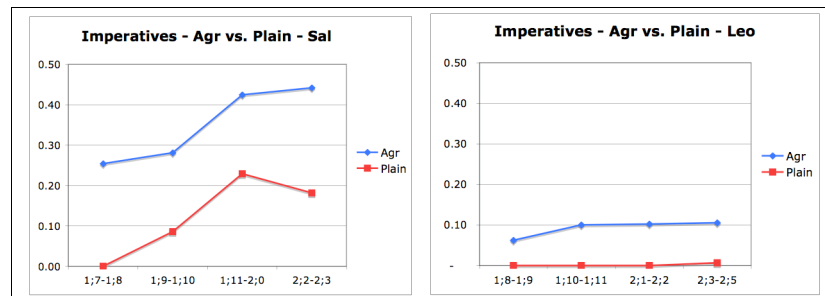


Figure 2. Results of study 1

It is clear that both children produced notably more imperatives with agreeing verbs than with plain verbs. The results are all the more surprising because a large proportion of the children's verbs are plain (see Quadros & Lillo-Martin 2007). As expected, imperatives are irrealis and eventive. Examples of the children's imperatives are given in (5)-(6).

- (5) Sal (1;09)
 IX(bag) PICK-UP<imp>; IX(bag) PICK-UP<imp> BAG.
 HEY! BAG, PICK-UP<imp> IX(bag).
 'Pick up that bag; see that bag – pick it up! Hey! Pick up the bag!'
- (6) Leo (2;01)
 GET<imp>; GET<imp> CANDY; GET<imp> CANDY IX<there>;
 GET<imp>; GET<imp>.
 'Get that, get that candy; get the candy over there; get it, get it!'

The results are as predicted by the IAH.

4. Research question 2

4.1 Background

Hoekstra & Hyams (1998), Deen & Hyams (2006), and Salustri & Hyams (2006) make the observations in (5) and (6).

- (5) *The Modal Reference Effect*
With overwhelming frequency RIs have a modal/irrealis meaning.
- (6) *The Semantic Opposition Hypothesis*
The expression of irrealis mood in the early grammar excludes a tense specification.

These observations led Hyams and colleagues to the postulation that various non-finite forms are used to express irrealis mood in early child language. We have seen that in some languages the non-finite form used is infinitive, while in others it is imperative (and in still others subjunctive or other non-finite forms are used).

We observed in Study 1 that imperatives are used by Sal and Leo to express irrealis mood. It might then be asked whether all, or virtually all, of Sal's and Leo's irrealis intentions are expressed by imperatives. If not, what forms are used? This is the basis of our second research question, given in (7).

- (7) How is irrealis mood expressed in child ASL and LSB?

In addressing this question, we note that adult ASL and LSB do not have a special form of the verb to express irrealis. However, a non-manual marker accompanies irrealis expressions of volition and intention. This marker is not used to express simple future. It is very difficult to judge whether the children are using this non-manual marker in many instances, due to camera angles and other difficulties of seeing their faces. However, it is clear that they do not systematically use non-manual irrealis marking.

4.2 Participants and method

We analyzed the same sessions of Sal's and Leo's development as we examined for Study 1. We coded each eventive utterance with a verb for mood: realis vs. irrealis, separating plain and agreeing verbs.

4.3 Results

The results of this analysis are presented in Figure 3.



Figure 3. Results of study 2

Several points fall out from this analysis. At the earliest observation, Sal and Leo use essentially no irrealis verbs other than imperatives. After this, both express imperative and non-imperative irrealis moods, with both plain and agreeing verbs. Leo, as noted before, uses essentially no imperatives with plain verbs.

Focusing on the agreeing verbs, it is clear that both children use imperative and non-imperative forms to mark irrealis. Thus, it cannot be said that the imperative ‘analogue’ is the only way to convey irrealis moods for Sal and Leo.

The non-imperative irrealis forms are generally either describing future events, or expressing possibility, often with the overt modal CAN or CAN’T. Some examples are given in (8).

- (8) a. Sal 1:09
BRING-LOC(here) TABLE; IX(FAT) COME-LOC(here) HERE.
‘(He will) bring the table here; he (will) come here.’
- b. Sal 2:02
WRITE-LOC(easel) CAN.
‘(You) can write on the easel.’

Sal also made use of an emblem *g(wait-a-minute)* to accompany many of the non-imperative irrealis forms she used. Some examples are given in (9). This emblem takes the same form as the conventional gesture used in the American hearing culture, which is why we label it an emblem rather than a sign.

- (9) a. Sal 1;09
 COME-LOC(here) g(wait-a-minute).
 ‘(He will) come here in a minute.’
- b. Sal 2;02
 IX(self) HAT BRING-LOC(here) g(wait-a-minute)
 ‘I will bring the hat here in a minute.’

Not all of Sal’s non-imperative irrealis forms were accompanied by g(wait-a-minute), but many of them were. It is possible that she is using this form as a marker of irrealis.

Interestingly, Morford and Goldin-Meadow (1997) found that three homesigning children used the same conventional gesture (which they gloss WAIT) in the same way. They state, “In addition to using the gesture for this conventional meaning, the deaf children also used the gesture to identify their intentions, that is, to signal the immediate future” (Morford & Goldin-Meadow 1997, p. 429). Morford and Goldin-Meadow found that the children’s non-signing parents did use the gesture in the conventional sense, which they characterize as to request a brief delay or time-out. but they found that the parents did not use the gesture to mark immediate future, as the children did.

Sal’s mother does use g(wait-a-minute), but we have not yet conducted a thorough examination of this. It is not yet clear whether usage of g(wait-a-minute) should be considered grammaticalized in ASL, but the child data indicates that this is a possibility which should be considered.

What about plain verbs? Clearly both children produce non-imperative irrealis forms (and Sal also produces some imperatives). Such forms are expected to be tenseless – infinitives – according to the Semantic Opposition Hypothesis. In fact, it is difficult to say whether the children’s plain verb forms display ‘infinitives’ at all, since plain verbs do not (necessarily) have any overt tense marking. Many, though by no means all, of Sal’s irrealis plain verbs are accompanied by g(wait-a-minute); otherwise, we cannot say whether the children use tenseless forms to express irrealis with plain verbs.

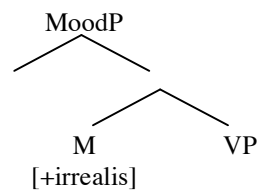
5. Structure

Salustri and Hyams raise the issue of why in some languages infinitives are used to express irrealis, while in others it is an imperative (or other) form. They propose that the derivation of infinitive forms is more economical than the derivation of imperatives, because the imperative involves movement of the verb to higher projections of Mood and Force. Therefore, the infinitive will be used unless it is blocked for some reason. In Italian, they propose, the infinitive must check abstract Agr features. Since the verb moves to Agr, T is also necessarily checked, and infinitives are not used for irrealis mood. In this case, the imperative is used instead.

How does this insight apply in deriving the difference between plain and agreeing verbs in the use of imperatives in ASL and LSB?

Quadros (1999) proposed that plain and agreeing verbs project different structures in LSB (Quadros, Lillo-Martin, & Chen Pichler 2004 extend this proposal to plain and agreeing verbs in ASL as well). Quadros gave evidence that no Agr projection is needed for plain verbs. On this analysis, plain verbs thus do not require checking of an abstract Agr feature. Instead, Quadros proposes that a null Tense affix combines with the verb via affix hopping. The structure in (10) is proposed for plain irrealis verbs.

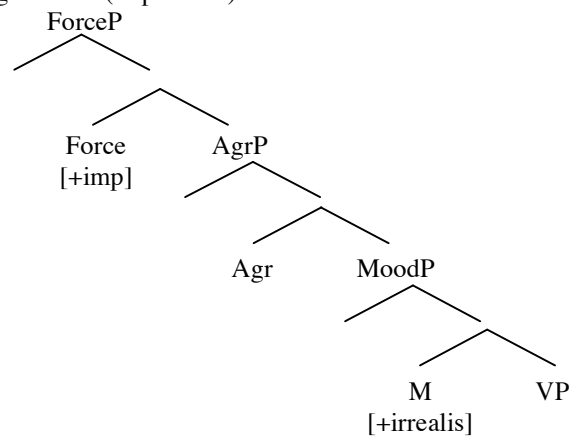
(10) Structure for plain irrealis verbs



There is no need to use a higher structure including Force to express irrealis, since plain verbs can combine with irrealis without any higher projection.

On the other hand, agreeing verbs do require movement to Agr projections. On Quadros' analysis, this means both Agr and T are projected with agreeing verbs. The structure in (11) is needed for agreeing irrealis verbs. Then, since the higher projection is needed anyway, following Salustri and Hyams' logic irrealis can be expressed using an imperative form.

(11) Structure for agreeing irrealis (imperative) verbs



6. Conclusion

We found that children acquiring ASL and LSB use imperatives to a much greater extent with agreeing verbs than with non-agreeing verbs. This is consistent with the predictions of the Imperative Analogue Hypothesis, if we consider the agreeing verbs to be Italian-like, and the plain verbs Germanic-like.

However, we also found that children do not fail to use other non-imperative irrealis forms (with plain or agreeing verbs). These forms include expressions of future and modality, and it is possible that some of them are marked as irrealis with a separate form, *g*(wait-a-minute).

The results of our acquisition study provide new support for the proposal by Quadros (1999) that plain and agreeing verbs project different structures; in particular, that plain verbs do not involve movement to Agr projections, but agreeing verbs do. Then, this study is another example of the close relationship that can be made between language acquisition data and grammatical analysis.

References

- Buesa Garcia, Carlos (2007). Root infinitives are compatible with null-subject languages: evidence from Spanish. Presented at GALA, Barcelona.
- Deen, Kamil Ud & Hyams, Nina (2006). The morphosyntax of mood in early grammar with special reference to Swahili. *First Language* 26.1, 67-102.
- Hoekstra, Teun, and Hyams, Nina (1998). "Aspects of root infinitives". *Lingua* 106:91-112.
- Grinstead, John & Pratt, Amy (2007). The optional infinitive stage in child Spanish. In A. Belikova, L. Meroni & M. Umeda (Eds.), *Proceedings of Generative Approaches to Language Acquisition - North America 2*, 351-362. Cascadilla Press.
- Guasti, Maria Teresa (1993/4). Verb syntax in Italian child grammar: finite and nonfinite verbs. *Language Acquisition* 3, 1-40.
- Lillo-Martin, Diane (1986). Two Kinds of Null Arguments in American Sign Language. *Natural Language and Linguistic Theory* 4, 415-444.
- Meir, Irit (1998). Thematic structure and verb agreement in Israeli Sign Language. PhD dissertation, Hebrew University of Jerusalem.
- Meir, Irit (2002). A cross-modality perspective on verb agreement. *Natural Language and Linguistic Theory* 20.2, 413-450.
- Morford, Jill & Goldin-Meadow, Susan (1997). From here and now to there and then: The development of displaced reference in Homesign and English. *Child Development*, 68.3, 420-435.
- Padden, Carol (1988 [1983]). Interaction of Morphology and Syntax in American Sign Language: Outstanding Dissertations in Linguistics. New York: Garland. (Originally distributed as: PhD dissertation, University of California, San Diego.)
- Phillips, Colin (1995). Syntax at age two: Cross-linguistic differences. In: C. Schütze, J. Ganger & K. Broihier (eds), *Papers on Language Processing and Acquisition*. MITWPL #26, 225-282.
- Poeppel, David & Wexler, Ken (1993). The Full Competence Hypothesis of Clause Structure in Early German. *Language* 69, 1-33.
- Quadros, Ronice Müller de (1997). Aspectos da sintaxe e da aquisição da língua de sinais brasileira. *Letras de Hoje*, 110, 125-146.

- Quadros, Ronice Müller de (1999). *Phrase Structure of Brazilian Sign Language*. Unpublished Ph.D. Dissertation, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil.
- Quadros, Ronice Müller de, Lillo-Martin, Diane, & Chen Pichler, Deborah (2004). Clause structure in ASL and LSB. 26th Annual Conference of the German Linguistics Association (DGfS); Mainz, Germany.
- Quadros, Ronice Müller de & Lillo-Martin, Diane (2007). Gesture and the acquisition of verb agreement in sign languages. *Proceedings of the 31st Annual BUCLD*, 520-531. Cascadilla Press.
- Salustri, Manola & Hyams, Nina (2003). Is there an analogue to the RI stage in the null subject languages? *Proceedings of the 27th Annual BUCLD*, 692–703. Cascadilla Press.
- Salustri, Manola & Hyams, Nina (2006). Looking for the universal core of the RI stage. In Torrens, V. & Escobar, L. *The Acquisition of Syntax in Romance Languages*. Amsterdam: John Benjamins.
- Wexler, Ken (1998). Very early parameter setting and the unique checking constraint: A new explanation of the optional infinitive stage. *Lingua*, 106, 23–79.