A CROSS-LINGUISTIC ANALYSIS OF NEGATION AND ITS ROLE IN THE ACQUISITION OF INFL

Catherine Billington

University of Kansas

Introduction

The separation of finiteness into two unique but related components - Tense and Agreement - may well be the key to unlocking the structure of INFL in general, and the acquisition of INFL in particular. The status of Agreement itself is currently under scrutiny, however, the acquisition of finiteness is taken here to be the acquisition of Tense and Agreement, following Meissel's (1994) analysis

It is important to understand the acquisition of INFL for several reasons. First, the status of INFL makes more or less testable predictions concerning universal grammar, as well as parametric function. Meissel (1994) makes a critical distinction in pointing out the need to distinguish between non-parametric universals (everyone has the same values), parameters of UG (everyone has the same functions, but sets values according to a finite set of options), and language specific properties. Of greatest interest here is the second option - parametric variation-, since the child needs to find (i e learn) parametric values for the language they are acquiring. This is necessarily based on input (i e triggered by input data). Notice, however, that while a functional category may be a parameter of UG, the morphological realization of that functional category is language-specific. A further breakdown of the parametric component is an approach taken by Wexler (1996) that within the parameters of UG, some instances (such as INFL) may be maturational. So we distinguish universals from early parameters from possible maturational parameters from morphological representation. The first three distinctions can all be studied within INFL

INFL is of interest for a second reason - it may be somewhat problematic for the child to acquire, and it appears to be particularly problematic for children with specific language impairments (SLI) in English (Rice & Wexler, in press, Rice, Wexler, & Cleave, 1995). There are many proposed explanations for the phenomenon, one of which attributes the trouble to a difficulty in setting the finiteness parameter (Harris & Wexler, to appear, Rice & Wexler, in press) as postulated by the Optional Infinitive Hypothesis (OI) or to some form of underspecificity of some component of INFL such as number (Hyams, to appear) or Tense or Agreement (Schutze, 1996). This difficulty is best seen in the existence of root infinitives. These are main clause declaratives with non-finite verbs

1 a English (From CHILDES in Hyams (to appear)
   "Eve sit floor"
   "That trunk fall down"

 b French (Pierce, in Wexler, 1996)
   "pas tomber bébe"
   /not fall baby/

   "pas attrapper une fleur"
   /not catch a flower/

It should be noted that RI's are not allowable in the adult grammar While considerable evidence for RI's is found in English (Wexler 1996, Rice, Wexler, & Cleave, 1995) as well as other languages (Dutch and Danish, Wexler, 1996 German, Peoppel & Wexler, 1993) their status has not been resolved in French (Rice, LeNormand, Billington, & Konopcznski, in preparation), and they are largely lacking in Italian (Rizzi, 1994)

 Thus, the exploration of INFL in a cross-linguistic context - based on the acquisition of finiteness is needed to shed light both on 1) the status of finiteness within UG 2) parametric differences in languages and linguistic representation of finiteness, as well as 3) moving towards a better understanding and definition of SLI, to include cross-linguistic components In fact, the cross-linguistic evidence will necessarily be the testing grounds for any given theory since that is where the universal Vs parametric Vs maturational distinctions will be made This type of empirical evidence - even at a descriptive level - is relatively lacking at the moment A good starting point for a comparative, cross-linguistic study of INFL are the structural differences found in English and French These two languages were chosen specifically because they offer minimally distinct structures that highlight INFL as described below

Context

 The next step is to clearly identify a context - in both English and French - that highlights the acquisition of finiteness, while minimizing the number of uninterpretable (a k a ambiguous) data This last consideration is particularly important due to sparse morphology in English, and problems of homophony in French In English, only the third person singular form differs for most verb forms (This is the "-s" of 3PS "he goes" Vs "I go, you go, they go, etc) In French, despite orthographical differences, the first, second and third person singular present as well as the singular imperative forms are all homophonous with each other Separately, the 2PPL, infinitive, past participle, and plural imperative forms - are also all homophonous, for first class (regular "-ER") verbs, as shown in Table 1 This entails that the finite and non-finite forms are not necessarily perceptually distinct for First Class verbs Therefore, it is not always clear whether the child is using a finite or non-finite verb In adult grammar this distinction becomes clear from the context In the child grammar, however, it is sometimes impossible to tell if the child is manipulating finiteness correctly

Table 1
Conjugation for French First Class "-ER" verbs

chanter (sing)	verb form	IPA
je	chante	šõt
tu	chantes	šõt
il/elle/on	chante	šõt
nous	chantons	šõtõ
vous	chantez	šõte
ils/elles	chantent	šõt
imperative (S)	chante	šõt
imperative (P)	chantez	šõte
past participle	chante	šõte
infinitive	chanter	šõte

While the first person plural form does have a distinguishable phonetic representation, it is the singular forms that are predominately used by (and addressed to) children Third class "-RE" verbs have a reasonably high token frequency, and phonetically differentiate the finite from the non-finite (infinitive and past participle) forms, as shown in Table 2 Further, this difference shows fairly clearly with negation

Table 2
Conjugation for French Third Class "-RE" Verbs

mettre (put)	verb form	IPA
je	mets	mɛ
tu	mets	mɛ
il/elle/on	met	mɛ
nous	mettons	mɛtõ
vous	mettez	mɛte
ils/elles	mettent	mɛt
imperative (S)	mets	mɛ
imperative (P)	mettez	mɛte
past participle	mis	mi
infinitive	mettre	mɛtR

There is some controversy as to the placement of the negation node in the syntactic representation Deprez & Pierce (1993) place the negation node below the IP (Agreement is included in the IP) Clahsen, Penke, & Parodi (1993/4) likewise place negation below Agreement

Harris & Wexler (to appear) place negation above Agreement, but below Tense This is shown in Figures 1 and 2, below
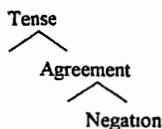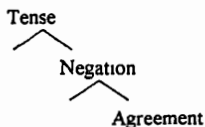
Figure 1 Negation node below Tense and Agreement (IP)

Tense
Agreement
Negation

Figure 2 Negation between Tense and Agreement

Tense
Negation
Agreement

Finally, Rizzi (1994), places Negation above the IP altogether This predicts the non-existence of negative RI's

This is an important distinction, but not one that should hold us up here for two reasons First, a structural parallel can be drawn between English and French for negation based solely on distributional criteria Second, negation can be analyzed independently of verb raising and INFL if it is base-generated at the NP of VP level and raises for scope Due to time constraints, the first option will be discussed here

The word order for negation in French is Verb$_{finite}$ + Negation (+ Verb$_{non-finite}$) ("Ne" is optional in spoken French) This is illustrated in 2 (a), (b)

2 (a) Je (ne) joue pas
        /I   play not/
        "I don't play" or "I'm not playing"
   (b) Je ne veux pas jouer
        /I   want not to play/
        "I don't want to play"

A parallel can be drawn for English The word order for negation can be considered as Verb$_{finite}$ + Negation + Verb$_{non-finite}$ In other words, "Do", modals, and AUX can be distributionally considered simply as a finite verbs since they precede the negative marker, and are marked for person (Agreement) It is not necessary to determine at this point if "do" should be considered some type of modal verb or simply a bundle of features representing Tense or if it is only inserted for Tense What is important, is the finite status of "do", which is clear in 3PS This structural parallel is illustrated in 3 (a), (b), and (c)

3(a) I can not play
    V_{+F} neg V_F
(b) He does not want to play
    V_{+F} neg V_F (V_{-F})
(c) I am not playing
    V_{+F} neg V_F

Notice that the non-finite verb that follows the element of negation is optional (semantically) in French, but not in English (Elliptical sentences such as "He does not" are not considered here) This equates to saying that, in French, it is possible to negate lexical verbs while in English it is not. This is illustrated in 4

(4) French
  (a) Je joue
     I play
  (b) Je ne joue pas
     I   play not
     "I don't play"
  English
  (c) I play
  (d) I do not play
  (e) * I play not

Negation is in a predictable position with regards finiteness for both English and French Both have as prerequisites the acquisition of INFL since a finite verb (at least) is necessary At the same time, the negation of lexical verbs is very different for English and French Notably, English cannot negate lexical verbs So that any structure of negation in English implies both a finite and a non-finite verb

This has important implications for acquisition The child acquiring negation in English must wrestle with both a finite AND a non-finite verb The child acquiring negation in French, on the other hand, can initially make due with just a finite verb This also implies that the child acquiring French will *hear* verbs negated across the board Any verb is a candidate for negation The child learning English, on the other hand, will only hear negation applied to a limited group of verbs - in particular "do", auxiliaries, and modals The context for negation in English is both more complex and more restricted than it is in French This is reflected in the input (triggering) data.

Predictions

This structural comparison allows some very clear predictions to be made It is expected that a child acquiring French as a first language will shows signs of negation at an earlier age than the child acquiring English as a first language, subject to triggering data This is due to the assumption that the child acquiring French will encounter more evidence of finiteness, will have to manipulate fewer verbal structures, and will be able to negate a greater variety of verbs than the

child acquiring English as a first language Inherent also is the prediction that the child acquiring French will show earlier signs of both finiteness (and possibly SPEC-Head agreement) than the child acquiring English

Further, this will enable several predictions to be made for French-speaking children with SLI Since (adult) negation requires an INFL node (in French or English) as outlined above,

1 if children with SLI are late setting their INFL parameter - as OI (Wexler, 1996) suggests (i e late maturing - delayed vs deviant) more than just finiteness, we expect negation also to be later emerging in French-speaking SLI children as compared to French-speaking control children

2 By the same token, we expect Spec-head agreement to emerge later in French-speaking SLI children than in French-speaking control children

3 French-speaking children with SLI may nonetheless acquire negation and Spec-head agreement before English-speaking children with SLI and possibly even English-speaking control children due to language-specific structural considerations Thus, French-speaking children may not show a similar profile to English-speaking children with SLI whether matched for age or for MLU

To summarize the predictions,

1 French-speaking control children should show signs of INFL before their English-speaking counterparts

2 French speaking children with SLI should show signs of Negation (and perhaps Spec-head agreement) later than their French-speaking control counterparts (matched for age/MLU), but earlier than English-speaking children wit SLI matched for either age or MLU

To this end, two corpora were analyzed from the CHILDES database (MacWhinney, 1985) French data was taken from the Gregoire Corpus (Champaud, 1992) at ages 2 1 25 through 2 5 27 English data was taken from the Peter Corpus (Bloom, 1970) at ages 2 1 18 through 2 6 16 Only contexts of negation were considered Counts were taken for obligatory subject contexts, subjects present and subjects missing (in required contexts), verbal contexts where subjects were not required, finite verbs, non-finite verbs, both a finite and non-finite verb in the same verbal structure, and "other" Some examples of the categories are given in Appendix 1 Raw scores have been converted into percentages calculated on the total number of utterances with the exception of subjects present and missing, which were calculated based on contexts where a subject was required Non-negligible contexts were then calculated by dropping scores of less than one percent The results appear below

Results

GREGOIRE

Table 3 - Gregoire/Contexts of Negation

Non - Negligible Scores and Percentages[2]

	SR	SUB	NO	SNR	+F	-F	VV	OTH
2 1 2 5 (90)	0	0	0	0	0	0	0	10
2 3 0 (405)	4% (17)	100% (17)	0	1% (6)	5% (22)	0	0	1% (5)
2 5 1 (229)	4% (9)	78% (7)	0	0	0	0	2% (5)	0
2 5 1 3 (456)	4% (19)	95% (18)	0	0	3% (14)	0	2% (7)	10% (46)
2 5 2 7 (456)	7% (33)	100% (33)	0	0	6% (25)	0	0	2% (11)

[2] Scores of less than 1% are considered non-significant

SR = subject required

SNR = subject not required (e g Imperatives, common spoken forms)

SUB = subject present

NO = subject required, missing

V[+F] = finite verb form, includes finite imperatives (appropriate use)

V[-F] = non-finite verb form, includes non-finite imperatives (appropriate use)

VV = both a finite and non-finite verb form are present

OTHER = frozen forms, unanalyzable, etc

Imperatives are marked +/- F since both forms exist in French

Non-finite verbs include both infinitive forms and past participle forms

PETER

Table 4 - Peter/Contexts of Negation

I Non - Negligible Scores and Percentages[2]

	SR	SUB	NO	SNR	+F	-F	VV	OTH
2 1 1 8 (100)	0	0	0	0	0	0	0	0
2 3 3 (400)	2% (7)	0	0	0	0	0	0	5% (18)
2 5 3 (200)	0	0	0	0	0	0	0	0
2 5 2 2 (400)	0	0	0	0	0	0	0	0
2 6 1 6 (400)	5% (20)	75% (15)	25% (5)	0	3% (10)	0	2% (9)	0

[2] Scores of less than 1% are considered non-significant

SR = subject required

SNR = subject not required (e g Imperatives, common spoken forms)

SUB = subject present

NO = subject required, missing

V[+F] = finite verb form, includes finite imperatives (appropriate use)

V[-F] = non-finite verb form, includes non-finite imperatives (appropriate use)

VV = both a finite and non-finite verb form are present

OTHER = frozen forms, unanalyzable, etc

Imperatives are marked +/- F since both forms exist in French

Non-finite verbs include both infinitive forms and past participle forms

Discussion

Clear differences are apparent in the distributions as predicted In particular, Gregoire does show somewhat more use of negation with finite verbs - and overall - than Peter Gregoire's finite verb forms total 66 compared to Peter's 15 Peter shows 61 total contexts, compared to Gregoire's 169 Of equal importance, neither child shows much use of the dual verb construction in negation (Peter - 11, Grégoire - 12), which effectively precludes Peter from using much structural negation at all! Neither child showed any use of lone non-finite verbs in negation (i e no RI's with negation), suggesting that the V-to-I parameter has been set This has been taken as evidence for the Truncation hypothesis by Rizzi - since if Neg is above IP, we do not expect to see RI's with negation However, the presence of RI's was not counted in this study Clearly, more research is needed to incorporate both a larger corpus and a comparison with corresponding affirmative contexts Important further research should focus on the emergence of negation and

finiteness in French-speaking children with SLI Nonetheless, these preliminary results argue in favor of the first prediction, that French-speaking children will show signs of fintiteness and negation earlier than their English-speaking counterparts This may be seen as early evidence of the INFL structure, and early evidence of V-to-I movement, dependent on triggering data The greatest difference lies in the presence of overt subjects where required Clearly, Gregoire shows much earlier evidence of overt subject agreement Coupled with slightly more evidence supporting a knowledge of negation, the presence of subjects in required contexts argues for early SPEC-head agreement as expected in the second prediction

Thus the data show that a child acquiring French has earlier use of both finiteness and overt subject agreement, in negation contexts Further, neither child makes use of lone non-finite verbs (in negation) For the child acquiring English, exclusion from structures with both finite and non-finite verbs likewise excludes the use of structural negation, and limits SPEC-head relations (It cannot be said that children do not have negation, only that they do not have access to the structures that support negation in English) The conclusions argue in favor of paradigmatic learning (of the verbal system), an early INFL structure, early knowledge of V-to-I movement, and early knowledge of SPEC-head relations with subsequent subject-raising More importantly, the emergence is influenced - if not by input - then at least by the language-specific structural properties of the language being acquired This makes testing a maturational approach very difficult within the normally developing population

Appendix 1
Examples of Data

Subject Required

    Gregoire "il marche pas" /it doesn't work/ (2 5 27)

    Peter "That's not the sister" (2 6 16)

Subject Present

    Gregoire ""j'ai pas moi" /I don't have (it), me/ (2 5 27)

    Peter "You can't see it any more" (2 6 16)

NO (Subject required, but missing)

    Gregoire no contexts

    Peter "am not sleepy" (2 6 16)

Subject not Required

    Gregoire "bouge pas" /don't move/ (2 3 0) - imperative

    Peter no contexts

Finite Form

    Gregoire "je sais pas" /I don't know/ (2 5 27)

    Peter "I'm not in the subway" (2 6 16)

Non-finite Form

    Gregoire no contexts

    Peter "not raining" (2 6 16)

VV - Dual Verb Construction, finite + non-finite

    Gregoire "la chaise, elle est toute cassee" / The chair is all broken/ (2 5 27

    Peter "don't let go of it" (2 6 16)

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