The Form and Interpretation of Finite and non-Finite Verbs in Swahili

Kamil Ud Deen and Nina Hyams
UCLA

A great deal is known about the distribution of finite and non-finite forms in early language and increasingly, studies are investigating the semantic properties of these different forms. An important question for acquisition theory concerns the relationship between the child's developing morphosyntax and the semantics typically expressed by these structures. In this paper we will explore the form and interpretation of finite and non-finite verbs in the early stages of the acquisition of Swahili. Because Swahili is a heavily agglutinating language with independent morphemes for tense, agreement, mood and other semantic categories, it is a particularly good language for looking at the relation between form and meaning in the child's developing morphosyntax. Before turning to Swahili, we provide some background findings and assumptions.

1.0. The expression of mood in early grammar

Hoekstra and Hyams (1998) (henceforth H&H), based on work by Wijnen (1997) and others, argued that RIs in languages such as Dutch have an essentially modal or irrealis meaning -- that is, they express the child's needs, wishes, and intentions with respect to some eventuality (Ingram & Thompson 1996; Lasser 1997, a.o.). Examples are given in (1):

(1) a. Papa boek lezen   b. Niekje buiten spelen
         Daddy book read-inf   Niekje outside play-inf
         '(I want)Daddy to read the book'   'Niekje wants to play outside'

To the extent that this is true, children have zeroed in on an essential property of adult grammar since infinitives typically have irrealis meaning in adult grammar as well (Stowell 1981; Bollinger 1968; Duffley 1992; and most recently Han 2000). This is illustrated by examples such as (2):

(2) a. John remembered to bring the wine.
     b. Niet parkeren hier
         NEG Park-inf here
         'No parking here'
     c. What to do?/ Che fare?
     d. Non tornare a casa troppo tarde.
         Not come-inf. home too late
         'Don't come home too late'

As pointed out by Stowell, in sentences such as (2a) the infinitive *to bring* is unrealized at the moment of remembering.[1] Jussives, as in the Dutch example in (2b), express necessity. Expressions such those in (2c) in English and many other languages typically have a modal meaning, roughly 'what should we do'. (2d) illustrates that in Italian and many other varieties of Romance, negative imperatives are formed with the infinitive (as discussed by Zanuttini 1997and others). The appearance of an infinitive in these various kinds of irrealis expressions is unlikely to be a coincidence, and the child data strongly suggest that whatever principle is responsible for the irrealis meaning in adult language is also present in child grammar. In Hyams (2001) it is proposed that the infinitival morpheme carries an irrealis feature and this feature licenses a Mood Projection in the structure.

In line with recent research into the semantics of functional heads (Stowell 1992; Cinque 1999; Giorgi&Pianesi 1996), we propose that the irrealis meaning of infinitival clauses is structurally determined, i.e. it comes from the presence of MoodP in the clause, and that the Mood projection is licensed by features in the infinitival verb.

It has been suggested that the modal meaning associated with RIs is not due to any irrealis specification or functional structure but is rather a "default" interpretation arising from the lack of a temporal anchor. This hypothesis can be formulated as an implication of the following sort: If [-tense] then irrealis. This hypothesis is implausible, however, in light of the fact that there are other non-finite forms in child language that do not have an irrealis interpretation. For example, in Italian and other languages, children produce bare participles, such as *caduta* 'fell' (= it has fallen) or *Fatto Diana* 'done Diana' (=Diana has done it). Though arguably non-finite, these structures typically have the perfective, completive meanings of adult participles and do not have an irrealis meaning.

English is another case in point: H&H show that English children's bare forms overwhelmingly (i.e. 89% of the time) have a temporal meaning, usually here and now, as illustrated by the examples in (3) and the quantitative data in table 1[2]. H&H propose that the difference in meaning is related to the

---

1. Infinitives under raising verbs do not typically have a future/modal reading but show simultaneity with the matrix tense. However, these infinitives differ syntactically from the more "canonical" control infinitives and perhaps represent a marked option that children do not consider at the early stage. It is also possible that the irrealis meaning is there but obscured by the aspectual properties of the matrix verb (Our thanks to C. Schütze for pointing this out to us). Reasons of space prevent a full discussion of these cases, but see Deen&Hyams, in prep., for further details.

2. Blom, Krikhaar & Wijnen (2001) presents results from an elicited production task suggesting that English bare verbs can also have a modal meaning in early language. In their study the scene involved a figure with a thought bubble above his head representing the character's desires or intentions. It is not at all clear that a 2-3 year old child understands the meaning of this representational device,

morphological composition of RIs vs. bare forms, viz. RIs have infinitival morphology (eg. –en in Dutch,German), that licenses Mood, while the English bare form – which is morphologically unmarked – has no such features (cf Hyams 2001).

(3) a. Eve sit floor   b. Ann need Mommy napkin
        'Eve is sitting on the floor   'Ann needs Mommy's napkin'

Table 1: Temporal/modal reference of bare and finite forms in English

	PAST	PRESENT	FUTURE/MODAL	TOTAL
Bare	95 (25%)	241 (63%)	44 (11%)	380
Finite	119 (49%)	112 (46%)	11 (4%)	242

Aggregate data from Adam, Eve, Nina and Naomi. See H&H for further discussion.

The conclusion must be then that irrealis mood is not simply the default interpretation when a temporal anchor is lacking, but rather that irrealis mood is associated with a specific morpho-syntax just as completive aspect is associated with specific participial morphology. We thus propose that irrealis mood is licensed by "appropriate" morpho-syntactic features. Appropriate features include infinitival and other modal features and, as argued in Hyams (2001b) for child Greek, appropriate features can also include aspectual features[3]. These points are summarized in (4), as the Semantic Opposition Hypothesis (Hyams 2002).

(4) SEMANTIC OPPOSITION HYPOTHESIS
     i. Irrealis (vs. realis) mood is a primitive opposition in early grammar.
     ii. Modal/irrealis meaning comes from an active MoodP[4]
     iii. MoodP is licensed by appropriate morpho-syntactic features

2.0. Mood and finiteness in Swahili

Before presenting the data from 4 Swahili-speaking children, we first describe the structure of the Swahili verbal complex, explaining why Swahili is

---

which may account for the very high proportion of non-responses in the modal condition.

3. Greek children produce a bare perfective form that is the functional equivalent of an RI. Hyams (2001b) argues that it is the marked aspectual feature (perf) that licenses MoodP in early Greek.

4. The term "active" means roughly "marked". We assume, following Cinque (1999), that heads have a marked and unmarked/default value. Marked features (active projections) must be checked and contribute to the interpretation of the sentence. A projection that is not active has its default value. Irrealis is the marked value for Mood, while perfective is the marked value for AspP (though the latter seems to be subject to cross linguistic variation).

of interest in understanding the role of mood and its relation to tense in early grammar. Our claim is that the same opposition that we see in RI languages between irrealis and realis mood expressed by the RI and finite form respectively, also shows up in Swahili. In Swahili, however, the irrealis form is a subjunctive form. Interestingly, the split between indicative and subjunctive forms in child Swahili does not exactly mirror the adult language. The child's use of the morphology reflects the unmarked or prototypical split between realis and irrealis, while adult Swahili has a more marked system. We return to this issue below.

2.1. Swahili verbal morphology

Swahili, an East African Bantu language, is an SVO language in which the subject and the object are optionally null. The verb occurs in a verbal complex that contains inflectional material as well as grammatical function changing suffixes. The structure of the verbal complex is given in (5).

(5)   AgrS – Tense – AgrO – Verb–Derivational suffixes– Mood

Subject agreement (AgrS) marks person and number, and there are several tense/aspect markers, including past perfective, present on-going, future, infinitive, etc. (Ashton 1947). Object agreement (AgrO) also marks person and number, but unlike subject agreement, object agreement is realized only with specific objects. Because of the difficulties in determining obligatory contexts for object agreement, we will not discuss this in this paper. We focus instead on subject agreement, tense and mood marking in child Swahili.

Mood is specified by the final vowel in the verbal complex. There is a 3-way alternation between the unmarked indicative -a, the subjunctive -e and the negative -i. The unmarked form occurs with on-going actions/states, present habitual actions, past actions/states, future actions/ states and imperatives. In this paper we focus on indicatives and subjunctives, examples of which are given in (6) (For discussion of negation, see Deen, forthcoming).

(6)   a.   Juma alimfuata Mariam   Indicative, past
            Juma   a – li – m – fuat – a   Mariam
            Juma SA$_{3sg}$-past-OA$_{3sg}$-follow-IND Mariam
            'Juma followed Mariam'

       b.   Tafadhali nipatie kalamu   Subjunctive, request
            Tafadhali   ni – pat – i   – e   kalamu
            Please   OA$_{1sg}$-give-applic-SUBJ   pen
            'Please give me a pen'

Following Chomsky (1993) and Demuth and Gruber (1995), who analyze Sesotho in a similar manner, we assume a structure for Swahili as in (7). We ignore AspP, which is not relevant to the discussion.

(7) [$_{AGRSP}$ AgrS [$_{TP}$ T [$_{AgrOP}$ AgrO [$_{MoodP}$ V-Mood [$_{VP}$ t$_v$]]]]]

We assume the verb raises to Mood, as proposed by Ngonyani (1996), when Mood is active/marked, that is in subjunctive and negative clauses. In affirmative indicative clauses MoodP is inactive, the verb does not raise, and the verb spells out with the default –a.

2.2. Specification of functional features in child Swahili

Turning now to the acquisition data, the data collection was conducted over a period of 11 months in Nairobi, Kenya. Biweekly recordings were made of naturalistic speech in the homes of four children of differing ages. The data were audio recorded and transcribed using CHAT format.

Table 2: Subject information

Child	Haw	Mus	Fau	Has
Age range	2;2 – 2;6	2;0 – 2;11	1;8 – 2;2	2;10 – 3;1
No. of recordings	7	23	10	5
MLU	1.54–2.46	1.52–3.57	2.97–3.93	3.15–4.23

Each of the children was assigned to a particular stage or stages according to 3 measures of grammatical development: MLU, verbs per utterance (Valian 1991) and proportion of protosyntactic devices (Bottari, Cipriani, and Chilosi 1993/1994). We then pooled the data from each stage. According to these measures these children represent 4 developmental stages with one of the children passing through more than one stage during the time of the study (see Deen 2001 and Deen & Hyams, in preparation for further details).

We first identified all the indicative and subjunctive clauses in each stage (excluding imperatives, repetitions, imitations and formulaic utterances). Focusing on the indicative clauses first, we found that Swahili children produce verbal complexes of the kinds listed in (8):

(8)
a.	Full Clause	SA – T – V
b.	[-SA] Clause	Ø – T – V
c.	[-T] Clause	SA – Ø – V
d.	Bare Stem	Ø – Ø – V
e.	Root Infinitive	INF – V

We see from these data that in Swahili, agreement and tense may be independently omitted, consistent with the ATOM model proposed in Schütze and Wexler (1996). However, the relative proportions of each clause type differ

markedly. For example, [-T] clauses are far less frequent than [-SA] clauses (See Deen 2001 for further discussion of these results):

Table 3: Proportion of indicative clause types in stages 1 through 4

Stage	Full clause	[-SA] clause	[-T] clause	Bare stem	RI	Total
	SA-T-V	Ø-T-V	SA-Ø-V	Ø-Ø-V	INF-V	
1	18% (39)	29% (60)	20% (42)	32% (67)	0.9% (2)	210
2	20% (58)	52% (154)	8% (25)	19% (55)	1% (3)	295
3	51% (235)	36% (166)	5% (21)	7% (34)	0.9% (4)	460
4	60% (225)	28% (104)	7% (26)	4% (15)	1.8% (7)	377

We will argue that stage 3 represents the stage at which Tense is obligatory, as it is at this stage that both [-T] and bare stems drop below 10%. It is also clear from these data that Swahili children do not produce root infinitives, that is verbs in root context with the infinitival prefix 'ku'. In fact, at all stages fewer than 2% of all indicative utterances are RIs. Swahili, then, is clearly not an RI language of the German or Dutch sort. We will show below, however, that the development of the semantics-morphosyntax mapping in Swahili parallels its development in RI languages such as Dutch.

3.0. The Semantic Opposition Hypothesis

The SOH holds that the realis-irrealis opposition is a primitive one in early grammar. Since Swahili is not an RI language, the question arises as to how irrealis mood is licensed in the early grammar if not through infinitival morphology. The obvious candidate is the subjunctive form, as in the adult grammar. Accordingly, we investigated the use of subjunctives in the child data. The following generalizations emerged: First, overall, children use fewer subjunctives than adults do. Of all the verbal utterances produced by adults in selected files, 25% (608/2377) are subjunctives[5]. Children, by contrast, use subjunctives between 2% and 12%. Additionally, we noticed a developmental trend: In stages 1 and 2, the children use subjunctives at the rate of approximately 2% (16/763), but in stage 3 there is a jump in the use of subjunctives to 9.8% (50/509). While this is not a large increase, it is not insignificant given that the ceiling on subjunctives in the adult language is probably under 25%.

In addition to the increase in proportion of subjunctive tokens at stage 3, there is a marked increase in the number of subjunctive verb types, as well as contexts in which subjunctive is used. Table 4 shows that during stages 1 and 2,

5. This is probably not representative of normal adult-adult interaction where the subjunctive is probably less frequent. Adults use a disproportionate number of polite requests with children, which raises the proportion of subjunctives.

few verbs occurred in the subjunctive (8 in stage 1, and 5 in stage 2). In stage 3, however, the subjunctive was used with 26 different verbs (see table 4).

Similarly, the range of irrealis meanings that children expressed increased from stage 2 to stage 3: in stages 1 and 2, children expressed only 3 of the five possible irrealis meanings – desire, request and suggestion, whereas in stage 3 all of the possible 5 meanings emerged - desire, possibility, request, permission and suggestion. As we will see shortly, the verbs expressing irrealis meaning are almost always correctly inflected with subjunctive morphology.

Table 4: Types/tokens of verbs expressing irrealis mood

	Stage 1	Stage 2	Stage 3	Stage 4
Type	8	5	26	20
Tokens*	9	7	50	37

* Note: data in stages 1 and 3 come from 2 children, while data in stages 2 and 4 come from one child. This may affect the number of types found in each stage.

Finally, we observe that when children begin to use the subjunctive they overregularize the semantics -morphosyntax mapping in a way that points to the emergence of an unmarked realis-irrealis split, even though the adult Swahili system is marked in certain respects. In order to explain this we provide the following background information.

3.1. Subjunctive and Indicative morphology

Much cross-linguistic work has been done investigating the semantic contexts of subjunctive forms. Subjunctive is the morphology that is often associated with irrealis mood (Bybee, Perkins, and Pagliuca 1994; Chafe 1995; Givón 1994). Chafe (1995) describes the mapping of realis/irrealis onto indicative/subjunctive as occurring on a "gradient" of markedness, as in figure 1, with the unmarked realis contexts and irrealis contexts on opposing ends of a continuum. In the unmarked case, past/present are indicative, while desire, suggestions, etc. are subjunctive. However, the morphology of the three middle categories – imperatives, futures and intentionals – is subject to cross-linguistic variation, with future/intentionals prototypically marked as subjunctive and imperatives prototypically marked as indicative.
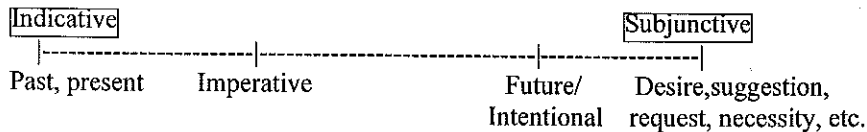
```
Indicative                                      Subjunctive
|---------------------|---------------------------------|-----------------|
Past, present    Imperative            Future/      Desire,suggestion,
                                       Intentional   request, necessity, etc.
```
Figure 1: The unmarked 'gradient' of markedness.

Swahili uses the indicative for past/present and the subjunctive for desires, suggestions, etc. However, the future and intentionals have indicative

morphology which represents a marked situation, according to the schema just outlined. Therefore there are marked aspects of the Swahili mood system.

3.2. Subjunctive and Indicative Morphology in Early Swahili

The final mood vowel is obligatory in Swahili and children never omit this vowel. This could be due simply to phonotactic requirements, as all words in Swahili end in a vowel. If it were a phonotactic effect, however, we would not expect to find consistent form-meaning relationships. In order to test this hypothesis, we investigated the form-meaning contingencies in the children's indicative and subjunctive clauses. To determine the meanings of children's utterances, we considered the context as well as parental judgments. All unclear tokens were discarded from the counts. Our initial analysis was of all indicative verbs, and the results are presented in the first data column of Table 5.

Table 5: Interpretation of children's indicative verbs

	Meaning	All Indicative	Bare Stems	Subjunctive
Adult Indicative	Present	737	92	2
	Present result	160	18	3
	Past	266	25	3
	Future	89	6	1*
	Intentional	161	18	9*
Adult Subjunctive	Desire	17	3	18
	Possibility	0	0	2
	Necessity	0	0	0
	Request	0	1	46
	Suggestion	6	1	21
	Total	1436	164	105

Ignoring the unclear cases, of the 1436 indicative clauses (column 1), a total of 23 are used incorrectly to express desires or make suggestions (the errors are bold-faced in the table). This represents an error rate of 1.6%. The remaining 98.4% of indicative clauses are used correctly. Note that included in this count are all indicative verbs, whether tensed or tenseless. However, it is possible that the use of tense forces an indicative interpretation, and so a second analysis looked at the interpretation of bare indicative stems, which recall, are not marked for tense. The results are presented in the second column in table 5. Of the 164 indicative bare stems, 5 are used incorrectly to express desire, suggestion or request. This is an error rate of 3.1%. The remaining 96.9% of indicative bare stems are used correctly.

Turning now to the subjunctive clauses in the final column of table 5, of the 105 subjunctive forms, there are a total of 18 errors: an error rate of 17%. Importantly, of these 18 cases, 10 occur in future or intentional contexts (the bold face numbers with asterisks). Recall that in the cross-linguistically

unmarked (or prototypical) case, future and intentional contexts are irrealis. Adult Swahili future/intentional contexts are indicative and hence marked, according to Chafe and Givón. By extending subjunctive morphology to future and intentional contexts, the Swahili children are using the indicative/subjunctive morphology according to the unmarked mapping. By hypothesis, Swahili children have not acquired the marked characteristic of Swahili according to which future and intentionals are indicative. If we put aside these 10 cases as representing a principled departure from the adult grammar, the number of subjunctive errors drops to 8 – that is, only 7.6%.

Referring to our earlier discussion of the subjunctive, there are now 3 pieces of evidence pointing to stage 3 as the point at which children identify subjunctive morphology as the licenser of MoodP in Swahili. These are summarized in (9):

(9)
- The number of subjunctive verbs increases.
- The variety of subjunctive verbs and irrealis meanings increases.
- Swahili children mark irrealis according to the unmarked mapping

We have thus identified two significant developments at stage 3: First, children identify the subjunctive as the licenser of MoodP, hence the expression of irrealis mood. Second, as discussed earlier (see table 3), the specification of tense becomes obligatory. We thus propose that stage 3 is the point at which the realis-irrealis opposition maps onto Swahili morpho-syntax, as proposed by the SOH.

A particularly noteworthy aspect of the data in Table 5 is that the overwhelming majority of bare forms have a temporal interpretation. This provides further evidence against the 'if [-tense] then [realis]' implication discussed earlier. It also argues against the hypothesis of Blom, Krikhaar, and Wijnen (2001) that the 'default' forms in child language can have either a modal or temporal meaning. Rather, the Swahili bare forms pattern with the English bare form in being non-modal. Additionally, Blom & Krikhaar (2001) claim that English bare stems may have a modal meaning, just like Dutch and German RIs. They argue that the lack of bare verbs with modal meaning is an artifact of the restriction in English data to the 3rd person (the only person in which lack of finiteness is apparent). Blom & Krikhaar claim that in Dutch most RIs with modal meaning occur in 1st or 2nd person. However, the data presented in table 5 show that in Swahili the bare stem has a temporal meaning, irrespective of person. This is consistent with the hypothesis that specific morphology is needed to license MoodP as stated in (5).

3.3. The mapping of the realis-irrealis opposition in Swahili and the RI languages

The Swahili results are reminiscent of the "modal shift" that occurs in the acquisition of Dutch, described in Blom and Wijnen (2000). Blom and Wijnen

show that there is an early stage of Dutch in which children use only RIs and these RIs may have temporal or modal meaning. The close association between RIs and modality discussed earlier emerges at the point at which RIs begin to alternate with finite forms (the OI stage in Wexler's (1994) terms). Blom & Wijnen argue that at this point children decompose the infinitive into stem + affix. Thus, in our terms, it is only then that the infinitival feature is available to license MoodP and we find the expression of the realis-irrealis opposition -- with realis mood mapping onto finite forms and irrealis mood onto RIs.

It is interesting to observe that in both the Dutch case and the Swahili case (and in other child languages, such as Greek), there is a certain complementarity between the expression of mood and the expression of tense. As noted earlier, one way of capturing the complementarity is to say that irrealis or modal meaning emerges in the absence of a temporal anchor. However, this will not explain the fact that other non-finite forms, for example bare participles and the English bare forms do not have irrealis meanings. Indeed, as noted earlier, the Swahili data also argue against this position since neither the bare form nor the [-T] forms in Swahili have a modal meaning. The generalization appears to be that temporally unanchored verbs have a contextually determined temporal reference -- that is, unless they have specific morphology that provides modal meaning. We therefore propose the descriptive generalization in (10):

(10) Temporally unanchored verbs are descriptions of events with a contextually determined temporal reference unless they have "appropriate" morphology to license Mood (or Aspect, as in the case of Italian participles).

A corollary of this generalization would be that the underspecification of Tense is made possible by the specification of Mood (or Aspect) as in (11) (See Deen & Hyams, in prep., for further discussion):

(11)   [-tense] is licensed by Mood (or Aspect)

Becker (2000) has argued that in child English the copula is omitted predominately with stage level predicates, that is predicates that are in her terms, aspectually anchored. She proposes that the specification of Aspect in the phrase structure vitiates the need for a temporal anchor in early grammar. In a similar fashion, we will propose that an active Mood projection may eliminate the requirement of a temporal anchor.

It is reasonable to ask whether this aspectual or modal licensing of a non-finite clause is an option reserved for child grammar. Becker notes that there are languages such as Mandarin that have a complex aspectual system but lack morphological tense. A similar observation holds with regard to Mood. As we noted earlier, in adult Swahili, for example, there is no tense specification in subjunctive clauses. Similarly, cross-linguistically imperatives are argued to be tenseless. Although we are not prepared at this point to provide a formal account of the relation between tense and mood, it does seem that there are adult

languages in which a temporal anchor is necessarily lacking in irrealis clauses. We would argue that the complementarity that we see in early grammar between temporally anchored finite forms and non-finite irrealis forms is based on more general principles that hold in adult languages as well. In Dutch (and other languages) the child is exposed to positive evidence in the form of modals that show that in Dutch an irrealis form can be temporally anchored. In Swahili, a language without any modals, no such evidence is forthcoming and the Swahili speaking child will stay with what we would argue to be an unmarked system in which an irrealis mood maps onto a non-finite form.

4.0. Concluding Remarks

To conclude, we have shown that there is a point in the development of Swahili in which a clear semantic distinction between realis and irrealis mood emerges and that this semantic opposition is mapped onto appropriate morphology. We propose that this parallels what we see in RI languages, in which realis mood maps onto finite forms and irrealis mood onto infinitives. We further propose that the mapping of irrealis mood onto non-finite verbs is neither accidental nor due to some default strategy, but rather represents a principled complementary relationship between mood and lack of tense specification that we observe in various adult languages, for example, Swahili. The lack of tense is a necessary but not sufficient condition for the expression of irrealis mood. In addition, there must be specific mood features that license an active (i.e. irrealis) Mood projection.

References

Ashton, Ethel Osteli. 1947. *Swahili Grammar*. London: Longmans, Green and Co.

Becker, Misha. 2000. The development of the copula in child English: the lightness of *be*. Doctoral Dissertation, UCLA, Los Angeles.

Blom, Elma, and Evelien Krikhaar. 2001. Where to use a nonfinite clause? An experiment on the use of verb forms in early Dutch and English child language. Paper read at GALA, at Palmela, Portugal.

Blom, Elma, E. Krikhaar, and Frank Wijnen. 2001. Root infinitives in Dutch and English child language: an experimental approach. Paper read at BUCLD, at Boston MA.

Blom, Elma, and Frank Wijnen. 2000. How Dutch children's root infinitives become modal. Paper read at Boston University Child Language Development.

Bottari, Piero, Paola Cipriani, and Anna Maria Chilosi. 1993/1994. Protosyntactic Devices in the Acquisition of Italian Free Morphology. *Language Acquisition* 3 (4):327-369.

Bybee, Joan, Revere Perkins, and William Pagliuca. 1994. *The Evolution of Grammar: tense, aspect and modality in the languages of the world*. Chicago: University of Chicago Press.

Chafe, Wallace. 1995. The Realis-Irrealis Distinction in Caddo, the Northern Iroquoian Languages, and English. In *Modality in Grammar and Discourse*, edited by J. Bybee and S. Fleischman. Philadelphia, PA: John Benjamins Publishing Company.

Chomsky, Noam. 1993. The Minimalist Program. In *The view from building 20*, edited by K. Hale and S. Keyser. Cambridge: MIT Press.

Cinque, Guglielmo. 1999. *Adverbs and Functional heads*. New York: Oxford Universoty Press.

Deen, Kamil Ud 2001. The Acquisition of Swahili Verbal Morphology. Paper read at GALA 2001, Palmela, Portugal.

Deen, Kamil Ud forthcoming. Inflectional morphosyntax in child Swahili, Unpublished Doctoral Dissertation, UCLA.

Deen, Kamil Ud & Nina Hyams. In prep. Tense and Mood in child Swahili.

Demuth, Katherine, and J. Gruber. 1995. Constraining XP sequences. In *Niger-Congo Syntax and semantics 6*, edited by V. Manfredi and K. Reynolds. Boston: Boston University African Studies Center.

Duffley, Patrick. 1992. *The English Infinitive*. London: Longman.

Giorgi, Alessandra, and Fabio Pianesi. 1996. Tense and Aspect: from Semantics to morphosyntax. manuscript, University of Bergamo & IRST.

Givón, Talmy. 1994. Irrealis and the Subjunctive. *Studies in Language* 18 (2):265-337.

Han, Chung-hye. 1998. *The Structure and Interpretation of Imperatives: Mood and Force in Universal Grammar*. University of Pennsylvania PhD dissertation.

Hoekstra, Teun, and Nina Hyams. 1998. Aspects of Root Infinitives. *Lingua* 106 (1-4):81-112.

Hyams, Nina 2001. Unanchored Expressions in Child Language. Proceedings of COE International Symposium on Linguistics and Interdisciplinary Research.

Hyams, Nina. 2002. Early Morphosyntactic Convergence in Child Greek. unpublished UCLA m.s.

Ingram, David, and William Thompson. 1996. Early syntactic acquisition in German: evidence for the modal hypothesis. *Language* 72 (1):97-120.

Lasser, Ingeborg. 1997. *Finiteness in Adult and Child German*. MPI Series in Psycholinguistics.

MacWhinney, Brian, and Catherine Snow. 1985. The Child Language Data Exchange System. *Journal of Child Language* 12:271-296.

Ngonyani, Deogratis. 1996. The Morphosyntax of Applicatives. Doctoral dissertation, UCLA.

Schütze, Carson. 1997. INFL in Child and Adult Language: Agreement, Case and Licensing. MIT PhD dissertation.

Schütze, Carson, and Kenneth Wexler. 1996. Subject case licensing and English Root infinitives. Paper read at 20th Annual Boston University Conference on Language Development.

Stowell, Tim. 1981. Origins of phrase structure. Doctoral dissertation, MIT.

Stowell, Tim. 1992. The syntax of Tense. Unpublished Manuscript, UCLA.

Valian, Virginia. 1991. Syntactic subjects in the early speech of American and Italian children. *Cognition* 40.

Wexler, Kenneth. 1994. Optional Infinitives, head movement and the economy of derivations, in Norbert Hornstein & David Lightfoot (eds.) *Verb Movement*, Cambridge: Cambridge University Press.

Zanuttini, Raffaella. 1997. *A Comparative Study of Romance Languages*. New York: Oxford University Press.