
INSTITUT FÜR SPRACHWISSENSCHAFT - UNIVERSITÄT KÖLN

Arbeitspapier Nr. 43

THE DEVELOPMENT OF MODALITY IN LANGUAGE ACQUISITION

Ursula Stephany

Dezember 1983

Herausgeber der Reihe:

Prof. Dr. Hansjakob Seiler
Institut für Sprachwissenschaft
der Universität zu Köln
D-5000 Köln 41

© bei den Autoren

1. Modality as a language function

From a linguistic point of view, modality is a semantic category serving the expression of notions such as possibility, necessity, obligation, permission, intention, etc. The most important formal devices which languages have at their disposal for expressing modality are the lexical category of modal verbs (e.g. may, can, must, will)¹ and the inflectional category of mood (imperative, subjunctive, optative, conditional, etc.). In the present chapter, we shall limit ourselves to the consideration of these two modal categories for the following reasons: Modal verbs and mood are the modal categories most systematically studied in linguistics and they are, except for intonation in the very early stages of language acquisition, the only ones to play a significant role in early child language. Other lexical categories expressing modality such as adjectives (e.g. possible, likely, certain), adverbs (e.g. possibly, perhaps, maybe), nouns (e.g. possibility, likelihood), derivational affixes (e.g. -able in controllable, governable), and verbs taking sentential complements (e.g. believe, doubt) are almost completely missing from early child language, due to the cognitive and/or syntactic complexity of constructions containing such items.

In a functional approach, language is considered as serving certain purposes or functions. Examples which come immediately to mind are communicative functions such as making statements, asking questions, or making requests. Languages offer formal devices serving such functions, in the case of our examples declarative, interrogative, and imperative sentence types (also

called sentence moods). The relationship between such 'outer' functions of language and linguistic forms or constructions is, of course, by no means a simple one. In order to be able to serve their main outer functions, i.e. the epistemic or knowledge-gaining function and the social or interpersonal function, languages have to possess basic 'inner' functions inherent to the linguistic system itself such as the referential, the predicative, and the modalizing function (Seiler 1978, Stachowiak 1981).

The modalizing function enables the speaker to either qualify the propositions expressed by his sentences with respect to their validity, truth, or factuality (Flämig 1970:400, Lyons 1977:797ff, Grundzüge 1981:521) or to indicate obligation and permission 'of acts performed by morally responsible agents' (Lyons 1977:823) with reference to norms. These types of modality have been called epistemic and deontic, respectively. While statements of fact like (1) can be considered as (epistemically) nonmodal (Lyons 1977:797), the speaker uttering (2) does not categorically assert the proposition expressed by this sentence but puts it forward as being merely a possibility.

(1) John has left.

(2) John may have left.

Sentences (1) and (2) may be paraphrased as I say that it is the case that John has left and I think that it is the case that John has left (or Possibly/Perhaps John has left), respectively. In modal logic, sentences like (2) are not interpreted as expressing the speaker's opinion, but rather in terms of the notion of objective possibility bearing on the truth of the proposition. In the ordinary use of language, however, and therefore also in

the semantics of modality, it is the subjective epistemic interpretation given above that is much more important.²

Whereas sentences like (2) only admit an epistemic interpretation, (3) can be understood epistemically (I think that John will leave) or deontically (John is allowed to leave).

(3) John may leave.

The epistemic or the deontic interpretation of modalized expressions depends on a number of factors such as the tense of the modalized verb as well as that of the modal verb itself, the subject of the sentence (animacy), verbal agreement (cf Newton 1979), extrasentential context, and the kind of speech act performed (cf Pottier 1976, Johnson-Laird 1978, Roulet 1980).

The fact that the formal devices languages offer for implementing the modalizing function typically serve to express epistemic as well as deontic meanings cannot be coincidental. First of all, the notions of obligation and permission are reinterpretable in terms of the notions of necessity and possibility: obligation = necessity to act, permission = possibility to act. While in epistemic modality these notions refer to the knowledge of states of affairs (being), in deontic modality they refer to actions (doing) (Greimas 1976, Parisi & Antinucci 1976, Roulet 1980). The two modal degrees of necessity and possibility are not of equal importance in the two types of modality, however. Since one could argue quite plausibly that the origin of deontic modality is to be sought in the desiderative and instrumental functions of language (see below), it should not be surprising for deontic modality to be necessity-based rather than possibility-based, with the converse being true for epistemic

modality (Lyons 1977:801ff).

There are two more notions which are commonly expressed by the modal devices of languages and which thus have to be included in a treatment of modal semantics. These are ability and volition. Although they are relatable to both deontic and epistemic modality, in some studies on modal logic (von Wright 1963), modal semantics (Palmer 1979), and modality in language acquisition (Pea et al. 1982), they are treated as a separate type of modality, dynamic modality. As both ability and volition are basically concerned with conditions for action, however, it seems preferable to treat them as deontically modal (cf also Shepherd 1981). Volition can then be considered as expressing deontic necessity as does obligation, but whereas in obligation the source of modality may be some authority external to the subject, in volition it is the subject itself. Greimas (1976) considers both obligation and volition as 'efficient modalities'. Ability expresses deontic possibility and differs from permission in that there is no external source of authority. The deontic modality of ability qualifies the subject (Greimas *ib.*).

Defined as a general inner-linguistic function, modality pervades language and there can thus be no strictly nonmodal predicative expressions. We shall, however, in what follows, keep to grammatical tradition and exclude declarative and interrogative sentences in the indicative mood from consideration. Although a thorough study of the development of modal negation should prove most rewarding (cf Lyons 1977:777), we must renounce such an attempt out of space limits. In this chapter we shall be concerned with the formal linguistic devices employed by the

child for expressing modality in various languages and the functions these serve, i.e. how they are used. Only by the conjoint study of form and function can one hope to arrive at a fair understanding of how the modalizing function develops in the ontogenesis of language (cf also Fletcher 1975, 1979).

Language is acquired in social interaction and, according to a wide-spread view, its communicative function should be considered as biologically more fundamental than its epistemic function (Furth 1976). If 'language is acquired as an instrument for regulating joint activity and joint attention' (Bruner 1975:2), the interplay between illocutionary function and grammatical structure is crucial for language acquisition (Bruner *ib.*, Dore 1975, Hörmann 1976:269). Although the relation between sentence meaning and utterance meaning (illocutionary force) is quite intricate (cf Lyons 1977 and Bierwisch 1980), declarative, interrogative, and imperative sentences characteristically serve to make statements, ask questions, and give commands, respectively. More generally, it is the grammatical categories of languages fulfilling the modalizing function that play the most important role in determining the communicative sense of utterances and hence in carrying out the interpersonal or social function of language.

The probably universal speech act types of representatives, directives, and erotetics all develop early in child language. As we shall primarily be concerned with the development of the inner-linguistic modalizing function and not with the development of pragmatic functions, these broad categories will suffice for

the present study.³ Besides categorical and modalized assertions, the category of representative speech acts includes other modalized utterances such as predictions, intentions, and wishes. What these speech acts have in common is a primary descriptive function as opposed to directives (requests for action) and erotetics (requests for information), which primarily serve an instrumental function.⁴ Modalized utterances occur in all three of these illocutionary types in adult as well as in child speech.

In early child speech (deontically) modalized utterances predominate in comparison to nonmodalized ones, at least insofar as utterances containing a verb form are concerned. Thus, Guillaume (1927(1973:540)) states that 75 per cent of the utterances of a French learning child between 1;5 and 1;10 containing a verb were imperative in meaning. At 2;0 the ratio of imperative to indicative function was ten to one in the case of a child learning English (Hills 1914:92, cited by Leopold (1949 (III):90 fn 38). Stephany (in prep.) found that the modalized utterances of three children acquiring Modern Greek still constituted nearly 50 per cent of all utterance tokens containing a verb at a mean age of 2;4 (see also §3. below).

In a communicative context, deontically modalized utterances most immediately serve the various interactional needs of the communicative partners. They therefore occupy an important place in adults' child-directed speech as well. The use of this utterance type is furthered by the complementary social roles of the mother as carer and the child as being cared for. In virtue of her social superiority and guiding function, the mother will direct the child to act in

certain ways, grant permission or set restraints. The child will use language instrumentally in order to satisfy his needs and desires, but he may also announce his intentions in implicit recognition of his social dependency on the mother's authority.

As outlined by Lyons (1977:826), 'the origin of deontic modality ... is to be sought in the desiderative and instrumental function of language: that is to say, in the use of language, on the one hand, to express or indicate wants and desires and, on the other, to get things done by imposing one's will on other agents.' These two functions are 'associated with language from the very earliest stage of its development in the child' and they are closely connected: 'It is a small step from a desiderative utterance meaning "I want the book" to an instrumental utterance meaning "Give me the book"; and parents will commonly interpret the child's early desiderative utterances as mands, thereby reinforcing, if not actually creating, the child's developing awareness that he can use language in order to get others to satisfy his wants and desires' (cf also Bates 1976:52).

2. First steps into modality

Two types of communicative behaviour especially relevant for language acquisition have been reported to develop during the prelinguistic stage: requestive ('imperative') and indicative ('declarative') acts. These are differentiated through the media of gesture (reaching and pointing) and sound (segmental as well as prosodic) (cf Halliday 1975, Bates 1976, and Carter 1979). The first type is an example of instrumental behaviour with the purpose of obtaining objects or services, while the second serves

the social function of establishing joint attention and may therefore be interpreted as a precursor to the descriptive function of language. Bates (1976:73ff) traces the gradual development from sensorimotor 'performative' schemata to true speech in two Italian children, pointing out that speechlike vocalizations such as da 'give' and tiene 'take' emerging at approximately 1;1,15 are, at this stage, not yet fully referential and can therefore not be considered as words, i.e. as linguistic symbols (let alone imperative verb forms). Such wordlike forms are at first no more than an integrative part of the gestural communicative acts in which they occur. Once the stage of true speech has been reached, gesture and prosody combine with word meaning to indicate the function of the child's one-word utterances.

Modalized utterances occurring in the one-word stage serve an instrumental, directive function. Wishes and commands can often not be told apart as inflection has not yet emerged and utterances are limited to one word at a time. The child encodes either the goal of his desire or the means leading to a desired state. In the first case, he may name the desired object (e.g. syrup uttered by Nigel between 1;4,15 and 1;6 and paraphrasable as 'I want my syrup'; cf Halliday 1975:250) or the action he wants to perform (e.g. Hilde's laufen! 'walk' uttered at 1;10 'in a demanding way when she wants to leave her chair' (Stern & Stern 1928:37) or Nigel's hole when he wanted 'to (go out for a walk and) put things in holes' (Halliday ib.)). In the second case, the child will utter verbs or particles representing actions (e.g. English up! or German auf!). Several authors note that in

the preinflectional stage the child already has a variety of linguistic devices for expressing deontically modalized utterances at his disposal, most of which do not involve a verb form at all.⁵

Depending on the language he is acquiring, the child's first verbal forms are most often based either on adult imperative forms (Bulgarian, Russian, Finnish, Turkish, Hebrew) or on infinitives (English, German, Dutch, French, Portuguese).⁶ Bates (1976:259) found that the inflectionally unmarked first verb forms used by two children acquiring Italian were usually based on the third person singular of the indicative. Very soon, however, these forms also acquired a modal function in interrogative requests (e.g. ape? 3.SC.IND 'open'). While two Finnish children studied by Bowerman (1973) first mainly or exclusively used the third person singular indicative, Toivainen (1980), in a longitudinal study of the development of inflection in 25 Finnish children covering an age range from 1;1 to 4;4, found the morphologically unmarked singular imperative verb form to 'regularly constitute the first appearance of the respective verb' up to 2;1 (p.34). Both Toivainen (1980:32) and Bowerman (1973:154) note, however, that Finnish children also use declarative sentences for directives at a very early stage (e.g. äiti hakkee 'Mummy fetches (it)').

In languages in which modal verbs rather than synthetic verb forms predominate for expressing modality, early infinitivelike forms used to convey deontic meanings are based on adult constructions consisting of a modal auxiliary and a main verb in the infinitive. This type of construction is extremely frequent in child-directed speech in German (Stern & Stern 1928, Leopold

1949) as well as in English (Wells 1979) and French (Guillaume 1927, Grégoire 1947). Thus, at 1;10 Hilde uttered gēm (= geben [ge:bɪ]) 'give' 'demandingly when she wanted to get something' (Stern & Stern 1928:37) and Charles at 2;0 said lever 'lift' when he wanted to be picked up (Grégoire 1947:205). For both French and German the imperative verb form has been reported to emerge early and to be sometimes used interchangeably with the infinitive in directives as in Hilde's bēr (= gib her 'hand over') said at 1;9,15 'on seeing something desirable in our hands' (Stern & Stern 1928:38). Imperative forms also occur as devices for attracting attention. At 1;8,15 Hilde used both the imperative-based sīma (= sieh mal 'just look') and the indicative-based sīte (= siehst du? 'you see?') with apparently equal function in utterances used to draw the adult's attention to something (Stern & Stern ib.). These were often being accompanied by a pointing gesture. Leopold notes that during the one-word stage Hildegard used verb forms not only in directives but also in 'announcing an action which she was about to perform herself' (p.12). It must be noted that in French infinitive and polite imperative (2.PL) are homophonous in -er verbs and could therefore often not be distinguished in the speech of Charles, who was usually addressed in the second person plural. In the speech of his younger brother Edmond, who was more often addressed in the second person singular (especially by his brother Charles), singular imperative forms were more frequent. Early imperative-based forms are Charles' donne 'give' and Edmond's tě mamã (= tiens, maman) 'take, Mummy' (on handing an object to his mother), both uttered at 1;8 (Grégoire 1947:165).

While in the preinflectional stage utterances serving a descriptive function are not consistently distinguished from those serving an instrumental function,⁷ verb forms split into modal and nonmodal ones when children enter the inflectional stage, usually during the second half or the last quarter of the second year or even later, depending on subjective variation and on the type of language acquired. The differentiation between modal and nonmodal verb forms has in many languages been reported to precede that of nonmodal ones into present and past (at first expressing aspect rather than tense; cf the preceding chapter).⁸ The Finnish children studied by Toivainen (1980) began to differentiate between the imperative and indicative verb forms from a median age of 1;10 onwards, with the use of the past tense following at a median age of 1;11. One of two Italian children used the first and third person singular exclusively to describe activities and the second person to make commands in the early inflectional stage (Bates 1976:264). It must be noted, however, that in standard Italian the endings of the imperative and the second person are identical in the singular in -ire and -ere verbs (both -i), which occur much more frequently than -are verbs, where the two forms are distinct (IMP -a, 2.SG.IND -i). Hilde used imperative forms (as well as infinitives) for the instrumental function and indicative present forms for the descriptive function before past forms (past participles) emerged (Stern & Stern 1928:251). An interesting 'minimal pair' of a modal and a nonmodal form occurred at 2;0 when Hilde requested fasche tinken (= Flasche trinken) 'bottle to drink' and stated fasche tunken (= Flasche getrunken) 'bottle drunk' after emptying

the bottle (Stern & Stern 1928:46). The authors note a differentiation of the two modal forms at Hilde's disposal around 2;0: While the imperative was used for especially strong volitional utterances (e.g. ess doch 'do eat', komm 'come', p.251), wishes were expressed by infinitives often accompanied by an object noun (e.g. lade essen (= Schokolade essen) 'eat chocolate', p.45). In French as well, the indicative present is the first nonmodal category to be contrasted with the imperative and modally used infinitive during the last months of the second and the beginning of the third year. The past again develops later than the present. (Grégoire 1947:113ff). In Russian, Zhenya morphologically contrasted the imperative with the infinitive, present, and past verb forms between 1;11 and 2;0 (cf references indicated in fn 6 above). In Hungarian, the imperative, past, first person indefinite, and infinitive are the first group of verbal inflections to develop (MacWhinney 1976:404). In Latvian, indicative and imperative verb forms emerge nearly simultaneously at 1;9 (Rūķe-Draviņa 1959). Varma (1979) notes a rapid development of Hindi verbal endings in a child studied longitudinally from 1;4 to 1;10 (MLU 1.05 to 1.88) with three verb forms expressing the imperative mood in the adult language emerging sequentially: verb root only (khol! 'open') at MLU 1.05, imperative ending -o (kholo!) at MLU 1.1, and infinitive ending -na (kholna!) at MLU 1.76. The child showed little grasp of the differences in the usage of these forms, however, which involve degrees of familiarity and social distance. In the child's stage I speech, Varma notes 'well-established morphemes to express the imperative, the present progressive and the past, and a good beginning for the future' (p.167).

The future tense is reported to develop later than the present and past in many languages.⁹ In Latvian, however, present and future are the first tenses to be formally differentiated (Rūķe-Draviņa 1959).¹⁰ But future forms in Latvian are used by the child to express immediate intentions and desire and sometimes even have imperative intent. In some languages such deontically modal meanings are expressed by the optative or the subjunctive mood. In Turkish child language, the optative develops prior to the future inflection (Aksu 1978:51) and in Greek, the future tense only gradually develops from the subjunctive mood (cf § 3. below). In English, German, and French, children first use infinitives and later on periphrastic verbal expressions containing modal or aspectual verbs to refer to the immediate future. Although in both English and German the future is expressed periphrastically, children at first prefer more strongly aspectual or modal auxiliaries, going to and will, but not shall, in English (cf §7.4 below) and wollen, but not werden, in German (see below). The late development of the French synthetic future forms is in part also due to the fact that in the colloquial language reference to the future is frequently expressed by periphrastic verb forms consisting of a finite form of aller 'go' and the infinitive of the main verb. These forms are reported in Charles' speech from 2;3,24 onwards (e.g. i(l) va venir 'he is going to come') while the synthetic future forms emerge only after 2;6 in Charles' case (e.g. g(r)ond(er)a papa 'Daddy will grumble') and at the beginning of the fourth year in Edmond's (Grégoire 1947: 117ff). Decroly & Degand (1913) note reference to the immediate future by aller accompanied by an infinitive in a boy from 2;6

on, but synthetic future forms of the auxiliary avoir 'have' only at 3;0 and of main verbs at 4;8 (the latter appearing together with the interrogative pronoun quand 'when'). Jacobson (1981) found the periphrastic future (ir a plus infinitive) occasionally used by a child learning Peruan Spanish from 2;5 to 2;6 and productively at 2;7. Synthetic future forms are rare even in the speech of eleven-year-olds in Spanish (Gili y Gaya 1972). What these findings amount to is that temporal reference to the future develops later than temporal reference to the past, while intrinsically future-oriented modal (and aspectual) expressions appear very early (cf also §3. below).

In many languages a verb with the desiderative meaning 'want' appears quite early. Both Hilde and Günther used will 'want' and will nich(t) 'don't want' as their first modal verb forms before the end of the second year (Stern & Stern 1928). An early utterance containing vouloir in Edmond's speech at 2;2,15 is veux va: otif (= (je) veux voir (la) locomotive) 'I want to see (the) engine' (Grégoire 1947:145). His elder brother Charles would rather use the impersonal il faut 'must' construction expressing obligation in such cases because of its frequent use by his father (Grégoire 1947:141; see below). Smoczyńska (1981) notes the early combination of chce 'want' with object nouns in Polish. She cites examples of chce accompanied by an infinitive and an object noun from as early as 1;6 (jabłko chce jeść 'apple want to.eat'). From 2;3 on chce is also used with embedded żeby-clauses having their own subject (e.g. M: Co ty chciałeś? 'what do you want?' Jaś: Żeby mamusia szła do kuchni z Jasiem.

first modal verbs to appear in conjunction with a main verb were veux 'I.want' (Edmond) and venir 'come' (Charles) (e.g. venez (un) peu voi(r) la tête 'come.2.PL (a) little see the head' at 2;3,21). One of the first occurrences of pouvoir 'can' in Charles' speech was in combination with an onomatopoetic pseudoinfinitive at 2;9,2 (je n' peux pas atchim 'I can't atischoo'). Charles used the impersonal il faut 'must', sometimes without and sometimes accompanied by an infinitive, e.g. faut pas dans l' bain 'it.must not into the bath' when he did not want to be put into the bathtub at 2;3,6 and faut buver du visi, papa (= il faut boire de la Vichy, papa) 'it.must drink of.the Vichy, Daddy' at 2;3,4 (Grégoire 1947:14off).

As in German and French, children acquiring Dutch use infinitives in modalized utterances before combining them with modals or pseudomodals. A boy younger than 2;0 uttered the request auto hebben 'car to.have' and asked for permission by tas pakken papa? 'cup to.take Daddy 'May I take the cup, Daddy?' (Van Langendonck 1978:8f). Schaerlaekens (1977:129) cites an utterance sequence containing several occurrences of this type of construction from a two-year-old girl wanting to get a cap for her doll: pop hebben. Katelijn mut. pop muts hebben. Katelijn pop muts hebben. 'doll to.have. Katelijn cap. doll cap to.have. Katelijn doll cap to.have. Dutch child-directed commands frequently use an infinitive without a modal (e.g. niet drinken 'not to.drink'). The earliest pseudomodal to be used in conjunction with infinitives is gaan 'go' expressing the more or less immediate future. Van Ginneken (1917, cited by Schaerlaekens 1977:159) notes two examples from a child in his second year: Cha Keesje chape. (= gaat Keesje slapen)

'goes Keesje to.sleep' and cha Kees moche tem mee. (= gaat Keesje morgen (met de) tram mee) 'goes Keesje tomorrow (with the) tram along'. The standard Dutch periphrastic future with zullen 'will' develops later. Schaerlaekens' own data confirm the observation that reference to the immediate future made by gaan constructions emerges very early, sometimes even before the past tense (cf also Arlman-Rupp 1976:5off). At 2;0, Gijs uttered Gijs gaat niet de tong verbranden. 'Gijs goes not the tongue to.burn' and Gijs gaat dat in't nestje leggen. 'Gijs goes that into.the nest.DIM to.put' (Schaerlaekens 1977:159). The semantically unspecific action verb doen 'do' is frequently to be found in child-directed as well as in child speech replacing more specific verbs and allowing the main verb to occur in its inflectionally neutral infinitive form. Examples are slapekens doen byebyes.DIM to.make 'go byebyes' in baby talk and ikke ook lep doen (= ik wil ook helpen) I also help to.do 'I also want to help' from a child at 2;8 (Schaerlaekens 1977:158).

Smoczyńska (1981) cites a few examples containing modal verbs from two Polish children, e.g. musi Kasia jeść obiadek. 'must Kasia to.eat lunch' (Kasia at 1;9) and można łyżeczka pić herbatkę 'one.can with.spoon to.drink tea'.

In Finnish, modalized meanings are conveyed by modal verbs and by the imperative, the conditional, and the potential mood, as well as by a construction involving the negative form of the auxiliary olla 'be'. The potential mood does not occur in Finnish child language until the fourth year and is extremely rare even then (Toivainen 1980:31). Although Toivainen (1980:5) notes that the conditional 'expressing hypothetical action' is the last of the

verbal affixes to appear at 2;10 in the median child, on browsing through his rich collection of data one is struck by the frequency of the occurrence of this mood not only in the children's speech (there are examples from 2;2 on) but in child-directed speech as well. The conditional is used with main verbs and modal verbs. Interrogative requests of the type 'Would you go and fetch the ball?' 'Would you like to finish your soup?' and questions respecting the child's opinion like 'Where would this belong?' are very common in Finnish child-directed speech (Leea Wallraf, pers. com.).¹¹ The conditional mood and modal verbs are used to convey a variety of deontic modal meanings in Finnish child language during the third year such as wish, permission, and obligation (examples 4, taken from Toivainen 1980).¹²

(4) Niina 2;11 minä nosta-isi- n.

I lift- COND- 1.SG

'I would (like to) lift (it).'

Marko 2;3 taitaa nämä tulla.

may.3.SG they come.INF

'They may (= are allowed to) come.'

Teppo 2;3 minä saa-n nämä kävellä.

I can-1.SG these go.INF

'I can (= am allowed to) wear these (shoes).'

Katja 2;5 Katin pitää tällekin vielä laulaa.

Katja.GEN must also.to.this.one still sing.INF

'Katja still has to sing to this one, too.'

2;5 Katin vauvalle pitä-isi panna yksi peitto

Katja.GEN to.the.baby must-COND put.INF a blanket

päälle.

onto

'Katja ought to put a blanket on the baby.'

Inability and noncompliance are expressed by a construction consisting of a negative form of the auxiliary olla 'be' and a morphologically unmarked form of the main verb (examples 5).¹³

(5) Kirsti 1;8 en näe.

not.be.1.SG see

'I can't see (it).'

Ulla 2;5 en minä osaa aukaista.

not.be.1.SG I be.able open.INF

'I can't open (it).'

Riikka 1;11 en laula.

not.be.1.SG sing

'I'm not singing/I won't sing.'

Turkish and Modern Greek have more elaborate synthetic inflectional means for expressing modality at their disposal than languages such as English, German, and French. Being confined to the morphologically unmarked imperative form in the preinflectional stage, the first forms to develop in the inflectional stage in Turkish are the present progressive (-iyor) and the perfectly used past (-di). Soon afterwards the optative (-sin) appears. In the early inflectional stage, the Turkish child thus possesses two modal inflectional categories, the imperative for commands and the optative for intentions, and two nonmodal ones, the present to describe processes or actions going on at the time of speech and the past in -di to state completion (Aksu 1978:49f). Aksu (workshop notes, Nijmegen 1981) also observes the early use of the aorist inflection for expressing willingness and ability (e.g. ben de bastır-ır-ım I also push-AORIST-1.SG 'I will/can push, too' from a child at 2;2).¹⁴

The modal inflectional categories used in the early inflectional stage of Greek language development are the imperative and the subjunctive mood, the nonmodal ones are the (imperfective) present and the perfective past (aorist) (see below).

As the development of the modalizing function can only be adequately appreciated if it is studied in the context of the verbal grammar of the language acquired, I shall treat the two languages for which the development of modality has been quite extensively studied separately. These are Modern Greek, a language with a particularly rich synthetic verb inflection, and English, a language tending towards the analytic morphological type.

3. The development of modality in Greek

The data come from five monolingual, middle class children (four girls and a boy) living in Athens, Greece, three of which were studied longitudinally. The speech of the children and their mothers or caretakers was tape-recorded in the children's natural surroundings during activities such as playing, eating, and preparation for bed. The samples were collected during three periods of one or two weeks each. The mean age of the children at the first session of period I (4 subjects) was 1;9,7, of period II (3 subjects) 2;3,12, and of period III (3 subjects) 2;9,2. The transcripts of each child comprise a mean number of 2,000 utterances for period I and 1,220 and 1,430 utterances for periods II and III, respectively. Of these, only interpretable utterances containing a main or a modal verb which were not immediate imitations of adult utterances were included in a study of the development of aspect, tense, and modality (Stephany

in prep.) on which I largely draw in what follows (for period I cf also Stephany 1981). The mean number of verb form tokens analyzed for each child was 444 in period I, 550 in period II, and 614 in period III.

The most important formal devices expressing modality in Modern Greek (henceforth MG) are the subjunctive and the imperative mood and the modal verbs boró 'can, may' and prépi 'must'. The notions of capability, permission, obligation, and wish may also be expressed by main verbs such as kséro 'know, be able', epitrépo 'allow', anangázo 'oblige', thélo 'want', of which only the latter frequently occurs in child speech. Often permission and obligation are expressed indirectly by stating social norms or habits with the verb in the third person plural of the present indicative (e.g. ðen léne 'vre 'not they.say vre (a currently used vocative considered impolite) 'One doesn't say vre'). The periphrastically formed future tense (see below) has a strong modal character in MG and also serves to express deontic and epistemic modality. Directives expressed in the subjunctive mood are considered as more polite than commands in the imperative, as the former are interpretable as advice (Babiniotis & Kondos 1967:181) thus leaving an option to the addressee to comply to the directive or not. In negation, the opposition between the imperative and the subjunctive mood is neutralized as the modal negative particle min only combines with subjunctive verb forms (e.g. fije IMP, na fijis SUBJ 'go away', mi fijis 'don't go away').

The categories of verb forms expressing mood, aspect, and tense in Greek child language are represented in table 1. Details left aside, the imperative differs from the indicative

Table 1. Verb forms expressing mood, aspect, and tense in Greek child language

mood	aspect	
	imperfective	perfective
indicative	imp. stem + pres. infl.	
	imp. stem + past infl. ^a	perf. stem + past infl.
subjunctive	imp. stem + pres. infl.	perf. stem + pres. infl. ^b
imperative ^c	imp. stem + imper.infl.	perf. stem + imper.infl.

^a These forms occur only from period II on.

^b Present indicative and subjunctive inflections coincide in all but one form in MG and completely so both in the child language transcripts and those of the input language.

^c The opposition of perfective and imperfective aspect is often neutralized in the imperative mood.

and subjunctive by a set of inflectional suffixes depending on the morphological class of the verb (e.g. fij-e! 'leave', krat-a! 'hold' vs. na fij-is 'that you leave', na krat-ás 'that you hold').¹⁵ The indicative differs from the subjunctive by the absence of a modal particle (e.g. févj-is 'you leave' vs na févj-is IMPERF 'that you leave'). The two moods are most often also distinguished either by the stem (na fij-is PERF 'that you leave') or the inflectional ending (fij-ame PERF 'we left' vs. na fij-ume PERF 'let's leave').

Modal particles are used in more than 90 per cent of the obligatory contexts by only one of the three subjects studied in period II and by two of the three subjects studied in period III. Thus, the present tense and imperfective subjunctive will sometimes merge in child language as far as the verb forms are concerned and can only be told apart by prosodic features (intonation contour and emphatic or nonemphatic mode of speaking) and context. However, the perfective subjunctive, representing the unmarked term of the perfective/imperfective opposition in dynamic verbs and distinguished from the indicative mood by the verb stem, occurs much more frequently than the imperfective subjunctive in the children's speech (as well as in child-directed mothers' speech). The reason for this is that subjunctive expressions are not about ongoing occurrences but are rather prospective (cf Seiler 1971). A detailed analysis of the verb forms of all ten transcripts of child speech has shown that perfective and imperfective verb stems are already formally distinguished in more than 90 per cent of all tokens by period I. As opposed to reports on English child language, the percentage of conjugational

suffixes lacking in contexts where they are obligatory is extremely low in Greek child language for all three periods studied (3.8 per cent on the average for the verb form tokens of period I and 3.6 percent for period III). Suffixed verb forms conforming to the norm of MG and appropriately used constitute 87 to 97 per cent of all verb form tokens from period II onwards, with a mean of 81 per cent for three of the four subjects studied in period I and 58 per cent for the fourth, who frequently referred to the speaker by using verb forms in the third person singular.

The verb form categories expressing tense, aspect, and mood (TAM categories) represented in table 1. are not used with equal frequency. In period I, the perfective subjunctive, the indicative present, and the imperative mood occupy the first three positions on the scale ranking the mean frequency of use, preceding the perfective past and the imperfective subjunctive. In period II, the perfective subjunctive and the present tense share the first rank, with the imperative falling back behind the perfective past. In period III, the perfective subjunctive recedes to the second rank behind the indicative present. These predilections of use can be explained as follows. In standard MG as well as in Greek child language, the subjunctive and imperative moods are the most important formal devices for expressing deontic modality. The high frequency of the perfective subjunctive and the imperative show that modalized utterances play an extremely important role in early Greek child language. The ample use made of the present indicative is due to its functional diversity, which includes modal usage. Nevertheless, the advance of the present tense as

well as the perfective past on the scale in the course of language development indicates that nonmodalized descriptive utterances as well as erotetic ones gradually become more important in child speech.¹⁶

The TAM categories in which verbs are preferentially used depend to a certain degree on their aspectual character (aktionsart). The aktionsart oppositions of stative/dynamic, durative/punctual, and telic/atelic account for the three most important aspectual verb classes of early child language, namely telic-punctual dynamic, atelic-durative dynamic, and stative verbs (referred to in the following as telic, atelic, and stative). Only in the case of telic verbs is the perfective subjunctive used more frequently than any other category by all subjects in all periods. In the use of atelic and stative verbs, on the other hand, with the exception of one subject, the present tense already occupies the first position of the rank order scale of TAM categories in period I. The imperfective subjunctive occurs more often with atelic verbs than would be expected from the overall frequency of atelic verb form tokens in the data. Just as in standard MG, the imperative mood is limited to dynamic verbs in the children's speech. This is because 'a child's early imperatives are all action-oriented...It would be bizarre if he sought instead to influence the thought-processes and emotions of others by commanding them to want, need, know, etc.' (Bickerton 1981:157).¹⁷

A verb form category not included in table 7.1 is the future tense. In standard MG, the categories of future and subjunctive are solely distinguished by the particle used, əa (deriving historically from əélo na 'want to') in the case of the future

and na or as in the subjunctive. As indicated above, on the one hand, particle use is not yet quite reliable in Greek child language and on the other, θa and na are often reduced to their vowel by the children, resulting in homophony of the two categories. As the future and the subjunctive are also functionally closely related, especially when expressing actions under the control of animate subjects, it would in many cases be completely arbitrary to assign a formally ambiguous subjunctive verb form to one category rather than the other in the children's speech. As 'statements made about future occurrences are necessarily based upon the speaker's beliefs, predictions, or intentions, rather than upon his knowledge of "fact"' (Lyons 1968:310), the future tense could even be called a mood of nonfactivity. Although such an interpretation would not do justice to the structure of standard MG, it is not surprising that in the early stages of Greek language development the future tense should not yet have emerged as a grammatical category distinct from the subjunctive mood (cf also § 6. below).

Preparing the ground for the later development of two separate grammatical categories, that of the future tense and the subjunctive mood, the children's subjunctive forms are already plurifunctional in period I insofar as they are used to make predictions as well as to express wish or intention. The more temporal, nondeontic use predominates in speech acts describing events posterior to speech time. In typical examples the verb is in the third person, the subject inanimate, and the verb denotes an event not under the control of an agent and often undesirable, making a positive wish pragmatically unlikely. Some of these

sentences are uttered as warnings (example 6).

(6) /Janna I commenting on an object/

a bési. = θa pés- i

'It's going to fall down.' FUT.PART fall.PERF-PRES.3.SG

As predictions are necessarily not statements of fact, they could be considered as precursors to epistemically modalized statements representing a kind of 'null-degree' of epistemic modality (cf Pea et al. 1982 and § 5. below).

The subjunctive mood mainly serves deontically modal functions in Greek child language. It is used to state the child's wishes and intentions to act (example 7), to make promises (example 8), to ask for permission, the addressee's advice concerning an action planned by the child, or to inquire about the addressee's intentions (example 9). While the primary illocutionary force of such utterances, whose subjects generally refer to the speaker or to speaker and addressee (1.PL), is representative or erotetic, especially the desiderative type may be implicitly directive.

(7) /Spiros I watching the observer take a picture book out of her bag/

pío vavási. = o spíros θa/na ðiavás- i

'Spiros is going to/ the Spiros FUT/MOD read.PERF-PRES.3.SG wants to read.'

(8) /Mairi II after having been admonished by her mother not to break an object/

empáso. = ðen θa to spás- o

'I'm not going to not FUT it break.PERF-PRES.1.SG break it.'

(9) /Mairi I wanting to take a puzzle representing a squirrel/

pàri yurunáki? = na pâr- i to yurunáki
'May (Mairi) take MOD take.PERF-PRES.3.SG the piggy
the piggy?'

The subjunctive is very frequently used in explicit directives serving to request an action or the abstention from an action from the addressee (example 10) or a third person (example 11) by introducing a norm.

(10) /Natali I addressing the nurse Sula to hold something for her/

i túla tái. = i súla na to krat- ái
'Sula shall hold the Sula MOD it hold.IMPERF-PRES.3.SG
(it).'

(11) /Mairi II addressing her mother and referring to the observer/

a mē pài agalíta. = na me pâr- i angalítsa
'She shall take me MOD me take.PERF-PRES.3.SG embrace
in her arms.'

The imperative mood is functionally very similar to the second person of the subjunctive mood used in directive speech acts. Both are already formally distinguished by period I. The most frequently used imperative forms are kíta 'look', éla 'come', kátse/káθise 'wait, sit down', and síko 'get up'. These constitute half of all imperative form tokens. Kíta serves to attract the addressee's attention to something, éla and kátse are sometimes used to either urge the addressee to perform an action or to refrain from it for a certain time. Prohibitions are expressed by the imperative form áse 'leave (it)' or by combining the negative modal particle min (sometimes preceded by na or as) with the second person singular of the subjunctive mood (example 12).

(12) /Mairi III addressing a visiting child/

fíje!	= fíj-	e
'Go away!'	leave.PERF-IMPER.2.SG	
na min kitáksis!	= na min	kitáks- is
'Don't look!'	MOD NEG.MOD	look.PERF-PRES.2.SG

Explicit directives are much more frequently expressed by the imperative than by the subjunctive mood. In cases like kíta 'look' or kátse 'wait' where it would be impolite to assume a refusal to comply on the part of the addressee, directives are normally expressed in the imperative mood in standard MG as well as in child language. There is slight evidence from period I onwards that at least some of the subjects have begun to grasp the functional difference between the imperative and the subjunctive mood mentioned above. The imperative mood is sometimes preferred in addressing persons considered of equal or lower social rank, whereas requests directed to persons of higher rank are expressed in the subjunctive (examples 13).

(13) /Spiros I asking his mother to take a doll out of a recess/

láli i mamáli...típa.	= na vyál-	i	i	mamá apó
'Mummy shall take (it)	MOD take.PERF-PRES.3.SG	the	mummy	from
out of the hole.'	tin	trípa		
	the	hole		

/Spiros I asking the observer to take off her watch/

lolói!	= to	rolói	
'(The) watch!'	the	watch	
eláto!	= ja	vyál-	to
'Take it off!'	PART	take.PERF-IMPER.2.SG-it	

Considerations of politeness are discarded, however, if the

speaker is anxious to see his request fulfilled (cf example 12 above). Generally, the subjunctive will be preferred when the modality derives from objective necessity rather than the speaker's will. In period III, two subjects use it in directives not referring to the immediate future. Sometimes both the imperative and the subjunctive are used during the same interaction in trying to obtain satisfaction either by emphasizing the request (subjunctive followed by imperative) or, on the contrary, by making greater concessions to the addressee's options (imperative followed by subjunctive, example 14).

(14) /Mairi III asking her mother to open the wardrobe/

mamá! ànitséto! = mamá àniks- é- to
'Mummy! Open it!' mummy open.PERF-IMPER.2.SG-it

M: he? 'Hm?'

na to anítsis. = na to aníks- is
'Open it (please)!' MOD it open.PERF-PRES.2.SG

Besides the subjunctive and the imperative mood, the indicative present may convey modal meanings in standard MG as well as in Greek child language. Although subjunctive expressions are much more frequent in these functions, the present tense is occasionally used to express intentions and anticipated or apprehended events (example 15).

(15) /Janna II being bored with a picture book/

telóni tóra. = teljón- i tóra
'It's going to end.IMPERF-PRES.3.SG now
finish now.'

As no examples of inadequate use of the subjunctive mood to convey nonmodalized statements can be found in the children's data, it

can be concluded that the two categories are not variants of each other in the modalized function. A possible semantic difference coming to mind is that in the present indicative expressions it is the topicality of the intention, anticipation, or apprehension at speech time that is crucial, while the subjunctive expressions are of a more prospective nature.

A further modal function of the present tense is its occurrence in deontic statements, i.e. in statements of social norms, whose primary illocutionary force is therefore representative. At least as far as child speech is concerned, they differ from directives in the subjunctive mood, in which the speaker not just states but usually introduces the norm. Because of their primarily descriptive function, deontic statements do not categorically differ from nonmodalized statements about habitual behaviour (example 16).

- (16) /Mairi I when her mother approaches the toy monkey with her foot/
ze vâzun to póði. = ðen vâz- un to póði
'One doesn't put not put.IMPERF- PRES.3.PL the foot
one's foot (there).'

Finally, there are a few examples of the present tense rendering the notion of deontic possibility qualifying inanimate subjects (example 17).

- (17) /Natali I concerning the door of a toy car/
nîi...tîto? = anîj- i tûto
'Does this open?' open.IMPERF-PRES.3.SG this

The notion of ability applying to animate subjects is expressed by the modal verb boró 'can, may'. Of the two MG modal verbs boró and prépi 'must', a defective verb occurring only in the third person singular, only the first is found in all transcripts

(with the exception of Spiros I). Boró, typically used in conjunction with the negative particle by the children, only expresses ability and chiefly refers to the speaker (example 18). In period III, there are a few examples of boró occurring with a sentence complement (example 19). There is only one example from period III of a modal use of the verb kséro 'know, be able' expressing ability.

(18) /Natali I trying in vain to open the door of a toy car/
òboyó. = ðen bor- ó
'I can't.' not can.IMPERF-PRES.1.SG

(19) /Mairi III concerning a strawberry represented in a book/
əm borò na do bjáso. = ðem bor- ó na to
'I can't grasp it.' not can.IMPERF-PRES.1.SG that it
pjás- o
grasp.PERF-PRES.1.SG

Both boró and prépi 'must' are restricted to conveying deontic modality in the children's speech. Prépi expresses an obligation the source of which does not reside in the speaker. As the nature of the obligation has to be stated in the complement sentence, examples with prépi are rare and occur only from period II on, due to their syntactic complexity (example 20).

(20) /Maria II commenting on a neighbour's grandmother/
pepi a pai: jaja maia tó. = prépi na pái i
'Maria's granny must go must that go.PRES.3.SG the
to the doctor's.' jajá tis marias sto
granny of.the of.Maria to.the
jatró
doctor

As in other languages (cf §2. above), the verb for 'want', θélo, is very frequently used by all subjects in the three periods studied and mainly serves to express the speaker's wishes. As early as in period I, it may occur with an embedded clause (example 21).

- (21) /Spiros I while trying to turn the taperecorder off/
sèli...klísoo...nè:. = θéli na to klís- une
'(Spiros) wants it to wants that it close.PERF-PRES.3.PL
be turned off.'

4. The development of modality in English

In contradistinction to MG, Modern English does not possess separate verb forms for the imperative and subjunctive moods, with the exception of the third person singular of the subjunctive I and a remnant of the subjunctive II of to be in literary English. Imperative sentences are therefore usually distinguished from declarative and interrogative ones by leaving the second person subject unexpressed. Due to the marginal role of modal verb form oppositions in Modern English, the main task of fulfilling the modalizing function falls upon the modal verbs.

Brown (1973:18of) finds the semantic beginnings of the imperative sentence modality in stage I (MLU 1.5 to 2.0) of the English language development of three children, its formal development, however, only in stage III (MLU 2.75 to 3.50).¹⁸ In stage I, imperative sentences cannot yet be identified on purely linguistic grounds as 'there is no really reliable intonational marking' and sentences without an overtly expressed subject have not been narrowed down to commands. As modal

auxiliaries emerge relatively late in English, modalized and non-modalized utterances are often formally indistinguishable in the early stages of language development, for it is nearly impossible to tell whether or not a modal has been omitted because 'there are no co-occurring adverbials or other forms to spotlight an omission' in diary or other records of spontaneous speech (Fletcher 1979:264).¹⁹ In another study, a boy's spontaneous speech from a period prior to the productive use of modal auxiliaries in affirmative sentences (age 2;5,21 to 2;7,15, MLU 3.01 to 3.25, i. e. Brown's stage III) was compared to elicited imitations of both grammatical and ungrammatical sentences containing in particular the modal auxiliaries will and can (Kuczaj & Maratsos 1975). The researchers found the child to imitate 38 out of the 48 grammatical declarative sentences correctly, but none of the 57 ungrammatical ones (with the modal auxiliary either misplaced after the main verb or accompanied by a tensed main verb), which he normalized in various ways. These findings can be taken as evidence that this boy had internalized much of the grammar of these modal auxiliaries before using them in his spontaneous speech.

In tracing the development of English modal verbs, comprising auxiliaries like can, will and semi-auxiliaries or quasi-modals like going to/gonna, want to/wanna, and need to, I shall base my presentation on reports of children acquiring American and British English. The children acquiring American English are Hildegard (Leopold 1949), Adam, Eve, and Sarah (Klima & Bellugi 1966, Bellugi 1971, 1974), Abe (Kuczaj & Maratsos 1975, Kuczaj 1977, Kuczaj & Daly 1979), Nina₁ (Shepherd 1980, 1981), Nina₂ (Pea et al. 1982), and six subjects studied by Pea & Mawby (1981).

Children's syntactic competence concerning modal constructions has been studied by Major (1974). For British English there are the studies on Daniel (Fletcher 1979) and on 60 children from the Bristol corpus (Wells 1979).

In stage I (MLU 1.75), the speech of Eve, Adam, and Sarah is still devoid of modal verbs, although there are examples of semantically modalized utterances like I ride train? Have some? and Sit chair? (Klima & Bellugi 1966).²⁰ After MLU has reached 2.50 in stage II, the quasi-modal forms wanna, gonna, and hafta begin to be used. The first modal auxiliary form to emerge is can't in stage III (MLU 2.75), together with don't in negated imperatives. Modal auxiliaries begin to appear in the children's speech in abundance only after the sentences are longer than 3.50 MLU (stage IV). Only then is can separated from its negative element and do will, won't, and should occur. The order of emergence of modal forms in Eve's, Adam's, and Sarah's development is represented in figure 1. together with longitudinal data of five of the other children. The precedence of can't, as compared to can, in Eve's, Adam's, and Sarah's utterances accords with the occurrence of can't and won't prior to their affirmative forms in both Hildegard's and Abe's speech (Leopold 1949, Kuczaj & Maratsos 1975; cf also Ervin 1964 and Bloom 1970).

There appears to exist considerable inter-subject variation concerning the age at which modal forms begin to occur. In part this is, however, due to different criteria used (first appearance vs. productive use). Variation could also be reduced if comparison were based on MLU instead of age. The developmental curves of Eve, Adam, and Sarah would then coincide. Due to lacking MLU

calculations for several children, fig. 1. had to be based on age. This, however, does not affect the overall sequence of emergence of modal forms: wanna, gonna, hafta and the affirmative and negative forms of can and will precede the past forms of the latter, as well as shall, should, may, and must (except for shall in Daniel's case and for should in Eve's, Adam's, and Sarah's cases, which are reported to have appeared in the same period as can and will). As might and ought to are missing altogether in the data presented, they emerge even later. The early appearance of can and will accords with Well's results (1979), where these are reported to be the two most frequently used modal verbs (negative forms most probably included) in 60 children from the Bristol corpus. Both of these verbs occurred at least once in 50 per cent of the sample by 2;6. This criterion was reached by going to at 2;9, by have got to at 3;0, by shall at 3;3, and by could at 3;6. Following the total frequency hierarchy and in the proportion of the sample using the forms, but not reaching the 50 per cent criterion before 3;9, are have to, must, might, should, would, may, had better, and ought to. The most frequently occurring modal forms in the speech of the six subjects studied by Pea & Mawby (1981), who ranged in age from 2;4 to 2;10 and 2;11 to 3;5 at the beginning and the end of observation, were gonna, will, have to, and can, with can't and could following closely, but only one or a few instances of would, won't, got to, should, had better, and might. Notable omissions in Pea & Mawby's data are may, must, shall, and ought to.

The only way to gain some understanding of this piecemeal appearance of modal forms is to cast a glance at the early

development of the grammar of verb forms, taking the functions served by main and modal verb forms into consideration. When quasi-modals began to appear during stage II, Adam, Eve, and Sarah were already inflecting verbs for the present progressive (cf Brown 1973:271, fig. 14). Sarah was also using past irregular forms. By stage III, all children had acquired past forms and thus had two nonmodal verb form types at their disposal, one for the past and a neutral one which could mark the present or be combined with modal or quasi-modal auxiliaries. The forms wanna, gonna, and hafta have to be considered as monomorphemic in early child language and can thus not be distinguished from auxiliaries (cf Miller & Ervin 1964(1971:334) and Shepherd (1981:100). At least as far as the development of verbal inflection in Adam's and Eve's speech is concerned (but see also the development of Hildegard's verb forms, Fletcher 1979:266), the first division seems to be between nonmodal verb forms describing ongoing actions and processes and intrinsically future-oriented modalized forms. Only after this division of verb forms into modal and nonmodal ones has occurred, do the nonmodal forms divide into present and past with the latter expressing aspect rather than tense in the development's early stages. From what has been said, it seems plausible that modals should be marked for past only after main verbs (cf Fletcher 1979:273 and fig.1. above).

The importance of modals in child language, once they have emerged, is reflected by their frequency of use. The frequency data presented by Wells (1979) indicate that about 10.8 per cent of the utterances of 60 children from 2;6 to 3;6 contained a

modal verb form. This accords almost perfectly with the percentage found by Pea & Mawby (1981) for their six subjects (10%). Shields & Steiner (1972:103), as reported by Fletcher (1975:320), note 'a marked increase in the use of modal auxiliaries in their sample of 107 3- to 5-year-olds and characterize this as one of the "main areas of growth" in language development over this period.'

As is also true for main verbs and nonmodal auxiliaries, modal verbs are at first subject to severe morphological, syntactic, and, above all, semantic restrictions. The initial use of negative modal forms by some children, long before the respective positive forms emerge, is most probably due to pragmatic reasons. It also shows that children may employ fragments of a grammatical system before having analyzed it (Kuczaj & Maratsos 1975). Also, modals have been observed to appear in questions only after having become productive in declarative sentences (cf Bellugi 1967 for Adam, Eve, and Sarah and Kuczaj & Maratsos 1975 for Abe) in spite of the fact that more than half of the input sentences are questions and imperatives (Newport 1977). This is not at all surprising, however, if language acquisition is seen in an interactive framework, for declarative sentences are just the appropriate type of response to questions and imperatives. Moreover, there is evidence that the use of modals in yes/no questions and declaratives is part of a unified system. Although her parents usually contracted will in affirmative sentences, Eve used the uncontracted form in declarative sentences and not only in yes/no questions, where she had heard it from her parents (Bellugi 1967). Abe, in the experiment referred to above, imitated contracted 'll in all six affirmative sentences as will, which is

evidence for 'a great deal of pre-productive integration of the modal system' (Kuczaj & Maratsos 1975). When modals became more abundant in questions used by Adam, Eve, and Sarah (MLU 3.5 to 4.0), subject and auxiliary were in most cases inverted in yes/no questions (e.g. Will Robin help me?), while the noninverted type (e.g. What you will do?) predominated with wh-questions (Bellugi 1971). Bellugi explains this by the complexity resulting from 'the combination of inversion and wh-question in a single string' (p. 100).

In an experimental study of 44 subjects aged 5 to 8 years, Major (1974) found that with few exceptions the children were able to transform affirmative declarative sentences containing a modal auxiliary into negatives and questions or to add tags. The performance of may, might, and ought to indicated that these tasks were not yet completely mastered by eight years and that these modals are thus acquired later than, for example, can. Modals are much more of a semantic than a syntactic problem for children, however. For this reason, experiments like the one conducted by Major which do not take the meaning and situational context of sentences into consideration, trying to treat modality as a purely syntactic phenomenon, are unlikely to come to grips with the development of the modalizing function, a conclusion reached by the author herself (Major 1974:111, cf also Fletcher 1975).

As in Greek child language, modalized utterances in early English child language predominantly express deontic meanings. Can, could, and may are used for deontic, action-oriented possibility and will, want to, going to, would, shall, have (got) to, must, should, had better, and ought to for deontic necessity.

Can, the earliest and most frequently used modal, at first occurs only with first and second person subjects, stating the child's own ability or social possibility and, above all, his physical inability. It is also used to ask for permission or to request actions from the addressee. Could, emerging later than can, appears much less frequently in expressions of ability and permission (Wells 1979, Pea & Mawby 1981). While 97 per cent of the Bristol sample used can for permission, may was used by only 15 per cent in this function (Wells 1979). Of the modals used for expressing deontic necessity, will, want to, going to, and would are volition-centered and the rest obligation-centered, with shall participating in both functions. Will is very early and frequently used to announce the child's intentions to act or not to act. Going to, would, and shall are also used for intentions, but more frequently in other functions (see below). Although want to/wanna literally expresses wishes, it is often indirectly requestive (Pea & Mawby 1981). Both obligations which introduce and which state norms are most often expressed by have (got) to/hafta. According to Wells' and Pea & Mawby's analyses, norm stating appears to prevail over norm introducing, i.e. performative use. Shall, which does not occur in Pea & Mawby's data, is used performatively by 50 per cent of the Bristol sample not before 3;6. Should, must, and had better are found less frequently in norm stating and norm introducing functions. Ought to is missing from Pea & Mawby's data altogether and is used to state obligation by only three per cent of the Bristol sample.

The most important class of speech acts deontically modalized

utterances are used for are directives. These have been given special attention in pragmatically oriented research on child language. Imperative sentences, the most important formal device in English for making direct requests, that is commands, appear very early, although, as we have seen, they are at first not systematically distinguished from declarative sentences on syntactic grounds. Indirectly expressed directives seem to develop later in English than, for instance, in Italian, where interrogative requests were found to develop before two years of age (Bates 1976). In English such speech acts are dependent upon the emergence of modal verbs (Bates 1971). The earliest indirect requests are probably desiderative utterances containing want (to) used as a main verb or semi-auxiliary. Menyuk (1969) found that all of the younger children (2;10 to 3;1) in her group used imperative sentences, while the older nursery-school children were using other forms of directives as well (cf also Garvey 1975, Dore 1977, Ervin-Tripp 1977, and Dore et al. 1978).²¹

Interestingly, Menyuk notes a combination of syntactically interrogative with prosodically imperative requests (e.g. Would you sit down!), which shows that 'children are, at this stage, frequently telling you rather than asking you' (p.89). While instrumentally used declaratives (I want/need X) decline between the ages of three and six (Bock & Hornsby 1977), when the child has reached the age of four, both declarative and interrogative directives are still prominent, but are used in nonequivalent ways: I want is used more often than Can I? in re-requests (Wootton 1981). The use of interrogative requests rather than imperatives may also be a function of the addressee (Bock &

Hornsby 1977, Mitchell-Kernan & Kernan 1977, James 1978). The interrogatives and declaratives conveying directives indirectly of children as young as three or four years old constituted nearly two thirds of the directives expressed in an experimental situation, although there was no decline in the use of direct, imperative forms up to age 6;6 (Bock & Hornsby 1977). 'Indirect' directives may, however, function independently of their literal meaning for the child and 'in some cases, the literal meaning may grow out of idiomatic uses' (Bock & Hornsby 1977:80). Thus, interrogative requests for action have been found to precede real questions, i.e. requests for information (Bates 1976, Fletcher 1979).²² There is controversial evidence on the issue of whether requests for action show a tendency to become less literal with age (Garvey 1975, Bock & Hornsby 1977). In any event, by the age of six or seven, children seem to have acquired all the conventional forms that directives may take in standard American English at least, namely statements of need, imperatives, embedded imperatives (Could you V?), permission directives (May/Can I V?), question directives (You got a quarter?), hints (It's hot out here), and even elaborate oblique strategems (Pretend this was my car) (Ervin-Tripp 1977, Mitchell-Kernan & Kernan 1977).²³ To a certain extent they also seem to be aware of the situational appropriateness of particular directive forms by that age.

Directives share their forwardlooking, future-oriented nature with two types of utterances having a primarily representative illocutionary force, expressions of intention and predictions. Although will and going to, as well as shall, will eventually

be used to convey both of these functions, intentions, belonging to the domain of deontic modality, precede predictions in English language development (Leopold 1949:99, Wells 1979). The fact that future verb tense is significantly better understood by two- to four-year-olds in reference to the immediate than to the remote future (Harner 1976) may be attributed to the strongly modal character of the future tense in early child language. According to Harner (1982) 'it seems likely that there is an overlap between immediacy and certainty such that the more immediate the future event, the more certain one can be that it will occur' (p.116).²⁴ These results completely agree with our findings for Greek language development. If it is 'the degree of certainty of the speaker's statement being factual' which influences the choice of a future referent (near vs remote) in three- to five-year-olds (p.123), this is further evidence that epistemic modality develops from the prediction of events not controlled by the child (cf §3. above). While half of the 60 children of the Bristol sample use will for intentions at 2;6, this criterion is reached for predictions only at 3;0 (Wells 1979). Unfortunately, Wells does not specify the functions of going to, which was being used by half of the sample at 2;9. In Pea & Mawby's (1981) data, 99 per cent of 115 uses of gonna and 87 per cent of 55 uses of will expressed intention, with most sentence subjects being first person. The authors note that relatively few predictive uses of these terms occurred for nonvolitional events in the utterances of children ranging in age from 2;4 to 3;5.²⁵ While the expression of intention as compared to predictions dominates up to 2;8 in Nina₂'s case, the ratio is reversed between 2;8 and 3;4 (Pea et

al. 1982).²⁶

Shepherd (1980, 1981) found evidence that the distinction between intentions and predictions was lexicalized by Nina₁ between 2;5 and 3;0. While she had been using both will and gonna for volition and intention from 2;2 to 2;5, from then on she reserved gonna for events in the immediate future and controlled by herself, usually her own activities, and will to refer to the more distant future or to events in the immediate future which she did not control.²⁷ Evidence for the same kind of semantic distinction between two forms which these do not possess in the standard language comes from Clinton, a four-year-old boy acquiring Antigua Creole. He used go and gon, which are free variants in the standard language, to refer to events controlled by himself and outside of his control, respectively (*ib.*). It must be noted, however, that adult Antigua Creole differentiates, as does English, between different degrees of modal value with other modals. The fact that Nina₁ and Clinton went beyond the target languages they were acquiring may be evidence for a trend noted in child language toward one form for one function (Slobin 1973) or more simply for the child's gradual decentering from his own self (cf also Shepherd 1981:112).

5. The development of epistemic modality

Epistemic modal meanings develop later than deontic ones in language acquisition. As the linguistic forms serving to convey epistemic modality are of the same type as those used to express deontic modality (modal verbs, verbal inflections) and are to a large extent even identical with them, the reason for the later

development of epistemically modalized utterances cannot be sought in linguistic complexity but must rather lie in cognitive complexity. As we have seen in §7.1 above, epistemically modalized utterances are centrally concerned with the notion of possibility, involving a distinction between reality and some other state of affairs based on certain conditions. Studies of cognitive development have shown that the notion of possibility as distinct from reality develops in Piaget's preoperational stage (from about 2 or 3 to about 7 or 8 years), where possibility is the potential future (cf Piérait-Le Bonniec 1980:52ff and §3. above on predictions).²⁸ The source of the developing notion of possibility may, however, be seen in the child's ability to pretend, emerging as early as Piaget's stage 6 of the sensorimotor period (at about 1;6) when the child first engages in symbolic play (Piaget 1945; cf also Cromer 1974, Bates 1976, and McCune-Nicolich 1981).

In a number of languages, the first use of the imperfective past has been observed to be not a temporal, but a modal one, serving to describe simulated activities and states, and to set the stage and assign character roles in pretend play (cf Lodge 1979, Kaper 1980). Depending on the language acquired, the conditional, the subjunctive II, and the optative as well as modal verbs may also be used in these functions (examples 22).

(22) Brazilian Portuguese 2;11,19 (de Lemos, workshop notes, Nijmegen 1981)

Eu era a mãe cabeleireira. 'I were the mother hairdresser.'

Italian 3;6 - 4;0 (Bates 1976:230)

Io sono il marito, e tu eri la mia moglie.

'I am the husband, and you were my wife.'

Greek (Katis 1983)

exó píjen-a, esí na odíxaj-es. I go.IMPERF-PAST.1.SG
you MOD.PART drive.IMPERF-PAST.2.SG 'I would be going
and you would be driving.'

Turkish 2;0 - 2;6 (Aksu, workshop notes, Nijmegen 1981)

Ayı uyu-du. bear sleep-PAST 'The bear was sleeping.'
Bu anne ol-sun. this mother be-OPT3.SG 'This shall be
the mother.'

Swedish 3;0 - 3;3 (Strömquist, workshop notes, Nijmegen
1981)

Den här va flickan, assa va du pappa å ja va mamma...då
skulle dom gå ut. 'This one was the.girl, and.then were
you Daddy and I was Mummy...then should they go out.'

Flemish 3;11 (Schaerlaekens 1977:159f)

Gij waart een krokodil, gij was nu dood.
'You were a crocodile, you were now dead.'

German (Kaper 1980:213)

Das ist ein Pferd and das wäre der Stall.
'This is a horse and this were the stable.'

English (Cromer 1974:220)

Dis'll be the blanket. Dis could be the mother.

French (Grevisse in Kaper 1980:214)

Jouons au cheval: tu serais le cheval.
'Let's play horse: you would be the horse.'

In Turkish language development, the evidential (-miş past) is used in the function of setting up the scene in pretend games later than the -di past. It was observed in a boy from 2;9 onwards (e.g. sen hastay-mış-sın you ill-EVID-2.SG '(let's pretend)

you are ill', Aksu, workshop notes, Nijmegen 1981). With respect to the modal distinction of information directly acquired through perception in contrast to information indirectly acquired through inference, the functional differentiation between the two past inflections of Turkish takes place around the age of 4;0 to 4;6 in Turkish language development (Aksu 1978). The difficulty of the evidential resides in the cognitive complexity of integrating causal relations of events with anteriority (see also below on hypothetical reference).

In reference to real states of affairs, epistemic main verbs like think and adverbs like maybe may precede epistemically modalized statements in which the expression of modality is integrated into the verb phrase in language development (cf Stern & Stern 1928:107f, Cromer 1974, Pea et al. 1982).²⁹

Examples for the expression of epistemic possibility and necessity have been found in many languages at least from the second half of the third year onwards. While the potential mood emerges late in Finnish language development (cf §2. above), epistemic modality is expressed by the conditional and by modal verbs much earlier (examples 23, taken from Toivainen 1980).

(23) Nina 2;9 ol-isi-ko- han nuo ollut romulaatikossa?
be-COND-Q.PART-PART those been in.the.toy.box
'Could they /the pencils/ have been (instead
of be) in the toy-box?'

Kyösti 2;7 tämän pitää siellä tallissa olla.
this.GEN must there in.the.garage be.INF
'This one must be in the garage.'

Aksu (workshop notes, Nijmegen 1981) cites examples of the use of

the aorist inflection for epistemic possibility in Turkish language development from the first half of the third year onwards (examples 24). Deontic as well as epistemic meanings of the aorist appear to be fully developed around 2;8 to 3;0.

(24) 2;3 düş- er- im ben. 'I might fall.'

fall-AOR-1.SG I

2;8 /answering a question why one doesn't throw balls/

ama vur-ur gözüne onun.

but hit- AOR his.eye.DAT his.GEN

'But it might hit his eye.'

Smoczyńska (1981) notes hypothetical reference in her Polish data as early as 1;9 or even 1;7, although, in the early stages, the only formal clue to such meanings is the inappropriate use of past tense forms, the conditional particle by being omitted (example 25).

(25) /Basia at 2;6 refusing her friend's invitation to climb a hill/

Ja nie pódje, ja spadłam, moja mamusia płakała.

I not will.go I fell my Mummy cried

'I will not go. I would fall and my Mummy would cry.'

In a longitudinal study of a Greek girl from 2;6 to 4;0, Katis (1983) found a few examples of hypothetical reference from 3;3 on and of epistemically modalized utterances from 3;9 on (examples 26).

(26) áma kriv-ómuna se mia spiljá,

if hide- MEDIOPASS.IMPERF.PAST.1.SG in a cave

Θα με é-vrisk-es?

FUT.PART me AUGM-find.IMPERF-PAST.2.SG

'If I hid in a cave, would you find me?'

borí ke na fov-ótane.

it.may.be also that be.afraid-MEDIOPASS.IMPERF.PAST.3.SG

'It may also be that he was afraid.'

In spite of an early example of an epistemically modalized statement from Hildegard at 2;2 (you might break that spoon and baby might break that spoon addressing a baby and subsequently her parents), Leopold (1949(IV):35) recognizes that 'the world of possibilities is opened' to her only at 2;8. The first epistemically modalized statements have generally been found to occur in the second half of the third year in English language development, about six months later than deontic meanings. Epistemically modalized utterances are at first still extremely rare, however, as compared to deontically modalized ones. Of the 1,766 utterance tokens containing a modal in Nina₂'s speech between 1;11 and 3;4, only 7 express epistemic modality and 5 of these were found after 2;8 (Pea et al. 1982). Epistemically modalized utterances become more frequent only towards the middle of the fourth year or even later (Cromer 1968, 1974, Kuczaj 1977). Modal verbs used to express epistemic modality in English child language up to 3;6 are might, must, may, should, can, could, and would (Wells 1979, Kuczaj & Daly 1979, Pea & Mawby 1981). None of these reached the criterion of occurring at least once in 50 per cent of the Bristol sample by 3;6.

Some of the early examples of epistemic modality are about possible future events or likely present states of affairs (cf examples 23 above). Others refer to unlikely future events (cf Hildegard's utterances cited above). A third type of such modalized utterances expresses hypothetical reference involving contingent relations between events (cf examples 24 to 26

above). While Cromer (1968, 1974) did not find any examples of hypothetical reference in the speech of Adam, Eve, and Sarah up to age 4;6, Kuczaj (1977) found some evidence of such reference in the speech of some 2- and 3-year-olds learning English. Using eliciting techniques in natural and experimental situations, Kuczaj & Daly (1979) were able to obtain a number of formally unmarked hypothetical statements in English from age 2;7 onwards and explicit ones from 2;9 onwards, with the early uses by children up to 3;1 being more often implicit than explicit and other-initiated than self-initiated. Reference to isolated hypothetical events occurs prior to reference to a sequence of such events. Hypothetical reference develops first in the future domain, where there is more uncertainty than in the past domain (e.g. If you would have eaten all that turkey, your tummy would have kersploded from a child at 3;11, p.575). Kuczaj & Daly's results agree with the finding made in some other languages that the conditional mood is the last verbal inflection to develop, which is generally attributed to the cognitive complexity of the notions it conveys.³⁰ More research will be necessary before one can be certain whether the relatively late development of hypothetical reference in English as compared to Polish is due to the structural differences between the two languages, as Smoczyńska (1981) assumes.

While the expression of epistemic modality requires that one make a distinction between factual and possible states of affairs, for hypothetical reference it is necessary to take a nonfactual situation and its relation to some other factual or nonfactual situation into consideration simultaneously. This is what makes hypothetical reference in its complete form so difficult (cf also Bates 1976 and Jakubowicz 1978).³¹

6. Universal aspects of the development of modality

Assuming cognitive development to be fundamentally the same across cultures, differences in the ontogenesis of languages must to a large extent be attributable to their structural differences. Language development involves a process of grammaticalization of linguistic devices. In the historical development of languages, grammaticalization has been observed to consist in what, in a simplified account, could be called a process of condensation and coalescence starting 'from a free collocation of isolating lexemes in discourse' and passing to more and more tightened grammatical constructions through syntacticization and morphologization (Lehmann 1982; cf also Givón 1979). Although the ontogenetic process of grammaticalization is not quite parallel to the historical one, syntacticization and morphologization are both important factors of language development in the child. There is evidence from verbal as well as nominal grammar that morphological (synthetic) structural devices are acquired earlier than syntactic (analytic) ones. A comparison of the development of modalized verb forms in the early inflectional stages of English and Greek child language shows that while the Greek child cannot, so to speak, escape the expression of inflectional categories as they are a part of tightly knit lexical forms in the language he is acquiring, the structure of English makes it possible to first concentrate on the expression of lexical content and leave modulations of meaning aside.³² While analytic and synthetic structural devices are generally considered to be isofunctional in the languages of the world, infinitivelike verb forms as they occur in the early inflectional stages of the development of languages like English, German, and French do not

fulfil the modalizing function to the same degree as, for example, the Greek subjunctive or the Turkish optative. In addition to expressing modality, the latter verb form categories make distinctions of person, number, and aspect (Greek), thereby achieving more differentiated communication, while the former do not. In these languages, this will, of course, sooner or later result in 'a pressure towards the development of new forms which are of a more function-specific character' (Werner & Kaplan 1963:60).

As we have seen, deontic meanings are expressed before epistemic ones by children acquiring typologically and genetically quite different languages. This must therefore be ascribed to cognitive development with the egocentric 'will-do' being much more basic for the child than the 'will-happen' (Pea & Mawby 1981). As far as the function of linguistic devices for expressing modality is concerned, these provide further evidence for the observation that forms are at first not used with their full range of functions. Just as past tense forms in the early stages of language development serve aspectual more than temporal functions, the imperfective past may in some languages be used to express mood prior to tense. This is especially true of future tense forms. With an increasing differentiation of temporality and modality from concrete action, the meaning range of the old verb forms will shift and new, more function-specific form categories will develop. Thus, in Greek, the old global category of the subjunctive will divide into the future tense and the subjunctive mood, and in Turkish, evidential and nonevidential past will be separated.

The ontogenetic order of the development of deontic and epistemic modality agrees with evidence from creole and the history of English, where epistemic meanings develop from deontic ones (cf Shepherd 1981:102ff).³³ Another parallel between ontogenetic and historical language development comes from work in Romance languages (Fleischman 1979) the results of which suggest that 'the meanings of futurity may provide an intermediate stage in the progression from deontic to epistemic' modality (Shepherd 1981:115). While the future categories of the ancient Indo-European languages are described as 'desiderative presents' by Meillet (1937:215), Humbert (1954:151) recognizes both a 'virtual' and a 'desiderative' component in the ancient Greek future, the first leading to tense and the second approaching mood. This could be considered as a fair characterization of the category of the future in child language (cf also Ferreiro 1971:238f). In Turkish, the later development of the hearsay function of the evidential past as compared to its inferential function again seems to retrace historical development (Slobin & Aksu 1982:191).

Studying the comprehension of deontic utterances of different modal degrees (e.g. must vs. may) in comparison to epistemically modalized ones in English-speaking children between 3;0 and 6;6 years of age, Hirst & Weil (1982) found that children already appreciate the relative strength of epistemic meanings in the second half of their third year, while relative strength is appreciated with deontic meanings only about a year later. As the authors themselves admit, it cannot, however, be excluded from consideration that this result, which seems to be in conflict with evidence from production data, has a nonlinguistic,

sociological cause pertaining to the experimental design. In other respects, Hirst & Weil's study confirms the results of longitudinal research. In accordance with Jakobson's principle of maximal contrast, children first distinguish modals from factuais before differentiating within the modal field, where 'the general rule seems to be: the greater the difference in the strength of the two types of modal propositions the earlier this difference will be appreciated' (p. 665).³⁴

It may be that the affinities of the ontogenetic and the historical processes of grammaticalization can be explained by an important principle of cognitive development according to which 'new forms first express old functions, and new functions are first expressed by old forms' (Slobin 1973:184f). The priority of deontic as compared to epistemic modality in the ontogenesis as well as in the history of languages can be considered as indicating the primacy of the social as compared to the epistemic function of language.³⁵

FOOTNOTES

- 1 By referring to English modals and similar forms in the other languages to be considered in this chapter as 'modal verbs' I do not commit myself to viewing their grammatical status as that of main verbs rather than auxiliaries.
- 2 See Lyons (1977) and Piérault-Le Bonniec (1980:12ff) on alethic modality, which is concerned with the truth of propositions in terms of the notions of necessity and possibility and their negations, contingency and impossibility, as well as on objective (logical) epistemic interpretations of statements. On the cognitive development of modality cf Osherson & Markman (1974/75) and the references cited in fn. 28.
- 3 On the development of pragmatics in language acquisition cf Dore (1975), Halliday (1975), M. Miller (1976), Ervin-Tripp (1977), Moerk (1977), Ramge (1977), Dore et al. (1978), Bruner (1979), and Ochs & Schieffelin (eds.) (1979).
- 4 Although erotetics are often subsumed under the directive or requestive type (e.g. by Dore et al. 1978), a number of arguments have been advanced which make it preferable to assign them to a separate category (cf Wunderlich 1976:167ff, Lyons 1977:753ff).
- 5 On directives in early and later child language cf Guillaume (1927) and Grégoire (1947) for French, Stern & Stern (1928), Leopold (1949), Grimm (1975), and Grimm & Schöler (1975) for standard German, Stern (1980) for Zürichdeutsch, a Swiss German dialect, Aksu (1973) and Ervin-Tripp (1977:174ff) for Turkish, MacWhinney (1974) and Ervin-Tripp (*ib.*) for Hungarian, Smoczyńska (1980) for Polish, and Bates (1976) for Italian. On the development of the politeness dimension in the comprehension of directives by 75 Italian children aged 3;0 to 6;0 cf Bates (1976). On English cf § 4 below.
- 6 On Bulgarian cf Gheorgov (1908), on Russian Gvozdev (1949), Bogoyavlenskiy (1957), El'konin (1958), Slobin (1966), on Finnish Toivainen (1961, 1980), Bowerman (1973), on Turkish Aksu (1978), on Hebrew Berman (1981), on German Stern & Stern (1928), Leopold (1949), on Dutch Schaerlaekens (1977), on French Guillaume (1927), Grégoire (1947), on Portuguese Stoel-Gammon (1976).
- 7 For the functional differentiation of intonation in early child language cf Grégoire (1947:203), Leopold (1949(III):8), Dore (1975), Halliday (1975), van der Geest (1975), M. Miller (1976), and Bates (1976).
- 8 On English cf § 4 below.
- 9 Cf Decroly & Degand (1913), Bloch (1924), and Grégoire (1947) for French, Gili y Gaya (1972) and Jacobson (1981) for Spanish, Aksu (1978:52) for Turkish, Varma (1979) for Hindi, Berman & Dromi (1981) for Hebrew, Stern & Stern (1928) for German, Szagun (1976, 1978, 1979) for English and German. On the comprehension of the past vs. the future tense in the acquisition of English cf Herriot (1969) and Harner (1976).
- 10 Smoczyńska (1981) notes the early appearance of the future tense auxiliary *będzie* in Polish.
- 11 As the use of the conditional mood is untypical of speech among adults at least as far as questions are concerned, we have here an interesting case of child-directed speech being more complex than adult-directed speech.
- 12 For examples of epistemic modality cf § 5 below.

- 13 This unmarked form of the verb is homonymous with the singular imperative in Modern Finnish (Ulrich Groenke, pers. comm.). Examples 5 are again taken from Toivainen (1980).
- 14 Nondéontic uses of the aorist as well as the past suffix -miš developing later than the past in -di will be treated in §5. below.
- 15 As only one plural imperative form occurs in a transcript of period III only singular imperative forms will be considered.
- 16 In a cross-sectional study of 36 video-taped 2-, 3-, and 4-year-old American children, however, Bates (1971) found 'no developmental differences in the frequency of declarative, imperative, or interrogative intentions' (Bates 1976:50).
- 17 There is a slight tendency for the interdependence of aktionsart and grammatical aspect to become less strong in the course of the development from period I to period III, especially in the case of dynamic verbs (cf Stephany in prep.).
- 18 The children's ages in stage I are 1;6 to 1;8 (Eve), 2;3 to 2;5 (Adam), 2;3 to 2;7 (Sarah) and in stage III 1;10 to 2;1 (Eve), 2;11 to 3;0 (Adam), 3;0 to 3;5 (Sarah).
- 19 As Brown's (1973) selection of modals was restricted by his criterion of acquisition, he 'could only select forms for which it was possible to identify contexts in which the form is obligatory' (p.12). For this reason he excluded modal auxiliaries like can and must and forms like wanna and gonna from his study.
- 20 Unfortunately, the authors do not suggest interpretations for these utterances.
- 21 On the use of gestures associated with directives in early child language cf Read & Cherry (1978) and Wilkinson & Rembold (1981) and on the relationship between verbal and nonverbal communication in mothers' directives Shatz (1982) and Schaffer et al. (1983).
- 22 Reeder (1981) found that reliable differential discrimination of requests from enquiries was mastered by 3;6.
- 23 On the interpretation of interrogative requests by small children cf Shatz (1974, 1978), Ervin-Tripp (1977), and Reeder (1981), on the interpretation of hints Ackerman (1978), and on the structure of maternal directives Tollefson (1976), Bellinger (1979), and Schneiderman (1983).
- 24 The apparent paradox of the past tense being formally marked prior to the future in English and German, while at first the future verb tense is the better understood form (Lovell & Dixon 1967; Herriot 1969, Harner 1976) is an artifact of the structure of English and German, in which, contrary to tense and aspect, mood is not marked in the main verb (except for the imperative in German) but signalled by auxiliaries. Where there are differences in understanding the reference to past and future in later language development, the future verb forms were found to be more poorly understood, with the exception of hypotheticals (Herriot 1969, Cromer 1971, Harner 1976, 1980, Kuczaj & Daly 1979). Although Harner (1982) found this to be limited to the remote future in children between 3 and 5;11, it cannot be excluded that her results were favoured by her experimental design.
- 25 Pea & Mawby (1981) classify volition as belonging to the semantic domain of epistemic modality.
- 26 Pea et al. (1982) consider intentions and predictions as representing the null degree of dynamic and epistemic modality, respectively.

- ²⁷ Nina₁ is reported to have made a similar distinction between can and could, referring to her own ability and to the ability of others, respectively. Illocutionary force should be taken into consideration here, however. The use of could to refer to the ability of others may follow from the common way of making directives more polite by employing the past form of can in standard as well as in child American English. Some of Nina's examples of could cited by Shepherd (1981:93f) are conditional.
- ²⁸ Only at 7 or 8 years, do children begin to have some idea of undecidability, and 'the capacity to reason on the basis of hypotheses' (alethic modality) is not acquired until 11 to 12 years of age (Piéraud-Le Bonniec 1980:76; cf also Berthoud & Sinclair 1978).
- ²⁹ Complementation verbs expressing volition are acquired before epistemic verbs like know and think in English (cf Bloom 1981:168). This confirms the developmental priority of deontic as compared to epistemic modality.
- ³⁰ On Finnish cf above, on Russian Bogoyavlenskiy (1957(1973:290)) and Slobin (1966), on Hungarian MacWhinney (1976:404), and on Italian Bates (1976).
- ³¹ On the development of conditional sentences cf Bates (1974, 1976), Berthoud & Sinclair (1978), Jakubowicz (1976, 1978), Chapman (1979), Smoczyńska (1981), McCabe et al. (1983), and the references cited in Kuczaj & Daly (1979).
- ³² Another factor determining acquisition is salience (cf Gleitman & Wanner 1982). For nominal grammar cf Slobin's (1973) comparison of case marking in Hungarian and Serbo-Croatian.
- ³³ On the history of English modals cf Goossens (1981).
- ³⁴ On different degrees of modality in English language development cf also Shepherd (1981) and Pea et al. (1982).
- ³⁵ For a different view on the relative roles of the communicative and the epistemic function in the phylogenetic development of language cf Bickerton (1981).

BIBLIOGRAPHY

- Ackerman, B.P. 1978. Children's understanding of speech acts in unconventional directive frames. Child Development 49:311-318.
- Aksu, A. 1973. Request forms used by Turkish children. University of California, Berkeley. Unpubl. ms.
- Aksu, A. 1978. Aspect and modality in the acquisition of the Turkish past tense. Doct. diss. Univ. of California, Berkeley.
- Arlman-Rupp, A. 1976. Het kind en de tijd, Onderzoek naar de interactie tussen vier moeders en hun twee-jarige kinderen, in het bijzonder met betrekking tot de ontwikkeling van het tijdaspekt. Ms.
- Babinotis, G. & P. Kondos. 1967. Sugkronike grammatikē tes koinēs neas ellēnikēs: Theoria, askēseis. Athens.
- Bates, E. 1971. The development of conversational skill in 2-, 3-, and 4-year-olds. Univ. of Chicago. Unpubl. masters thesis. (Reprinted in Pragmatics Microfiche, 1975, 1(2), Cambridge University)
- Bates, E. 1974. The acquisition of conditionals by Italian children. Papers from the Tenth Regional Meeting, Chicago Linguistic Society. Chicago. Pp. 27-36.
- Bates, E. 1976. Language and context: the acquisition of pragmatics. New York, San Francisco, London: Academic Press.
- Bellinger, D. 1979. Changes in the explicitness of mothers' directives as children age. Journal of Child Language 6:443-458.
- Bellugi, U. 1967. The acquisition of negation. Doctoral dissertation. Harvard Graduate School of Education.
- Bellugi, U. 1971. Simplification in children's language. In R. Huxley & E. Ingram (eds.) Language acquisition: models and methods. New York, San Francisco, and London: Academic Press. Pp. 95-117.
- Bellugi, U. 1974. Some aspects of language acquisition. In T.A. Sebeok (ed.) Current trends in linguistics. Vol. 12:1135-1158. The Hague and Paris: Mouton.
- Berman, R.A. 1981. Regularity vs. anomaly: the acquisition of Hebrew inflectional morphology. Journal of Child Language 8:265-282.
- Berman, R.A. & Dromi, E. 1981. Acquisition of tense/aspect in Hebrew. Tel Aviv Univ., Ramat. Unpubl. ms.
- Berthoud, I. & Sinclair, H. 1981. L'expression d'éventualités et de conditions chez l'enfant. Archives de Psychologie 179:205-233.
- Bickerton, D. 1981. Roots of language. Ann Arbor: Karoma Publ.
- Bierwisch, M. 1980. Semantic structure and illocutionary force. In J.R. Searle, F. Kiefer & M. Bierwisch (eds.) Speech act theory and pragmatics. Dordrecht, Boston, and London: Reidel. Pp. 1-35.
- Bloch, O. 1924. La phrase dans le langage d'un enfant. Journal de psychologie normale et pathologique 21:18-43.
- Bloom, L. 1970. Language development: form and function in emerging grammars. Cambridge, Mass.: MIT Press.
- Bloom, L. 1981. The importance of language for language development: linguistic determinism in the 1980s. In H. Winitz (ed.) Native language and foreign language acquisition. New York: New York Academy of Sciences, Publ. Dept. Pp. 160-171.
- Bock, J.K. & Hornsby, M.E. 1977. How children ask and tell: a speech act analysis of children's requests. Papers and Reports on Child Language Development 13:72-82.
- Bogoyavlenskii, D.N. 1957. Psikhologiya usvoyeniya orfografii. Moscow (English translation: The acquisition of Russian inflections. In Ferguson & Slobin 1973:284-292).
- Bowerman, M. 1973. Early syntactic development: a cross-linguistic study with special reference to Finnish. Cambridge: Cambridge University Press.

- Brown, R. 1973. A first language: the early stages. Cambridge, Mass.: Harvard University Press.
- Bruner, J.S. 1975. The ontogenesis of speech acts. Journal of Child Language 2:1-19.
- Bruner, J.S. 1979. Learning how to do things with words. In D. Aaronson & R.W. Rieber (eds.) Psycholinguistic research: implications and applications. Hillsdale, N.J.: Erlbaum Associates. Pp. 265-284.
- Carter, A.L. 1979. Prespeech meaning relations: an outline of one infant's sensorimotor morpheme development. In Fletcher & Garman (1979:71-92).
- Chapman, D.L. 1979. Children's acquisition of linguistic means for expressing conditionality. Doct. dissertation. Florida State University (Ann Arbor: University Microfilms International. 1980)
- Cromer, R.F. 1968. The development of temporal reference during the acquisition of language. Doct. dissertation. Harvard University.
- Cromer, R.F. 1971. The development of the ability to decenter in time. British Journal of Psychology 62:353-365.
- Cromer, R.F. 1974. The development of language and cognition: the cognition hypothesis. In B. Foss (ed.) New perspectives in child development. Harmondsworth: Penguin Books. Pp. 184-252.
- Dale, P.S. & Ingram, D. (eds.) 1981. Child language: an international perspective. Baltimore: University Park Press.
- Decroly, O. & Degand, J. 1913. Observations relatives au développement de la notion de temps chez une petite fille (de la naissance à 5 ans 1/2). Archives de Psychologie XIII(50):113-161.
- Dore, J. 1975. Holophrases, speech acts and language universals. Journal of Child Language 2:21-40.
- Dore, J. 1977. Children's illocutionary acts. In R.O. Freedle (ed.) Discourse production and comprehension. Norwood, N.J.: Ablex Publ. Corp.
- Dore, J., Gearhart, M. & Newman, D. 1978. The structure of nursery school conversation. In K. Nelson (ed.) Children's language. Vol. I:337-395. New York: Wiley/Gardner Press.
- El'konin, D.B. 1958. Razvitiye rechi v doskol'nom vozraste. Moscow: Akad. Pedag. Nauk RSFSR (English translation of pp.34-61: General course of development in the child of the grammatical structure of the Russian language (according to A. Gvozdev). In Ferguson & Slobin 1973:565-583).
- Ervin, S. 1964. Imitation and structural change in children's language. In E.H. Lenneberg (ed.) New directions in the study of language. Cambridge, Mass.: MIT Press. Pp.163-189.
- Ervin-Tripp, S. 1977. Wait for me, roller-skate! In Ervin-Tripp & Mitchell-Kernan (1977:165-188).
- Ervin-Tripp, S. & Mitchell-Kernan, C. (eds.) 1977. Child discourse. New York, San Francisco, and London: Academic Press.
- Ferguson, C.A. & Slobin, D.I. (eds.) 1973. Studies of child language development. New York: Holt, Rinehart & Winston.
- Ferreiro, E. 1971. Les relations temporelles dans le langage de l'enfant. Geneva: Droz.
- Flämig, W. 1970. Bedeutungsstrukturen im Bereich der Temporalität und Modalität. Actes du Xe Congrès International des Linguistes, Bucarest, 28 août - 2 septembre 1967. Bucarest: Editions de l'Académie de la République Socialiste de Roumanie. Vol. II:399-405.
- Fleischman, S. 1979. The ontogenesis of future with respect to the Romance languages. University of California, Berkeley. Draft ms.
- Fletcher, P. 1975. Review of Major (1974). Journal of Child Language 2:318-322.
- Fletcher, P. 1979. The development of the verb phrase. In Fletcher & Garman (1979:261-284).
- Fletcher, P. & Garman, M. (eds.) 1979. Language acquisition: studies in first language development. Cambridge: Cambridge University Press.

- Furth, H.G. 1976. Intelligenz und Erkennen: die Grundlagen der genetischen Erkenntnistheorie Piagets. Frankfurt: Suhrkamp.
- Garvey, C. 1975. Requests and responses in children's speech. Journal of Child Language 2:41-63.
- Gheorgov, I.A. 1908. Ein Beitrag zur grammatischen Entwicklung der Kindersprache. Archiv für die gesamte Psychologie 11:242-432.
- Gili y Gaya, S. 1972. Estudios de lenguaje infantil. Barcelona: Bibliograf.
- Givón, T. 1979. On understanding grammar. New York, San Francisco, and London: Academic Press.
- Gleitman, L.R. & Wanner, E. 1982. Language acquisition: the state of the state of the art. In Wanner & Gleitman (1982:3-48).
- Goossens, L. 1981. On the development of the modals and of the epistemic function in English. Paper presented at the Fifth International Conference on Historical Linguistics. Galway, Ireland, April 1981.
- Grégoire, A. 1947. L'apprentissage du langage. Vol. 2: La troisième année et les années suivantes. Paris and Liège: Droz.
- Greimas, A.J. 1976. Pour une théorie des modalités. Langages 43:90-107.
- Grimm, H. 1975. Analysis of short-term dialogues in 5-7 year olds: encoding of intentions and modifications of speech acts as a function of negative feedback. Paper presented at the Third International Child Language Symposium. London, September 1975.
- Grimm, H. & Schöler, H. 1975. Erlauben - Befehlen - Lassen: Wie gut verstehen kleine Kinder kausativierende Beziehungen? In H. Grimm, H. Schöler & M. Wintermantel, Zur Entwicklung sprachlicher Strukturformen bei Kindern. Forschungsbericht zur Sprachentwicklung I: Empirische Untersuchung zum Erwerb und zur Erfassung sprachlicher Wahrnehmungs- und Produktionsstrategien bei Drei- bis Achtjährigen. Weinheim and Basel. Pp. 100-120.
- Grundzüge einer deutschen Grammatik. By a collective of authors under the direction of K.E. Heidolph, W. Flämig, and W. Motsch. Berlin: Akademie-Verlag. 1981.
- Guillaume, P. 1927. Le développement des éléments formels dans le langage de l'enfant. Journal de psychologie normale et pathologique 24:203-229 (English translation of pp.216-229 in Ferguson & Slobin 1973:240-251).
- Gvozdev, A.N. 1949. Formirovaniye u rebenka grammaticheskogo stroya russkogo yazyka. 2 parts. Moscow: Akad. Pedag. Nauk RSFSR.
- Halliday, M.A.K. 1975. Learning how to mean: explorations in the development of language. London: E. Arnold.
- Harner, L. 1976. Children's understanding of linguistic reference to past and future. Journal of Psycholinguistic Research 5:65-84.
- Harner, L. 1980. Comprehension of past and future reference revisited. Journal of Experimental Child Psychology 29:170-182.
- Harner, L. 1982. Immediacy and certainty: factors in understanding future reference. Journal of Child Language 9:115-124.
- Herriot, P. 1969. The comprehension of tense by young children. Child Development 40:103-110.
- Hills, E.C. 1914. The speech of a child of two years of age. Dialect Notes 4:84-100.
- Hirst, W. & Weil, J. 1982. Acquisition of epistemic and deontic modals. Journal of Child Language 9:659-666.
- Hörmann, H. 1976. Meinen und Verstehen: Grundzüge einer psychologischen Semantik. Frankfurt: Suhrkamp.
- Humbert, J. 1954. Syntaxe grecque. Paris: Klincksieck. 2nd ed.
- Jacobson, T. 1981. Tense and aspect in Spanish acquisition: a study in early semantic development. University of California, Berkeley. Unpubl. ms.
- Jakubowicz, C. 1976. Comprensión y tematización de enunciados condicionales: estudio genetico. Buenos Aires. Ms.
- Jakubowicz, C. 1978. Fait actuel ou fait virtuel? La compréhension d'énoncés conditionnels chez l'enfant. L'année psychologique 78(1):105-128.

- James, S.L. 1978. Effect of listener age and situation on the politeness of children's directives. Journal of Psycholinguistic Research 7:307-317.
- Johnson-Laird, P.N. 1978. The meaning of modality. Cognitive Science 2:17-26.
- Kaper, W. 1980. The use of the past tense in games of pretend. Journal of Child Language 7:213-215.
- Katis, D. 1983. O paratatikos sti glossiki ekseleksi tu ellinopulu /The imperfective past in the linguistic development of the Greek child/. Paper read at the Fourth Annual Meeting of the Department of Linguistics, Faculty of Philosophy, Aristotelian University of Thessaloniki, May 1983.
- Kernan, K. 1969. The acquisition of language by Samoan children. Doct. dissertation. Univ. of California, Berkeley (Working Paper No. 21, Language-Behavior Research Laboratory, Univ. of California, Berkeley, 1969).
- Klima, E.S. & Bellugi-Klima, U. 1966. Syntactic regularities in the speech of children. In J. Lyons & R.J. Wales (eds.), Psycholinguistic papers. Edinburgh: Edinburgh Univ. Press. Pp. 183-208.
- Kuczaj, S.A. 1977. Old and new forms, old and new meanings: the form-function hypothesis revisited. Paper presented at the Society for Research in Child Development. New Orleans. March 17-20, 1977.
- Kuczaj, S.A. & Daly, J. 1979. The development of hypothetical reference in the speech of young children. Journal of Child Language 6:563-579.
- Kuczaj, S.A. & Maratsos, M. 1975. What a child can say before he will. Merrill-Palmer Quarterly 21(2):89-111.
- Lehmann, C. 1982. Thoughts on grammaticalization: a programmatic sketch. akup /Arbeiten des Kölner Universalienprojekts/ no. 48.
- Leopold, W.F. 1949. Speech development of a bilingual child: a linguist's record. Vols. 3 and 4. Evanston, Ill.: Northwestern University Press.
- Lodge, K.R. 1979. The use of the past tense in games of pretend. Journal of Child Language 6:365-369.
- Lovell, K. & Dixon, E.M. 1967. The growth of the control of grammar in imitation, comprehension, and production. Journal of Child Psychiatry 8:31-39.
- Lyons, J. 1968. Introduction to theoretical linguistics. Cambridge: CUP.
- Lyons, J. 1977. Semantics. 2 vols. Cambridge: Cambridge University Press.
- MacWhinney, B. 1974. How Hungarian children learn to speak. Doctoral dissertation. Univ. of California, Berkeley.
- MacWhinney, B. 1976. Hungarian research on the acquisition of morphology and syntax. Journal of Child Language 3:397-410.
- Major, D. 1974. The acquisition of modal auxiliaries in the language of children. The Hague and Paris: Mouton.
- McCabe, A.E., Evely, S., Abramovitch, R., Corter, C.M. & Pepler, D.J. 1983. Conditional statements in young children's spontaneous speech. Journal of Child Language 10:253-258.
- McCune-Nicolich, L. 1981. Toward symbolic functioning: structure of early pretend games and potential parallels with language. Child Development 52(3):785-797.
- Meillet, A. 1937. Introduction à l'étude comparative des langues indo-européennes. Paris: Hachette. 8th ed.
- Menyuk, P. 1969. Sentences children use. Cambridge, Mass.: MIT Press.
- Miller, M. 1976. Zur Logik der frühkindlichen Sprachentwicklung: empirische Untersuchungen und Theoriediskussion. Stuttgart: Klett Verlag.
- Miller, W. & Ervin, S.M. 1964. The development of grammar in child language. In U. Bellugi & R. Brown (eds.), The acquisition of language. Monographs of the Society for Research in Child Development no. 29 (Serial No. 92). Pp. 9-34 (reprinted in A. Bar-Adon & W.F. Leopold (eds.), Child language: a book of readings. Englewood Cliffs, N.J.: Prentice Hall. 1971. Pp.321-339).
- Mitchell-Kernan, C. & Kernan, K.T. 1977. Pragmatics of directive choice among children. In Ervin-Tripp & Mitchell-Kernan (1977:189-208).
- Moerk, E.L. 1977. Semantic and pragmatic aspects of early language development. Baltimore: University Park Press.

- Newport, E.L. 1977. Motherese: the speech of mothers to young children. In N. Castellan, D. Pisoni & G. Potts (eds.), Cognitive theory. Vol. 2. Hillsdale, N.J.: Erlbaum Associates.
- Newton, B. 1979. Scenarios, modality, and verbal aspect in Modern Greek. Language 55:139-167.
- Ochs, E. & Schieffelin, B.B. (eds.) 1979. Developmental pragmatics. New York, San Francisco, and London: Academic Press.
- Osherson, D. & Markman, E. 1974-1975. Language and the ability to evaluate contradictions and tautologies. Cognition 3:213-226.
- Palmer, F.R. 1979. Modality and the English modals. Harlow Essex: Longman Group.
- Parisi, D. & Antinucci, F. 1976. Essentials of grammar. New York, San Francisco, and London: Academic Press.
- Pea, R.D. & Mawby, R. 1981. Semantics of modal auxiliary verb uses by pre-school children. Paper presented at the Second International Congress for the Study of Child Language, August 9th to 14th, 1981, Vancouver, B.C.
- Pea, R.D., Mawby, R. & MacKain, S.J. 1982. World-making and world-revealing: semantics and pragmatics of modal auxiliary verbs during the third year of life. Paper presented at the Seventh Annual Boston Conference on Child Language Development, October 8-10, 1982.
- Piaget, J. 1945. La formation du symbole chez l'enfant: imitation, jeu et rêve, image et représentation. Neuchâtel (English translation: Play, dreams, and imitation in childhood. New York 1951).
- Pièraut-Le Bonniec, G. 1980. The development of modal reasoning: genesis of necessity and possibility notions. New York, San Francisco, and London: Academic Press.
- Pottier, B. 1976. Sur la formulation des modalités en linguistique. Langages 43:39-46.
- Ramge, H. 1977. Language acquisition as the acquisition of speech act competence. Journal of Pragmatics 1:155-164.
- Read, B. & Cherry, L. 1978. Preschool children's production of directive forms. Discourse Processes 1:233-245.
- Reeder, K. 1981. How young children learn to do things with words. In Dale & Ingram (1981:135-150).
- Roulet, E. 1980. Modalité et illocution: pouvoir et devoir dans les actes de permission et de requête. Communications 32:216-239.
- Rūke-Draviņa, V. 1959. Zur Entstehung der Flexion in der Kindersprache: ein Beitrag auf der Grundlage des lettischen Sprachmaterials. International Journal of Slavic Linguistics and Poetics 1/2:201-222 (English translation in Ferguson & Slobin 1973:252-267).
- Schaerlaekens, A.M. 1977. De taalontwikkeling van het kind: een oriëntatie in het Nederlandstalig onderzoek. Groningen: Wolters-Noordhoff.
- Schaffer, H.R., Hepburn, A. & Collis, G.M. 1983. Verbal and nonverbal aspects of mothers' directives. Journal of Child Language 10:337-355.
- Schneiderman, M.H. 1983. 'Do what I mean, not what I say!' Changes in mothers' action-directives to young children. Journal of Child Language 10:357-367.
- Seiler, H. 1971. Abstract structures for moods in Greek. Language 47:79-89.
- Seiler, H. 1978. The Cologne project on language universals: questions, objectives and prospects. In H. Seiler (ed.), Language universals: papers from the conference held at Gummersbach/Cologne, Germany, October 3-8, 1976. Tübingen: Gunter Narr. Pp. 11-25.
- Shatz, M. 1974. The comprehension of indirect directives: can two-year-olds shut the door? Paper presented at the Summer Meeting of the Linguistic Society of America. Amherst, Mass.
- Shatz, M. 1978. Children's comprehension of their mothers' question-directives. Journal of Child Language 5:39-46.
- Shatz, M. 1982. On mechanisms of language acquisition: can features of the communicative environment account for development? In Wanner & Gleitman (1982:102-127).

- Shepherd, S.C. 1980. Strategies and semantic distinctions in the acquisition of standard English and Creole modals. Paper presented at the Annual Meeting of the Linguistic Society of America, San Antonio, December 1980.
- Shepherd, S.C. 1981. Modals in Antigua Creole, child language acquisition, and history. Doct. dissertation. Stanford Univ.
- Slobin, D.I. 1966. The acquisition of Russian as a native language. In F. Smith & G.A. Miller (eds.), The genesis of language. Cambridge, Mass.: MIT Press. Pp. 129-148.
- Slobin, D.I. 1973. Cognitive prerequisites for the development of grammar. In Ferguson & Slobin (1973:175-208).
- Slobin, D.I. & Aksu, A.A. 1982. Tense, aspect, and modality in the use of the Turkish evidential. In P.J. Hopper (ed.), Tense-aspect: between semantics and pragmatics. Containing the contributions to a Symposium on Tense and Aspect, held at UCLA, May 1979. Amsterdam and Philadelphia: John Benjamins Publishing Company. Pp. 185-200.
- Smoczyńska, M. 1980. Linguistic expression of requests at the early stages of syntactic development. Paper presented at the XXII International Congress of Psychology, Leipzig, July 1980.
- Smoczyńska, M. 1981. Acquisition of Polish. Institute of Psychology, Jagiellonian University. Kraków, Poland. Unpubl. ms.
- Stachowiak, F.-J. 1981. Zum funktional-operationalen Ansatz in der sprachlichen Universalienforschung aus psycholinguistischer Sicht. akup /Arbeiten des Kölner Universalienprojekts/ 40:5-66.
- Stephany, U. 1981. Verbal grammar in Modern Greek child language. In Dale & Ingram (1981:45-57).
- Stephany, U. in prep. Aspekt, Tempus und Modalität: eine Studie der Entwicklung der Verbalgrammatik in der neugriechischen Kindersprache. Tübingen: Gunter Narr. /to appear in 1984/.
- Stern, C. & Stern, W. 1928. Die Kindersprache: eine psychologische und sprachtheoretische Untersuchung. Leipzig: Barth. 4th ed.
- Stern, O. 1980. Form and function of Swiss-German children's directive speech acts. In D. Ingram, F.C.C. Perg & P. Dale (eds.), Proceedings of the First International Congress for the Study of Child Language. Lanham, MD: University Press of America. Pp. 145-169.
- Stoel-Gammon, C. 1976. Acquisition of verbs in Portuguese. Paper presented at the Eighth Child Language Research Forum. Stanford University, 2-4 April, 1976.
- Szagan, G. 1976. A cross-cultural study of the acquisition of tense forms and time concepts in young children. Doct. Dissertation. Univ. of London.
- Szagan, G. 1978. On the frequency of use of tenses in English and German children's spontaneous speech. Child Development 49:898-901.
- Szagan, G. 1979. The development of spontaneous reference to past and future: a cross-linguistic study. Institut für Psychologie, Technische Universität Berlin. Unpubl. ms.
- Toivainen, J. 1961. Lastenkieli ja äidinkieli. Virittäjä. Journal of Kotikielen Seura (The Mother Tongue Society). Helsinki. Pp. 305-310.
- Toivainen, J. 1980. Inflectional affixes used by Finnish-speaking children aged 1-3 years. Helsinki: Suomalaisen Kirjallisuuden Seura.
- Tollefson, J.W. 1976. A functional analysis of defective and non-defective requests in the speech of mothers to children. Papers and Reports on Child Language Development 11:69-82.
- Van der Geest, T. 1975. Some aspects of communicative competence and their implications for language acquisition. Assen and Amsterdam: Koninklijke Van Gorcum and Company.
- Van Ginneken, J. 1977. De roman van een kleuter. 's-Hertogenbosch: Malmberg.
- Van Langendonck, W. 1978. Complexity and acquisition of illocutionary acts. Departement Linguistiek, Katholieke Universiteit Leuven, preprint no. 54.

- Varma, T.L. 1979. Stage I speech of a Hindi-speaking child. Journal of Child Language 6:167-174.
- Wanner, E. & Gleitman, L.R. (eds.) 1982. Language acquisition: the state of the art. Cambridge: Cambridge University Press.
- Wells, G. 1979. Learning and using auxiliary verbs in English. In V. Lee (ed.), Language development: a reader. London: Croom Helm Open University Set Book. Pp. 250-270.
- Werner, H. & Kaplan, B. 1963. Symbol formation. New York: Wiley.
- Wilkinson, L.C. & Rembold, K.L. 1981. The form and function of children's gestures accompanying verbal directives. In Dale & Ingram (1981:175-186).
- Wootton, A.J. 1981. Two request forms of four year olds. Journal of Pragmatics 5(6):511-523.
- Wright, G.H. von 1963. Norm and action: a logical enquiry. London: Routledge & Kegan Paul.
- Wunderlich, D. 1976. Studien zur Sprechakttheorie. Frankfurt: Suhrkamp.

Die Arbeitspapiere des Instituts für Sprachwissenschaft der Universität Köln erscheinen seit September 1968 in unregelmäßigen Abständen. Die mit einem Stern bezeichneten Arbeitspapiere sind noch vorrätig.

1. Seiler, H. 1968, Grundzüge der Allgemeinen Sprachwissenschaft. Erster Teil: Generative Grammatik. Ausarbeitung der Vorlesung SS 1967, 147 S
2. 1969, Zur Gestaltung eines Studienführers für Studenten der Sprachwissenschaft unter Berücksichtigung einer sprachwissenschaftlichen Grundausbildung für Studenten benachbarter Disziplinen, 5 S
3. Seiler, H., Scheffcyk, A. 1969, Die Sprechsituation in Linguistik und Kommunikationswissenschaft. Referat einer Diskussion, 12 S
4. Katičić, R., Blümel, W. 1969, Die sprachliche Zeit, 12 S
- *5. Brettschneider, G. 1969, Das Aufstellen einer morphophonemischen Kartei (illustriert an der Morphophonemik des japanischen Verbs) 43 S
6. Penčev, J. 1969, Einige semantische Besonderheiten der bulgarischen Geschmacksadjektive, 17 S
7. Seiler, H. 1969, Zur Problematik des Verbalaspekts, 19 S
8. Gottwald, K. 1970, Auswahlbibliographie zur Kontrastiven Linguistik, 42 S
9. Ibañez, R. 1970, Emphase und der Bereich der Negation Satz- vs. Satzgliednegation, 9 S
10. Penčev, J. 1970, Die reflexiven, medialen und passiven Sätze im Bulgarischen, 53 S
11. Untermann, J. 1970, Protokoll eines Kolloquiums über die Situation des Faches Indogermanistik, veranstaltet auf Einladung des Instituts für Sprachwissenschaft, Köln am 30.1.70, 11,15 - 13,00 Uhr, 26 S
12. Seiler, H. 1970, Abstract Structures for Moods in Greek 18 S
13. Bäcker, J. 1970, Untersuchungen zum Phonemsystem und zur Nominalflexion im Litauischen (unter besonderer Berücksichtigung des Akzentwechsels in der Nominalflexion) 13 S
14. Rosenkranz, B. 1970, Georg von der Gabelentz und die Junggrammatische Schule, 14 S
15. Samuelsdorff, P. 1971, Problems of English-German Automatic Translation, 16 S
16. Rosenkranz, B. 1971, Zur Entstehungsgeschichte der idg. Verbalflexion, 30 S
17. Babiniotis, G. 1971, Phonologische Betrachtungen zum Wandel a zu e im Ionisch-Attischen, 40 S
18. Seiler, H. 1971, Possessivität und Universalien. Zwei Vorträge gehalten im Dezember 1971: I. Zum Problem der Possessivität im Cahuilla (Uto-Aztektisch, Südkalifornien)
II. Possessivität und Universalien

19. Maas, U. 1972, Semantik für Sprechakte
20. Seiler, H. 1972, Zum Problem der sprachlichen Possessivität
21. Leys, O. 1972, Nicht-referentielle Nominalphrasen
22. Pisarkowa, K. 1973, Possessivität als Bestandteil des polnischen Sprachsystems, 23 S
- * 23. Brettschneider, G., Lehmann, Ch. 1974, Der Schlagwortkatalog des Instituts für Sprachwissenschaft d. Univ. Köln, 32 S
- * 24. Wieseemann, U. 1974, Time Distinctions in Kaingang
25. Untermann, J. 1975, Etymologie und Wortgeschichte
- * 26. Seiler, H. u.a. 1975, Deskriptive und etikettierende Benennung; Relativkonstruktionen, 155 S (Becker, Katz, Walter, Habel, Schwendy, Kirsch, Clasen, Seip)
27. Lehmann, Ch. 1975, Sprache und Musik in einem Schumann/Heine-Lied, 14 S
28. Stephany, U. 1975, Linguistic and Extralinguistic Factors in the Interpretation of Children's Early Utterances, 28 S
29. van den Boom, H., Samuelsdorff, P. 1976, Aspects-Kommentar Protokolle eines Seminars aus dem WS 1975/76
30. Walter, H. 1976, Gapping, Wortstellung und Direktionalitätshypothese
31. Ojo, V. 1976, Linguistische und soziolinguistische Aspekte der Entlehnung
32. 1976, Diskussion von Roman Jakobson mit Professoren u. Studenten der Uni Köln, 18 S
33. Samuelsdorff, P. 1977, On Describing Determination in a Montague Grammar, 12 S
- * 34. Auer, P., Kuhn, W. 1977, Implikative Universalien, linguistische Prinzipien und Sprachtypologie, 21 S
35. Lehmann, Ch. 1978, Der Relativsatz im Persischen und Deutschen; ein funktional-kontrastiver Vergleich, 22 S
- * 36. Stephany, U. 1978, The Modality Constituent - A Neglected Area in the Study of First Language Acquisition, 20 S
- * 37. Lehmann, Ch., 1980, Guidelines for Interlinear Morphemic Translations. A proposal for a standardization, 23 S
38. Biermann, A., 1980, Nominalinkorporation, 37 S
39. Kukuczka, E., 1982, Verwandtschaft, Körperteile und Besitz. Zur Possession im Tamil, 71 S
40. Paul, W., 1982, Die Koverben im Chinesischen (with an English summary), 136 S
41. Schlögel, Sonja, 1983, Zum Passiv im Türkischen, 43 S
42. Breidbach, Winfried, 1983, Zur Possession im Samoanischen, 70 S
43. Stephany, U. 1983, The development of modality in language acquisition, 66 S.