THE ONTOGENY OF COMPLEX VERB PHRASES:
HOW CHILDREN LEARN TO NEGOTIATE FACT AND DESIRE

T. Givón
Institute of Cognitive and Decision Sciences
University of Oregon
and
White Cloud Ranch
Ignacio, Colorado

1. **Overview**

The acquisition by children of complex verb-phrase   ('complex predicate'; 'verbal complement') constructions has been studied recently in two ground-breaking works, Diessel and Tomasello (2001) and Diessel (2005). Among   their many findings,   five closely-related observations concern us most here. They may be summarized as follows:

(i) In the early stage of child use of verb-plus-complement constructions, the main verb
     acts as a grammaticalized modal operator--epistemic or deontic--on the complement clause.
(ii) Consequently, verb-plus-complement constructions behave semantically as a single
      propositions, whose semantic focus falls on the complement clause itself.
(iii) Only in later stages of acquisition do children develop the use of the verb-plus-
       complement construction as a complex two-clause construction, the presumed
       adult pattern, in which the main clause has its own independent semantic value.
(iv) Therefore, in the course of the child's acquisition of complex verb-phrases, an initial
       simplex single-clause construction is later re-interpreted--by **expansion**--as a *complex*
       two-clause construction.
 (v) The process of acquisition by children thus proceeds from a *holistic* to a *composite*
       semantic interpretation of the very same construction, apparently without any
       syntactic correlates to the semantic change.

Diessel and Tomasello's observations, if they hold, imply that the diachrony of complex VP constructions proceeds in the exact opposite direction from their ontogenesis. This is so because in diachronic syntax, the main developmental trend in the rise of complex two-predicate clauses is for **paratactic** two-clause configurations, falling under   two separate intonation contours, to undergo **condensation** into **syntactic**, complex two-predicate clause under a single intonation contour (Givón 1979, 1991, 2006, 2007; Heine and Kuteva 2007, 2008).

In this paper, while taking the findings of Diessel and Tomasello as an important point of departure, I will suggest that there is a way in which their observations (i) and (ii) can be granted without necessarily subscribing to (iv) and (v). And as for   (iii), its specificity to children (vs. adults) needs to be re-visited.

The main thrust of my argument concerning theses (iv) and (v) is fairly transparent, harkening back to a body of work that is, deservedly, part of the acquisitional canon, such as Ervin-Tripp (1970), Scollon (1974, 1976), Ochs *et al.* (1979). Those works suggest that in the early stages of child communication, both propositions (semantics) and clauses (syntax) are distributed-over **multiple child-adult or adult-child conversational turns**. And that those cross-turn **shared constructions** are the true precursors of the single-turn clauses that emerge in subsequent stages of child communication.**[FN 1]** To quote Ochs *et al.*'s conclusions:

> "...caretaker and child **together** construct a single proposition. We suggest that a child may learn how to articulate [full-formed] propositions through such a mechanism. That is, she may learn ho to encode propositions by participating in a sequence in which she contributes a component of the proposition... We may ask: To what extent is a child able to encode the proposition he wishes to convey in a single utterance?... Which dimension of the utterance context (verbal and/or nonverbal) does the child exploit...?..." (1979, pp. 267-268)

In this paper, I hope to show that such cross-turn "joint constructions" are copiously present in the early stages of acquisition of complex verb phrases. Much of the seeming disagreement turns out to hinges on a subtle point of methodology. Diessel and Tomasello tracked down the first appearance in the child's use of complex VPs such as:

(1) a. DEONTIC: I **want** to eat the apple.
    b. DEONTIC: **Let me** have a toy.
    c. EPISTEMIC: I **know (that)** it is broken.

They noted that when the child first produces such constructions, their semantic value is simplex, so that (1a) and (1b) are a simple, unitary **direct manipulative speech-acts** of *request,* and (1c) a simple, unitary **emphatic assertion** of 'It is broken'. Only later do the corresponding complex usages emerge, usually with non-SAP subject, as in respectively:+

(2) a. DEONTIC: She **wanted** to eat an apple.
    b. DEONTIC: He **let** him have the toy.
    b. EPISTEMIC: They **knew** (that) it was broken.

In such late uses, presumably, both the main and complement propositions have independent semantic values.

      But--do the simplex constructions in (1) have precursors at an *earlier* stage, when the child is not yet using these constructions in their full-ledged form? What I propose to show here is that cross-turn sharing of complex constructions, *a la* Ervin-Tripp, Scollon and Ochs *et al*, is the real precursor of the early-stage child usage in (1). Such cross-turn sharing of complex structures is amply present in the data base (CHILDES transcripts) studied by Diessel and Tomasello. But in order to identify such paratactic precursors, one must look not only at single utterances produced by the child, but at larger chunks of multi-turn interactions between the child and adult.

Another topic that begs some discussion is Diessel and Tomaesello's characterization of the **adult standard** for complex VPs, the benchmark children reach later in development. They view the adult standard--the child's target construction--as consisting of two semantically independent clauses, and their observations (i), (ii) and (iii) pertain only to early child language.

The characterization of adult complex-VPs as consisting of two independent propositions, prevalent ever since Chomsky's early transformational work, has been challenged head-on by Sandy Thompson (2002; see also Thompson and Mulac 1991; Boye and Harder 2007). Along the same lines, I would like suggest that the whole rationale for the use of deontic and epistemic main verbs in complex verb phrases is, to begin with, to create **deontic and epistemic modal envelopes** on the complement proposition. In adult as in child usage, the non-modal 'two-propositions' use of such constructions is a secondary late development, and does not characterize the bulk of everyday usage. This is a complex argument, involving both the diachrony of modal development (Hopper and Traugott 1983; Heine et al. 1991; Heine and Kuteva 2007) and the question of what text-type--or **communication type**--is the benchmark--**prototype**--of human language. At the very least, I would like to show that the pattern of adult usage of complement-taking main verbs does not differ significantly from that of early childhood. And further, that non-academic, non-philosophical oral language conforms, substantially, to Diessel and Tomasello's description of the early child modal development stage.

2. **Data-base**

The transcripts of child-adult communication studied here were selected from the CHILDES data-base, courtesy of Brian MacWhinney.**[FN 2]** This is the same data-base studied by Diessel (2005), with two of the three English-speaking children (Naomi, Nina) also appearing in Diessel's (2005) 5-children sample, and one (Eve) added. For each child, three developmental stages were selected be informal criteria. In stage-I, very few examples of complex verb phrases are found. In stage-II, more. In stage-III, many more. Approximately 60 printed pages of CHILDES transcripts were studied for each child at each stage, aiming for contiguous single recording sessions whenever possible. Since the original transcripts on hard disk are often un-paginated, page numbers for later reference were added after the printing. In the case of Naomi's stages I and II, multiple recording sessions were combined to make up the aimed-for bulk. **[FN 3]**

3. **Modal interaction units**

3.1. **Simple modal interactions**

The use of deontic and epistemic main verbs as modal operators on complement propositions does not occur in a communicative vacuum. To appreciate how such constructions are used, one must inspect the **adaptive-communicative goal context** within which they are embedded. I will call these contexts in child-adult communication **modal interaction units** (MIUs*).* If the CHILDES transcripts are any indication, such units can be broadly classify as carrying either epistemic or deontic speech-act goals. By **epistemic** I mean, rather traditionally,

"pertaining to the facts of the world around us (including the transaction's participants)", as in (1c) above. By **deontic** I mean, just as traditionally, "pertaining to what I want you to do for me or what you want me to do for you", as in (1a,b) above.

What I have done with the ca. 60 pp. of CHILDES transcripts for each of the 3 children and each of the 3 developmental stages, is isolate and extract all the MIUs--coherent chunks of diadic communication--that surrounds each complex VP construction (or a cluster thereof) in the text, be they deontic or epistemic. Some of these MIUs are short and simple, and thus either purely deontic or purely epistemic. Examples of those are:

(3) **Simple modal interactions**
   a. **Deontic**: (Eve-I, p. 2)
     EVE: Napkin. (request)
     MOT: Oh, do you **want** a napkin too? (offer)

   b. **Deontic**: (Eve-I, p. p. 3)
     EVE: Fraser blow nose, blow nose. (request)
     MOT: Wipe your nose? **Can** you blow? (offer)

   c. **Deontic**: (Eve-I, p. 15-16)
     EVE: Bottle. (request)
     MOT: What? (request for interpretation)
     EVE: Eve... (request)
     MOT: Do you **want** to taste it? (offer)
        Let's see if Sarah **would like** to **have** a drink (manipulation)
     EVE: Eve **want** some too. (request)

   d. **Epistemic**: (Eve-I, p. 57)
     EVE: Eating bread too. (observation of facts)
     MOT: She's eating bread too, I **think**. (quantification of facts)

   e. **Epistemic**: (Eve-I, p. 59)
     FAT: What **are** you doing? (question of facts)
     EVE: Have shower hat. (statement of facts)
     FAT: Well, I **know** you **are** wearing a shower hat. (quantification of facts)
        EVE: Eve wear-**ing** shower hat. (statement of fact)

f. **Epistemic**: (Eve-I, pp. 55-56)

EVE: Got [=dog] bark-**ing**.	(statement of fact)
RIC: He got what?	(question; mis-communication)
EVE: Got bark-**ing**. [x5]	(repeated statement of fact)
MOT: There's a dog barking outside... Yeah.	(interpretation of statement)
COL: I'm not **sure.** Yeah, I **think** it is.	(epistemic quantification)
I'm **sure** it is.	(epistemic quantification)
Instead of saying 'dog' she says 'got'	(resolving mis-communication)
EVE: Got eat-**ing** bread too.	(re-statement of fact)

With one conspicuous exception ('Eve **want** some too' (3c)), all the complex epistemic and deontic constructions in (3) are contributed by the adult. But whoever contributes them, these complex grammatical constructions are embedded inside a **modal-interactive context**, an envelope within which--and through which--the two participant strive to take care of their deontic or epistemic goals, or resolve their epistemic or deontic conflicts. It is thus the entire multiple-turn MIU that should be counted as the **developmental precursor** for the child's eventual acquisition of the use of these complex syntactic structure--and thus of transacting in a more sophisticated, effective fashion deontic and epistemic negotiations. Such verbal sophistication is almost entirely absent in our Eve-I (age 1;9), Naomi-I (age 1;10) and Nina-I (age 1:11) transcripts.

The collaborative nature of these modal interaction is evident in the child's interspersed contribution, often mere fragments of the intended proposition/clause. Thus in (3c) above, Eve first contributes the object ('bottle'), then the subject ('Eve'). Only at the very end, after the mother has interpreted the deontic goal correctly and used the appropriate deontic verb ('Do you **want** to taste it?'), does Eve produce a full proposition ('Eve **want** some too'), albeit with a simplex use of the modal verb (nominal object rather than verbal complement).

3.2. **Complex modal interactions**

Often, especially in longer MIUs, the modal focus of the negotiation may shift in midstream. The change may involve:
- Who initiates, and thus controls, the interaction.
- Shift(s) of modality in mid-MIU by either interlocutor,
  weaving deontics into epistemics and vice versa.

The modal complexity of MIUs is more conspicuous in the later, stage-II or -III transcripts. Thus, consider (4) below, where the mother, rather characteristically, recruits an epistemic argument, together with its attendant modal-grammatical machinery--here two *quotative* verbs-- to settle the initial deontic conflict (Naomi-III, p. 4):

(4) EVE: Give me a diaper.   (request = DEONT)
     MOT: Yes, **I'll** get you a diaper, honey.   (promise = DEONT)
          You **let go** again.   (manipulation = DEONT)
          Okay, **want** to come down   (offer = DEONT)
          and get this diaper changed?
     NAO: No.   (refusal = DEONT)
     MOT: You **told** me about it, Nomi.   (past-quotative = EPIST)
          You **said**: "Mommy change my diaper".   (past-quotative = EPIST)
     NAO: Boom Mommy.   (utter disdain = DEONT)

But the child herself is quite capable of pulling the same trick, indeed of replying in modality-shifting kind, as in (Naomi-III, p. 51-52):

(5) NAO: I **want** to sit by the tape-recorder.   (request = DEONT)
     MOT: I'm **sorry**, you're too heavy.   (regretted facts = EPIST)
          and you' **re going** to break it.   (dire prediction = EPIST)
          Why don't we do something else?   (manipulation = DEONT)
     NAO: It'**s** not brok-**en**!   (counter statement of facts = EPIST)
     MOT: Well, you **are** breaking it now honey.   (counter statement of facts = EPIST)
          You **are** hurting it.   (counter statement of facts = EPIST)

The sweet child, verbally helpless just 4 months earlier, has learned well, indeed from a master, the subtle art of **modal fencing**. **[FN 4]** And the rapiers wielded in service of our modal goals--be they deontic or epistemic--are this relatively small group of complement-taking main verbs, the so called **modality** verbs, **manipulation** verbs, and **perception-cognition-utterance** verbs (Givón 2001, vol. 2). Ultimately, though, the mother's modal fencing skills in (5) are too much for her daughter.

3.3. **Boundaries of modal interaction unitss**

Sometimes the initial boundary of the MIU is not altogether obvious, especially in cases when a long interaction precedes the complex grammatical-modal form--without the use of any complex grammatical expressions in that preceding sequence. Thus consider (6) below, a lengthy and relatively conflict-free epistemic negotiation (Nina-I, p. 3):

(6) NIN: Big.   (statement of fact = EPIST)
     MOT: Yeah.   (agreement on facts = EPIST)
     NIN: Big crocodile.   (expanded statement of facts = EPIST)
     MOT: Big crocodile. It **sure** is.   (quantification of facts = EPIST)
     NIN: Rabbit   (topic shift; statement of new facts)

     ==
     NIN: Little rabbit.   (expanded statement of new facts = EPIST)
     MOT: That's a little rabbit.   (agreement on of facts = EPIST)
     NIN: On a bicycle.   (expanded statement of facts = EPIST)
     MOT: Oh, **is** the rabbit riding on the bicycle? (challenging question of facts = EPIST)
     NIN: Yeah.   (assent of facts = EPIST)
     MOT: What **is** the rabbit doing?   (question of facts = EPIST)
     EVE: Fall down.   (statement of facts = EPIST)

The second modal interaction in (6), involving the new topic (='rabbit') and the complex expression with the progressive auxiliary ('is'), may easily be detached from the first one (topic = 'crocodile'), marked with the epistemic quantifier 'be sure', without any loss of coherence to either.

In deciding the boundaries of MIUs, a cluster of criteria were considered, most salient among them:

- *Economy*: Are one or more complex modal-grammatical expressions clustered together naturally?
- C*ontextual relevance:* Is the immediate context more relevant than the distant one? How immediate is immediate?
- *Thematic coherence*: Is the thematic thread maintained or interrupted?

When these criteria come into conflict, they must be weighed--and sometimes weighted-- against each other. In this study I have elected, whenever possible, to not let modality discontinuity by itself--deontic-to-epistemic or epistemic-to-deontic shifts--be the sole motivation for inserting an MIU boundary, as long as the topical thread is not disrupted by the modal shift. This choice, I think, is well-supported by what we have noted above (4,5) about cross-modal shifting within an MIU.

Conversely, I consider a successful topic shift by either the adult or the child as a good grounds for inserting an terminal MIU boundary. This may be seen in Nina's abrupt shift in (6) above from 'crocodile' to 'rabbit'. Considerations of both topical and modal coherence thus form the bulk of my motivation for packaging MIUs the way I have.

3.4. **Identifying the child's speech-act intention**

In the early stages (I, II), the child's modal intention is often left unmarked. How does one, working from the CHILDES transcripts, determines the speech-act value of the child's oft-truncated utterance?**[FN 4]** The question can perhaps be recast by punting: How do the adult interlocutors guess, seemingly without fail, the child's modal intention?

The answer is that the adults seem to have little trouble, knowing the child intimately, and knowing the ongoing communicative goal-context. To illustrate how this transpires, consider the following series of short modal interactions. Each opens with a short, rather opaque initial modal move by the child, followed immediately by the adult's interpretation--most often accurate--of the child's speech-act intention; often followed then by the child's confirmation of the adult's modal interpretation (Eve-I):

(7) a. EVE: Oh **look**, my pencil.   (request?)
         MOT: There's one in the kitchen on the table counter. (stating relevant facts)
              There's one in the kitchen.   (stating relevant facts)
              You **may** have that one.   (offer)
         EVE: Write another pencil.   (confirmation of original goal)
                            (p. 1)

     b. EVE: Candy?   (request?)
         MOT: Candy? I **think** not.   (rejection)
         EVE: Candy.   (reiterated request)
         MOT: You have animal crackers on the table.   (counter offer)
                            (p. 1a)

     c. EVE: That Fraser pencil.   (statement of fact?)
         COL: **Can** you write?   (epistemic-modal question)
         EVE: Yeah.   (epistemic confirmation)
                            (p. 1a)

     d. EVE: Mom napkin.   (request?)
         MOT: Oh, d'you **want** a napkin too? There.   (offer)

     e. EVE: **Look** Fraser napkin.   (statement of facts?)
         COL: Yes. You' **ve** got one.   (agreement & added facts)
         EVE: There.   (agreement on facts)
                            (p. 2)

     f. EVE: Fraser blow nose, blow nose.   (request?)
         MOT: Wipe your nose?   (question on modal intent)
              Can you blow?   (counter offer)
              That's a good girl.   (reward for compliance)
                            (p. 3)

     g. EVE: Sit Pop lap.   (request?)
         FAT: You don't **want** to sit on my lap now.   (rejection)
              Tomorrow.   (counter offer)
         EVE: 'Morrow.   (acceptance of alternative)
                            (p. 3)

h. EVE: I put sugar in it.   (offer?)
  MOT: I had sugar in my coffee.   (incompatible facts)
    I don't **need** any more sugar.   (decline offer)
        (p. 4)

g. EVE: I brush-**ing**.   (statement of facts?)
  COL: What **are** you doing?   (question of facts)
  EVE: [???] brush-**ing**.   (re-statement of facts)
        (p. 5)

i. EVE: [???].   (uninterpretable utterance)
  MOT: Do what?   (request for interpreted)
  EVE: Self.   (request?)
  MOT: What? Oh, you **want** one yourself?   (offer)
  EVE: Eve get a Kleenex.   (restated request)
  MOT: Alright, take one.   (offer)
        (p. 8)

j. EVE: Fall down.   (statement of facts)
  MOT: I **know** you fell down.   (epistemic amplification of facts)
  EVE: That mine.   (topic change)
        (p. 17)

k. EVE: [???] fall.   (statement of facts?)
  MOT: It fell?   (question of epistemic intent)
    I don't **know** whether it did.   (amplification of epistemic uncertainty)
  EVE: It [???] fall down. Fall down   (restatement of fact?)
  EVE: Be a horsie.   (topic & modality shift; request?)
  MOT: Be a horsie. Okay.   (granting the request)
  EVE: Be a clip-clop.   (re-stating request)
        (p. 47-48)

l. EVE: Baby.   (statement of facts?)
  MOT: What' **s** Eve doing?   (question of facts)
  EVE: Carry-**ing** a baby.   (restatement of facts)
  MOT: Yeah.   (agreement on facts)
        (p. 43)

On the relatively rare occasion when the adult's interpretation of the child's opaque modal gambit is rejected by the child, negotiations may ensue, and may proceed till the issue is resolved. Thus consider (Eve-I):

(8) EVE: Get a spoon.   (request?)
      MOT: Hmm?   (incomprehension
      EVE: Got a spoon.   (statement of fact?)
      MOT: I **forgot** a spoon?   (epistemic interpretation)
           No, you don't get a spoon.   (deontic interpretation; denial of request)
           You don't **need** one.   (denial of request)

                          (p. 4)

      More often, in cases of confusion, the adult responds with a question to clarify the child's modal intention. This may be seen in (7f,g,h,k,l) above, as well as in (Eve-II):

(9) EVE: Fraser... Fraser [???] top.   (request?)
      COL: What do you **want** me to do?   (question about intent)
       EVE: Take the top [off].   (re-statement of request)
            Fraser open my tinker-toy [box].   (re-statement of request)
       COL: Okay.   (granting request)

                          (p. 24)

      As I hope to show later on, a fine-grained qualitative analysis of these modal interaction units   reveals   the   multiple   instances where   complex modal-grammatical expressions are assembled collaboratively across child-adult or adult-child conversational turns.

4. **What counts as complex modal/grammatical construction?**

      In his study, Diessel (2005) was rather strict about what counted as a complex verb-complement construction in the child. Thus, for example, several complex construction that fit the V-COMP syntactic pattern were not included; most conspicuously:

(10) a. **Serial-verb constructions**:   Let's **go** (and) have supper.
                                     Come (and) get it.
       b. **Cognate-object constructions**: **Have** a drink/a seat.
                                     Take a nap/a bath.
                                     Make a mistake/ a bad judgement.
                                     Give a lecture/a massage.
                                     Get a haircut/satisfaction

For the sake of completeness, the use of such constructions by both child and adult was included in this study.

      A more pressing reason for expanding the range of relevant constructions involves the facts that almost all deontic and epistemic verbs that take clausal complements also take simple nominal objects (Dixon 1991; Givon 1993, 2001). What is more, in both language diachrony

(Givón 2006; Heine and Kuteva 2007, 2008) and language ontogeny, the use of these verbs with nominal complements tends to precedes their use with verbal complements. At least in principle, such simplex uses of deontic and epistemic verbs in child language ought to be counted as **potential precursors** of the complex verbal version. What I hope to document here is that many modal MIUs reveal a rather flexible boundary between the simplex and complex uses of both child and adult. At this point I will illustrate this with only a few simple examples.

Our three children use 'want' and other modal verbs with nominal objects ('want-NP') long before they use them with verbal complements ('want-to-VP'). However, in almost all the early examples of their use of 'want-NP' in the CHILDES transcripts, a clear verbal interpretation of the nominal construction is possible, and indeed is natural. Thus, in the Naomi-I transcripts, 20 instances of 'want-NP' were recorded, as against only 3 of 'want-to-VP'. As characteristic examples, consider (Naomi-I):

(11) a. **'want'-NP**: **Want** toast.   (⊃ 'to eat'; p. 28)
                         Want juice.   (⊃ 'to drink'; p. 28)
                         Toast coming. I **want** it.   (⊃ 'to eat'; p. 30)
     b. **Want'-to-VP**:   **Wanna** get down. (p. 49)
                          Want hug.   (p. 51)
                          I **want** it hug.   (p. 51)

The last blend construction in (11b) is also found as an early stage of the diachronic development of verbal complements (Givón 1991; Heine and Kuteva 2007, 2008).

The text-frequency disparity between the nominal and clausal complement is somewhat reduced in the Naomi-II transcripts, albeit with too-small a sample: 4 'want'-NP vs. 2 'want-to-VP'. And it is further reduced in Naomi-III transcripts: 36 'want-NP' vs. 21 'want-to-VP', a veritable explosion of the latter.

The same can be said of epistemic verbs such as 'know', 'see' or 'look', although here the overall text-frequencies are much lower (an observation made by Diessel, 2005 and confirmed in this study). Thus for example, in the Nina-I transcripts, one finds 10 instances of the child's use of 'look-at-NP' or 'look-here/there', but only 2 instances of 'look' associated with a clausal complement (Nina-I):

(12) a. **'look'-at-NP:**   **Look** at Mommy. (p. 49)
                            Look at dolly book. (p. 49)
                            Look at dolly book. (p. 49)
                            Look at dolly book. (p. 49)
                            Look at dolly book here. (p. 49)
                            Look at this. Dolly book. (p. 49)
                            Look at dolly book here. (p. 49)
                            Look at dolly. (p. 49)
                            Look here. (p. 49)
                            Look. This way. (p. 49)

    b. **'look'-S**:   **Look**. Drink a dolly. (p. 42)
                         Look here' s Mommy book. (p. 49)

In either complement form in the early-stage transcripts, 'look' serves, equally well, as a grammaticalized epistemic speech-act marker of **directing attention**.

       The same distributional tendencies are observed with 'see', with the bulk of the examples involving the same epistemic speech-act function. Thus in the Nina-II transcripts, we find 3 examples of the child's use of 'see'-NP and only 1 of 'see'-S (Nina-II):

(13) a. **'see'-NP**: **Let** Snoopy **see** him. (p. 17)
                  Oh, you **want** to **see** it. (p. 25)
                  You **see** that in there? (p. 32)
    b. **'see'-S**:   **See** Snoopy has those feet. (p. 17)

       Finally, in the Nina-III transcripts, we find not a single instance of the child's use of 'see-NP', but 4 of 'see-S' in its various versions, again with the same epistemic speech-act function of directing attention (Nina-III):

(14) **'see'-S**: **See** what this is.   (p. 14)
                 See they knock the tree down. (p. 49)
                 Oh, **see** they move.   (p. 15-16)
                 And a ribbon in her hair. **See**.   (p. 43)

       Similar considerations can be applied to verbs such as 'have', 'make', 'take', 'get', 'go', 'come' and others, which can be used as auxiliary main verbs in complex modal constructions, but still appear at higher frequencies with nominal (or prepositional) objects in the early stages. Their early use with nominal objects is again, at least potentially, a developmental precursor to their later, complex-modal use in language ontogeny, much as it has shown to be in language diachrony.

       I have for these reasons elected to err on the side of inclusive caution, counting, in both adult and child, all the instances of verbs that *can* become modal operators over verbal or clausal al complements.

5. **The adaptive-ommunicative context: A quantitative analysis**

       In this section I will present four quantitative measures that probe into the general adaptive--communicative, functional, contextual--characteristics of the child-adult modal interactions found in our CHILDES transcripts. In the main, this opening foray into our conversational texts reveals the essential soundness of the way Diessel and Tomasello characterize the early child use of modal expressions. What it also reveals, however is that the adult is using, substantially, the very same modal structure as the child.

5.1. **Who takes the initiative for launching modal interaction?**

As noted earlier, each of our MIUs is launched by either the child or the adult, and either can initiate a modal change in mid-interaction. It was thus of interest to see who takes the initiative in launching a new modality. Fore this purpose, modal-initiative gestures were divided into into the two broad general types, **deontic-manipulative** and **epistemic-informative.** Under deontic-manipulative, I counted all direct here-and-now manipulative speech-acts, as well as expressions of intension-to-act in the immediate future. The latter may be considered, at least in the rearly-stages CHIDES transcripts, a species of *promise* or, occasionally, *warning* or *threat*. For example, in (15a,b,c) below the modal use of 'would-like', 'can't' and 'want' are clearly manipulative. But so are, in a fairly obvious way, the uses of 'be-gonna' and 'will' in (15d,e,f). Thus (Eve-II):

(15) a. MOT: **Would** you **like** a graham cracker? (offer)
      EVE: Yeah.   (p. 1)   (acceptance of offer)

    b. EVE: Sue, put my sweeper down.   (request)
      MOT: **Can't** you do it?   (rejection & counter-request)
      EVE: No.   (p. 9)   (refusal)

    c. EVE: Cromer...Fraser sit in chair.   (request)
      COL: Do you **want** me to sit over there?   (offer)
      EVE: In the chair.   (p. 15)   (reconfirmed request)

    d. MOT: **Are** you **gonna** sit at the table?   (request/invitation)
      EVE: No. (Eve-II, p. 1)   (refusal)

    e. EVE: That my box. **Look** that?   (protest; directing attention)
      MOT: I'**m goin**' to steal your box.   (immediate intent; threat?)
      EVE: What do-**ing**, Mom?   (question of facts; alarm?)
      MOT: I'**m going** to use your box. (p. 5)   (immediate intent)
    f. MOT: You lost two of them.   (statement of fact; blame)
      EVE: [???] lost two.   (re-statement of facts)
      MOT: I **think** I'**ll** just cut that off, Eve.   (manipulation, warning)
        It'**ll** be easier.   (softened manipulation)
        Wait a second.   (manipulation)
      EVE: **Think** [???] cut that off. (Eve-II, p. 6-7) (echo of warning; promise?)

Under epistemic-informative I grouped 'present/progressive', 'past/perfect' and 'non-immediate future'. In the children's speech, the distinction between 'present' and 'progressive', or 'past' and perfect', is not easy to demonstrate, due to lack of grammatical marking. One could of course maintain that the context--the adult's directly-preceding turn--disambiguates the distinction.

Thus consider:

(16) a. MOT: Who is that?   (Q-PRES)
         EVE: That Jim.   (PRES)
         MOT: What' **s** he do-**ing**?   (Q-PROG)
         EVE: Jump-**ing**   (Eve-II, p. 47-48)   (PROG)

      b. MOT: What **is** Mommy do-**ing**?   (Q-PROG)
         NIN: Fix a dolly.   (PROG?)
         MOT: **Is** she fix-**ing** up dolly?   (Nina-I, p. 36) (Q-PROG)

        In (16a), the adult 'present' question is answered with the child's 'present' (unmarked) form, while the adult's 'progressive' question is answered with the child's suffixally-marked 'progressive' form. In (16b), the adult's 'progressive' question is answered be the child's unmarked form, which at this stage in Nina's speech may mark either present, past, future or progressive. In context, however there is no reason to assume that the intended meaning was not 'progressive'. For the purpose of the current measurement, the difference between 'present' and 'progressive' is not all that important, given that both are sub-species of here-and-now--**non-displaced   temporal reference**.

        Either initiating an MIU or initiating a mid-MIU modality change were counted as taking the modal initiative. Thus in (17) below, the child initiates the interaction and the same modality is maintained by both interlocutors throughout:

(17)   NAO: Fix.   (request)
       MOT: You **can** do it, honey.   (manipulation)
            You just **have** to be patient.   (manipulation)
       NAO: Fix. Fix.   (repeated request)
       MOT: Oh, get it in the right place   (manipulation)
            and then you **can** do it.   (manipulation)
       NAO: Fix.   (repeated request)
       MOT: Get it in the right place.   (manipulation)
            You don't **want** to break it.   (warning)
        NAO: Fix.   (Naomi-I, p. 22)   (request)

        In (18), on the other hand, the child initiates the interaction in a deontic mode (18a), the mother shifts to the epistemic ('perfect') in (18c), then immediately back to the deontic in (18d). The child then shifts to the epistemic in (18e) and then back to the deontic in (19f), which is maintained to the end of the interaction (Naomi-I):

(18) a. NAO: More juice.   (request)
    b. MOT: More juice?   (clarification of request)
    c.   The juice is almost **gone**.   (EPIST, PERF)
    d.   Want some vitamins, Naomi? (offer)
    e. NAO: All **gone**. All **gone**.   (EPIST, PERF)
    f.   More vitamin.   (request)
    g. MOT: Wait.   (manipulation)
    h. NAO: Sit. Juice. Mommy. I **want** it.   (manipulation)
                     (Naomi-I, p. 27)

Tables 1-3 below summarize the overall results of who takes the initiative and in what modality, for each child at all three developmental stages.

Table 1: **Modal initiator: Eve-I-II-II**

	Deontic					**Epistemic**						
Initiator	(IMM FUT)		PROG/PRES		PAST/PFV		FUT		TOTAL-E		TOTAL	
	N	%	N	%	N	%	N	%	N	%	N	%
I:												
ADULT	31	**68.8**	11	24.4	3	6.6	/	0.0	14	**31.2**	45	100.0
CHILD	55	**65.4**	21	25.0	9	10.7	/	0.0	30	**34.6**	84	100.0
II:												
ADULT	22	**56.4**	12	30.7	4	10.2	1	2.5	17	**43.6**	39	100.0
CHILD	41	**54.6**	28	37.3	5	6.6	1	1.3	34	**45.4**	75	100.0
III:												
ADULT	41	**60.2**	16	23.5	10	14.7	1	1.4	27	**39.8**	68	100.0
CHILD	40	**55.5**	29	40.2	3	4.1	/	0.0	32	**44.5**	72	100.0

Table 2. **Modal initiator: Naomi-I-II-II**

	Deontic		Epistemic									
Initiator	(IMM FUT)		PROG/PRES		PAST/PFV		FUT		TOTAL-E)		TOTAL	
	N	%	N	%	N	%	N	%	N	%	N	%
I:												
ADULT	58	**53.2**	39	**35.7**	10	**9.1**	2	1.8	51	**46.8**	109	100.0
CHILD	29	**34.9**	50	**60.2**	4	**4.8**	/	/	54	**65.1**	83	100.0
II:												
ADULT	17	**33.3**	23	45.1	11	21.5	/	/	34	**66.6**	51	100.0
CHILD	66	**49.3**	65	48.5	3	2.2	/	/	68	**50.7**	134	100.0
III:												
ADULT	30	**34.1**	29	32.9	20	22.7	9	10.3	58	**65.9**	88	100.0
CHILD	42	**46.1**	35	38.4	13	14.2	1	1.3	49	**53.9**	91	100.0

Table 3. **Modal initiator: Nina-I-II-III**

	Deontic		Epistemic									
Initiator	(IMM FUT)		PROG/PRES		PAST/PFV		FUT		TOTAL-E		TOTAL	
	N	%	N	%	N	%	N	%	N	%	N	%
I:												
ADULT	46	**46.4**	46	46.4	6	6.1	1	1.1	53	**53.5**	99	100.0
CHILD	41	**39.4**	58	55.7	5	4.8	/	/	63	**60.5**	104	100.0
II:												
ADULT	48	**35.8**	74	55.2	10	7.4	2	1.4	86	**64.1**	134	100.0
CHILD	88	**64.2**	46	33.5	3	2.1	/	/	49	**35.7**	137	100.0
III:												
ADULT	88	**41.8**	102	48.3	19	9.0	2	0.9	123	**58.2**	211	100.0
CHILD	49	**45.8**	43	40.1	11	10.2	4	3.7	58	**54.2**	107	100.0

While the numerical data is not amenable to inferential statistics, it appears that neither subject (Eve, Naomi, Nina) nor developmental stage (I, II, III) nor status (child vs. adult) set a trend. Overall, the child and adult seem to stand roughly on a par, first in terms of who takes the initiative, and second in terms of the balance between deontic and epistemic **modal goals** of the modal initiative.

5.2. **Spatio-Temporal displacement**

Early communicative modes, be they those of animals, 2nd language pidgin or early child language, are notoriously anchored in the intimate referential universe of here-and-now (Carter 1974; Bates *et al.* 1976). The following 3 tables (4-6) document this vividly about child communication at this early stage. Taking all MIUs in each transcript, all utterances ('clauses') bracketed by a period [.] were counted, including one-word utterances (except yes/no). The latter elliptic interjections take their semantic valuation anaphorically   from the preceding utterance, and would not have significantly changed the overall results. All deontic-manipulative utterances were counted as 'immediate-future'. And again, the difference between 'progressive' and 'present' for the child is not altogether reliable.

Table 4: **Temporal displacement: Eve-I-II-III**

	non-displaced (here& now)				displaced				
	PRES	PROG	IMM-FUT	TOT	PAST	PFV	FUT	TOT	% here & now
I:									
ADULT:	53	53	197	**303**	22	6	9	**37**	**89.1%**
CHILD	21	51	111	**183**	19	1	0	**21**	**89.7%**
II:									
ADULT:	94	29	94	**217**	22	16	7	**45**	**82.8%**
CHILD	75	25	101	**201**	14	7	8	**29**	**87.3%**
III:									
ADULT:	100	26	166	**292**	38	11	9	**58**	**83.4 %**
CHILD	38	20	136	**194**	21	4	5	**30**	**86.6 %**

Table 5: **Temporal displacement: Naomi-I-II-III**

| | non-displaced (here& now) | | | | displaced | | | | TOT | |
	PRES	PROG	IMM-FUT	TOT	PAST	PFV	FUT	TOT		% here & now
I:										
ADULT:	89	66	134	**289**	8	2	11	**21**	310	93.2%
CHILD	115	53	98	**266**	1	3	3	**7**	273	97.4%
II:										
ADULT:	50	54	84	**188**	20	/	/	**20**	208	90.3 %
CHILD	85	93	190	**368**	5	/	/	**5**	373	98.6 %
III:										
ADULT:	74	36	121	**231**	50	2	27	**79**	310	74.5 %
CHILD	47	40	144	**278**	26	4	13	**43**	321	86.6 %

Table 6: **Temporal displacement: Nina-I-II-III**

| | non-displaced (here& now) | | | | displaced | | | | TOT | |
	PRES	PROG	IMM-FUT	TOT	PAST	PFV	FUT	TOT	TOT	% here & now
I:										
ADULT:	131	124	161	**416**	17	2	/	**19**	435	95.6%
CHILD	160	29	113	**302**	7	4	/	**11**	313	96.4%
II:										
ADULT:	163	52	178	**393**	22	3	10	**35**	428	91.8 %
CHILD	114	22	224	**360**	8	3	3	**14**	374	96.2 %
III:										
ADULT:	193	63	157	**413**	50	4	15	69	**482**	85.6 %
CHILD	111	48	146	**305**	35	/	17	52	**357**	85.4 %

In all three subjects/diads, at all three stages, the discourse is predominantly here-and-now oriented. This is consonant with Diessel and Tomasello's observation that the child's modal grammatical devices are used, overwhelmingly, to mark **direct deontic or epistemic speech-acts**. But in all three children there seems to be a drop in the percent of here-and-now temporal reference in the last stage (III). Most important, across diads and stages, the adult discourse is just as here-and-now oriented as the child's. This is consonant with my suggestion that the grammatical modality markers are used by the adult--at least in these transcripts--in very much the same way as by the child. Though the adults may be adjusting to the children and down-shifting.

5.3. **Speech-act value**

We have already seen the high prevalence of deontic interactions is our transcripts. Next, we focus more narrowly on the **speech -act value** of all utterances, dividing them between those that carry a **deontic-manipulative** intent and those that have an **informative**--either declarative or interrogative --intent. This determination is not bound by grammatical marking, since as noted earlier above, the child's utterances at these early stages are often elliptic and grammatically unmarked, so that their modal intent is determined--by the adult interlocutor as well by the researcher--from the immediate discourse context. And further, many of the adult's manipulative gestures are so-called **indirect speech-acts**, using either the declarative or interrogative grammatical form. Tables 7-9 below summarize the numerical results.

Table 7: **Speech-act distribution: Eve-I-II-III**

Speech act

		deontic		epistemic					
		Manip.		Declar		Question		TOTAL	
		N	%	N	%	N	%	N	%
I:	ADU:	175	**47.5**	102	27.7	91	24.4	368	100.0
	CHI:	124	**50.0**	119	47.9	5	**2.1**	248	100.0
II:	ADU:	35	**14.3**	120	49.1	89	36.6	244	100.0
	CHI:	63	**24.9**	169	66.7	20	**8.4**	253	100.0
III:	ADU:	78	**21.1**	161	43.5	130	35.5	369	100.0
	CHI:	104	**35.3**	148	50.5	42	**14.5**	294	100.0

Table 8: **Speech-ACT distribution: Naomi-I-II-III**

Speech act

		deontic		epistemic					
		Manip.		Declar		Question		TOTAL	
		N	%	N	%	N	%	N	%
I:	ADU:	128	**38.6**	127	38.9	71	22.5	326	100.0
	CHI:	97	**33.6**	166	57.6	25	**8.8**	288	100.0
II:	ADU:	68	**32.8**	97	46.8	42	20.4	207	100.0
	CHI:	116	**31.1**	176	44.9	80	**24.0**	372	100.0
III:	ADU:	68	**22.0**	129	41.8	109	36.2	308	100.0
	CHI:	106	**36.1**	137	46.7	50	**17.2**	293	100.0

Table 9: **Speech-ACT distribution: Nina-I-II-III**

Speech act

		epistemic		deontic					
		Manip.		Declar.		Question		TOTAL	
		N	%	N	%	N	%	N	%
I:	ADU:	155	**35.5**	107	24.5	174	40.0	436	100.0
	CHI:	110	**31.7**	231	66.7	5	**1.6**	346	100.0
II:	ADU:	181	**42.4**	113	26.5	132	30.1	426	100.0
	CHI:	215	**58.2**	137	37.1	17	**4.7**	369	100.0
III:	ADU:	131	**26.2**	145	29.0	223	44.8	499	100.0
	CHI:	110	**30.6**	184	51.2	65	**18.2**	359	100.0

With much cross-diad and cross-stage variation, two trends seem to emerge out of these measures. First, within bounds, the child and adult use manipulative speech-act at a similar rate, ranging in the 20-50 percentile. And second, the children lag behind the adults, rather conspicuously, in producing **interrogative speech-acts**, although their usage rises slowly toward the last stage (III).

5.4. **The subject of modal expressions**

Another known characteristics of early childhood speech is that it is mostly about the **speech-act participants**--speaker and hearer. This is indeed strongly implicit in Diessel and Tomasello's observations about the child use of grammatically-coded modalities. To demonstrate this, I counted the subjects of all grammatically-marked deontic or epistemic 'higher verbs' within all MIUs, dividing them into 1st/2nd person vs. 3rd person.

As we shall see later on, there is a strong correlation between reference to 3rd person subjects and extension of modal-verb usage from marking direct speech-act (Diessel and Tomasello's early child stage) to mere epistemic description (their observed use in late-stage child and presumed adult standard). What is striking about our results, once again, is the virtual identity of the child and adult text-distribution patterns. Tables 10-12 below summarize the numerical distributions.

Table 10: **1st-2nd vs. 3rd pers. subject: Eve-i-II-III**

		Deontic						Epistemic				
		person						person				
SUBJECT:		1-2		3		TOT		1-2		3		TOT
		N	%	N	%	N	%	N	%	N	%	N	%
I:													
	ADULT:	142	**87.6**	20	12.3	162	100.0	52	**71.2**	21	28.8	73	100.0
	CHILD:	20	**83.3**	4	16.6	24	100.0	14	**87.5**	2	12.5	16	100.0
II:													
	ADULT:	62	**88.5**	8	11.5	70	100.0	42	**66.6**	21	33.4	63	100.0
	CHILD:	32	**100.0**	/	/	32	100.0	7	**87.5**	1	12.5	8	100.0
III:													
	ADULT:	122	**87.5**	17	12.5	139	100.0	58	**93.5**	4	6.5	62	100.0
	CHILD:	46	**73.0**	17	17.0	63	100.0	5	**50.0**	5	50.0	10	100.0

Table 11: **1st-2nd vs. 3rd pers. subject: Naomi-I-II-III**

	Deontic						Epistemic					
	person						person					
SUBJECT:	1-2		3		TOT		1-2		3		TOT	
	N	%	N	%	N	%	N	%	N	%	N	%
I:												
ADULT:	123	**86.0**	17	14.0	143	100.0	110	**68.7**	50	31.3	160	100.0
CHILD:	53	**98.1**	1	1.9	54	100.0	14	**60.8**	9	39.2	23	100.0
II:												
ADULT:	54	**94.7**	3	5.3	57	100.0	82	**82.0**	18	18.0	100	100.0
CHILD:	94	**92.1**	8	7.9	102	100.0	42	**66.6**	21	33.4	63	100.0
III:												
ADULT:	96	**88.8**	12	11.2	108	100.0	111	**84.1**	21	15.9	132	100.0
CHILD:	104	**98.1**	2	1.8	106	100.0	66	**88.0**	9	12.0	75	100.0

Table 12: **1st-2nd vs. 3rd pers. subject: Nina-I-II-III**

	Deontic						Epistemic					
SUBJECT:	1-2		3		TOT		1-2		3		TOT	
	N	%	N	%	N	%	N	%	N	%	N	%
I:												
ADULT:	177	**100.0**	/	/	177	100.0	81	**30.6**	183	69.4	264	100.0
CHILD:	118	**99.1**	1	0.9	119	100.0	19	**9.2**	186	90.8	205	100.0
II:												
ADULT:	177	**91.7**	15	8.3	193	100.0	133	**63.0**	78	37.0	211	100.0
CHILD:	97	**90.6**	10	9.4	107	100.0	42	**64.6**	23	35.4	65	100.0
III:												
ADULT:	122	**79.2**	32	20.8	154	100.0	158	**59.3**	107	40.7	256	100.0
CHILD:	69	**73.4**	25	26.6	94	100.0	40	**43.9**	51	56.1	91	100.0

While there is again a considerable amount of fluctuation in the numerical values, two trends seem to emerge. First, he percent of 1st/2nd person subject in epistemic-modal clauses is almost always lower than in deontic ones. And second, the modal behavior of the child and adult is once again remarkably similar.

If one were to summarize the broad characterization of modal behavior in the CHILDES transcripts, or at least in the modal interactions that form the communicative context for grammatically-marked complex-VP expressions, one would have to say that Diessel and Tomasello's observation are upheld, but that the adults in this communicative context behave essentially like the children. As we shall see further below, this observation can be extended further.

6. **Modality-marking grammatical devices**

6.1. **General considerations**

We come now to the structural core of this study--the classification and quantification of the modality-marking grammatical devices used by the child and adult in their modal interactions. While the rough division into deontic and epistemic holds in the main, it needs some refinement. The general division of modality-marking verbs into three major syntactic classes still holds (Givón 2001, ch. 12; Diessel 2005). For English: (i) **Modality verbs** ('want to do it') take an equi-subject non-finite. complement. (ii) **Manipulation verbs** ('make someone do it') take an nominal object-manipulee and an equi-object non-finite complement. (iii) **Perception-cognition-utterance verbs** ('know that someone did it') take finite complements. Broadly, one finds most deontic modal operators distributing in the first two groups, and most of the epistemic ones in the third. But many exceptions to and refinements of this general classification must be taken into account.

To begin with, we need to distinguish between the *potential* deontic use of a modal expression, and the *actual use* of such an expression a as a **direct manipulative speech-act**. Consider for example (19a,b) below, where both the child and adult use 'want' as a direct-manipulative speech act (Nina-III):

(19) a. MOT: Here' s another fence.   (offer)
         NIN: **Want** another fence.   [p. 25] (request)

   b. NIN: Many other fence?   (request)
       MOT: **Want** to build some more fences? [p. 25]   (offer)

In contrast, in both (20a, b) the child and the adult use 'want' as a description of 3rd-person volition, embedded in largely epistemic MIUs (Nina-III):

(20) a. NIN: Where, where can't [= 'can'] this go in the hole?   (FUT-HYPOTH)
Oh there. If they get out of there [,] these things.   (FUT-HYPOTH)
Oh, they **want** to get out of there.   (PRES-VOLIT)
MOT: What happened?   [p. 45-46]   (PAST)

  b. MOT: What's on the wall of the station?   (Q-PRES)
NIN: A apple.   (PRES)
MOT: No, that's a clock.   (PRES)
NIN: Who are [???]?   (Q-PRES)
MOT: People **want** to know what time it is.   [p. 52]   (PRES-VOLIT)

The correlation   between person (1st/2nd vs. 3rd)   and speech-act (manipulative vs. descriptive, respectively) is very strong but not absolute, at least not for the child. Thus, for example, in (21) below Nina uses a 3rd-person 'want' in a clear request speech-act context, a natural over-generalization from the much-more-common deontic-manipulative use of the verb (Nina-III):

(21)   NIN: I forgot [to put] some more sticks in this, in this...   (PAST)
Two sticks **wanna** go in this truck.   (request)
MOT: Well, we' **ll have** to take some things out.   p. 47]   (manipulation)

The same two-way modal potential is found in the use of modal auxiliaries by both adult and child. Thus in (22a,b), both the child and adult use 'can' to mark a direct speech-act of manipulation (Nina-III):

(22) a. NIN: A dog cookie.   (request)
After he eats that one,
can I, **can** I give him give him another one?   (request)
MOT: Do you **think** he' **d like** to eat another one? [p. 1] (Q-FUT/HYPOTH)

  b. NIN: A banana.   (request)
MOT: Oh, **can** you make him eat a banana?   [p. 3]   (manipulation)

In (23a,b), on the other hand, both child and adult use 'can' as a **description of ability**, not surprisingly involving a 3rd person subject in an epistemic context (Nina-III):

(23) a. MOT: What's that?   (Q-PRES)
NIN: A circle.   (PRES)
MOT: Is that the right place for it?   (Q-PRES)
NIN: Where **can** the other one go?   [p. 30-31]   (Q-PRES/POSSIB)

b. MOT: What's he doing?   (Q-PRES)
   NIN: Swing one one...   (PRES)
   MOT: What about this man?   (Q-PRES)
       Do you **think** he **can** hang by your magnet?   p. 22]   (Q-PRES/ABIL)

      A similar potential for such variation may be seen in the use of 'want-NP' and 'have-to-VP'. On the other hand, aspectual operators such as the progressive 'be', the perfect 'have', or the perfective 'finish-to-VP' and '(be all) gone' are clearly used only in an epistemic sense.
      The situation is a bit more simple with the use of manipulation ('causative') verbs in the CHILDES transcripts. Only two of those are use in any frequency, and they split down the modal line: 'let' (and at a much lower frequency 'want') is used by both child and adult only in **direct-manipulative** speech-act, with 1ˢᵗ or 2ⁿᵈ person subject, as in (24a,b) below. And 'make' is used, by both, primarily as a **description of manipulation/causation**, as in (24c,d)--even with 1st-2nd person subject. Thus (Nina-III):

(24) a. NIN: Yeah, **let me** give that to Poy now. I **want**...   (request)
     MOT: What do you **want** to do?   (solicitation)
     NIN: I **wanna** give that to Poy now. [p. 1-2]   (request)

   b. MOT: **Let's** set up a big village here.   (manipulation)
     NIN: Okay, **let's** do so.   [p. 11-12]   (consent/request)

   c. MOT: What did you do?   (Q-PAST
     NIN: I **make** the little bounce like a ball.   (PAST, CAUS)
       I did it, Mommy.   [p. 28]   (PAST)

   d. NIN: Where's the gas?   (Q-PRES)
     MOT: Gas is what **makes** my car run.   (PRES; CAUS)
     NIN: Oh.   [p. 28-29)

      The same potential for double-usage exists in several perception-cognition-utterance verbs, most conspicuously 'know', 'think', 'guess', 'say, 'look' and 'see' '. But since, as Diessel (2005) has noted, these verbs are acquired much later, most of the usage in our transcripts--by both child and adult--involves **epistemic quantification** of the complement clause, with 1st-2nd person subject (Diessel and Tomasello's 'grammaticalized' early-stage usage). Most commonly, 'know' and 'think' are used in cases of **epistemic uncertainty or conflict**. Thus consider (Nina-III):

(25) a. MOT: What colors are rabbits usually?   (Q-PRES)
              Do you **know**?   (Q-PRES, EPIST)
          NIN: Yup.   (PRES)
          MOT: What color?   (Q-PRES)
          NIN: Red. Blue.   (PRES)
          MOT: No, they're white.   (PRES)
          NIN: Or red and blue.   (PRES)
              You **know** that together, Mommy. [p. 32-33]   (PRES)

      b. MOT: **Is** she **gonna** put what on her hair?   (Q-FUT)
          NIN: Her ribbon on her hair.   (FUT)
          MOT: I don't **know**.   [p. 41]   (PRES, EPIST)

      c. NIN: Any more sticks?   (Q-PRES)
          MOT: I don't **think** so.   [p. 18]   (PRES, EPIST)

      d. MOT: Her ears are near her earrings, right?   (PRES)
          NIN: Yup. Let me see.   (PRES); (request)
          MOT: Oh, I **guess** she really doesn't have ears.   (PRES, EPIST)
                                                          [p. 41-42]

Many of these are also terrific examples of **cross-turn sharing** of complex constructions.
        The perception verbs 'look', 'see' and 'feel' are used, at high frequency, as markers for the speech-act of **directing attention**. The attention is mostly visual with 'look', but often not strictly visual with 'see'. Again, most typically such usages involve a 2nd person subject (imperative form). Thus (Nina-III):

(26) a. NIN: He's, he's eating a banana.   (PROG)
          MOT: He is? My goodness.   (PROG)
          NIN: **Look** at poy.   [p. 3]   (direct-attention)>(PRES)

      b. MOT: What soft material.   (PRES)
                Feel how soft it feels.   (direct-attention)>(PRES)
          NIN: And her hair.   (PRES)
          MOT: That's a...   (PRES)
          NIN: And a ribbon in her hair. **See**? [p. 43]   (PRES)<(direct-attention)

      c. NIN: The wheels don't move.   (PRES)
          MOT: No, I **guess** not.   (PRES, CONCESSION)
          NIN: Oh **see** they move.   (direct-attention)>(PRES)
          MOT: Oh, they do?   [p. 15-16]   (Q-PRES)

   d. NIN; Who goes in this little house?   (Q-PRES)
        MOT: All the animals go in there.   (PRES)
            See, this man is called Noah.   (direct-attention)>PRES
        NIN: Oh. What is he doing with the animals? [p. 53] (Q-PROG)

   e. MOT: **Look**. What is the clown doing?   (direct-attention)>(Q-PROG)
            Look, look at the clown, Nina.   (direct-attention)>(PRES)
        NIN: Oh.
        MOT: **Look** at him.   (direct-attention)>(PRES)
            See what he's doing.   (direct-attention)>(PROG)
            Can you **see**?   (direct-attention)
        NIN: Yup.
        MOT: **Look** at the funny clown.   (direct-attention)>PRES
            You don't **see** him.   (PRES; complaint of inattention)
            Look what I made him do?   (direct-attention)>(PAST?)
            See, Nina?   (direct-attention)
            Look. What's he doing?   [p. 18]   (direct attention)>(PROG)

      All such uses of perception verbs, in spite of being themselves direct-manipulative speech-acts, are embedded in highly epistemic contexts. The later expansion of their use into non-direct epistemic modulation is driven, presumably, by their epistemic adaptive context.

6.2. **Stage I**

      Tables 13 and 14 below presents the distribution of uses of all types of complex modal expressions by the child and adult, respectively, in the Eve-I transcripts, together with representative examples embedded in their MIU contexts.

Table 13: **EVE-I: Distribution of child use of complex modal expressions**

(a) **Equi-subject modality:**
   'can'-VP: **Non-deontic**: (1)
            EX: MOT: And [when] Sarh's a big girl, so **can** she. (FUT/ABIL)
               EVE: So **can** she. [p. 23-24]   (FUT/ABIL)
   '(be)-gonna'-VP: **Deontic-manipulative**: (1)
             EX: EVE: 'Sue **gon** read Lassie'   (request; Sue = You)
               MOT: 'I'm not **gonna** read Lassie'. [p. 9] (refusal)
           Epistemic-future: (2)
            EX: EVE: She **goin** burp.   (FUT)
               MOT: What?   (Q)
               EVE: She' **s goin** burp.   (FUT)
               MOT: She **gonna** burp.   (FUT)
                   She **has** to have milk first. [p. 14] (OBLIG)

'have-(to)-VP: **Deontic-manipulative**:   (1)

             EX: EVE: Drink gain.   (request)
                MOT: After Sarah has a turn.   (deferral)
                EVE: Eve have it.   (request)
                MOT: Yes, you **can** have it,   (permit)
                    but you **have** to wait   (oblig.)
                EVE: **Have** to wait.   [p. 31]   (oblig)

'wanna'-VP: **Deontic-manipulative**:   (4)

            EX: MOT: You write on Eve's paper.   (manip.)
               EVE: No.   (refuse)
               MOT: Look here's a lot of paper....   (offer)
               EVE: **Wanna** write Fraser paper... [p. 36]   (demand)

(b) **Equi-object manipulative**:

  'let'-NP-VP: **Deontic-manipulative**: (1)

            EX: EVE: Get a stool.   (request)
               MOT: Get the cup, please   (manip.)
                    and I **'ll** pour it.   (offer)
                    Bring the cup, eve.   (manip.)
               EVE: **Let me** have it.   [p. 41]   (request)

  'help'-NP-(VP):   **Deontic manipulative:**   (1)

            EX: EVE: Sue **help** Eve.   (request)
               MOT: **Help** Eve do what?   (solicit/offer)
               EVE: Radiator.   (request)
               MOT: Oh, you wanna sleep on the radiator? [p. 44]   (offer)

(c) **Epistemic**:   (none attested)

Table 14: **Eve-I: Distribution of adult use of complex modal expressions**

(a) **Equi-subject modality:**

  'will'-VP: **Deontic-manipulative**: (41)

            EX: EVE: Fraser wipe Eve nose 'gain.   (request)
               MOT: Come here. Mommy' ll wipe your nose. [p. 5]   (offer)

  'can'-VP: **Deontic-manipulative**: (9)

           EX: EVE: Eve have it.   (request)
               MOT: Yes, you can have it...   [p. 31]   (permit)
         Non-manipulative: (4)
           EX: MOT: And [when] Sarh's a big girl,   (FUT)
                   so **can** she.   [p. 23-24]   (FUT/ABIL)

'may'-VP: **Deontic-manipulative**: (5)
   EX: EVE: Look, oh, my pencil.   (request)
    MOT: There's one in the kitchen.   (PRES)
      You **may** have that one. [p. 1] (offer)
'want'-NP/WH: **Deontic-manipulative**: (11)
    EX: EVE: Napkin.   (request)
     MOT: Oh, do you **want** a napkin too? [p. 2] (offer)
'want-VP: **Deontic-manipulative**: (9)
   EX: EVE: Cracker on table.   (request)
    MOT: Oh, you **want** to have a cracker on the table? [p. 25] (offer)
'would-like'-NP: Deontic-manipulative (2)
    EX: MOT: **Would** you **like** some fruit?   (offer)
     EVE: No.   [p. 64] (refuse)
'would-like'-to-VP: **Deontic-manipulative**: (7)
    EX: MOT: **Would** you **like** to have your lunch now? (offer)
     EVE: No.   [p. 14-15] (refuse)
'know-how'-to-VP: **Non-manipulative**: (1)
    EX: EVE: Baby Sarah.   (PRES)
     MOT: She doesn't **know how** to drink out of a glass. [p. 17] (PRES)
'like'-NP: **Deontic-manipulative**: (2)
    EX: MOT: **Would** you **like** to have some lunch?   (offer)
     EVE: No.   (refuse)
     MOT: Papa will fix you one if you **like**. [p. 24] (offer)
   Non-manipulative: (2)
    EX: MOT: Is that good?   (Q-PRES)
     EVE: Yeah.   (PRES)
     MOT: D'you **like** it? [p. 22] (PRES)
'need'-NP: **Deontic-manipulative:** (3)
    EX: EVE: [For]got a spoon.   (PAST)/(request?)
    MOT: I forgot a spoon?   (Q-PAST)
      No, you don't **get** a spoon. (refuse)
      You don't **need** one. [p. 4] (refuse)
'supposed'-to-VP: **Non-manipulative**(?): (1)
    EX: EVE: That Fraser spoon.   (PRES)
     MOT: Thank you.
      What am I **supposed** to do with it?' [p. 57] (FUT?)/(solicit?)
'try'-NP/VP/elliptic: **Deontic-manipulative**: (2)
    EX: MOT: Not very good. No.   (PRES)
     EVE: I **try** again.   (offer/intent)
     MOT: **Try** again.   (manip)
      Well, what **are** you **trying** to do? [p. 21] (Q-PROG)
    Non-manipulative: (1) (see directly above)

'(be)gonna'-VP: **Deontic-Manipulative:**   (8)

          EX: EVE: Sue read Lassie.   (request)

            MOT: No, Mommy' **s** not **gonna** read Lassie. [p. 12] (refuse)

        Non-manipulative: (4)

        EX: EVE: She **goin** burp.   (FUT/imminent)

          MOT: She **gonna** burp. [p. 14]   (FUT/imminent)

'go-and-V' (serial): **Deontic-manipulative**: (3)

          EX: FAT: You **go** eat your lunch. [p. 61]   (manip.)

'why don't you'-VP: **Deontic-manipulative**: (2)

          EX: MOT: **Why don't we** have lunch?   (manip)

           EVE: Drinking. [p. 20]   (request)

(b) **Cognate object (V-NOM) constructions**:

   'have'-NOM: **Manipulative context**: (12)

          EX: EVE: Eve **have** drink of milk.   (request)

           MOT: After Sarah **has** a turn. [p. 29] (refuse)

(c) **Equi-object manipulation (causative):**

   'let'-NP-VP: **Deontic-manipulative** (3)

         EX: MOT: Is your grape juice all gone?   (Q-PERFV)

          EVE: Yeah.   (PERFV)

          MOT: Okay, **let's** wipe your face then. [p. 7] (manip)

   'get'-NP-to-VP: **Non-manipulative(?)**: (1)

         EX: EVE: [???] Eve ring.   (request)

          MOT: You don't have a ring.   (PRES)/(refuse)

           When you **get** to be a lady,   (FUT)/(promise?)

            then you **can** have a ring. [p. 46] (promise)/(FUT)

   'help'-NP-VP: **Deontic manipulative:**   (1)

         EX: EVE: Sue **help** Eve.   (request)

          MOT: **Help** Eve do what?   (solicit/offer)

          EVE: Radiator.   (request)

          MOT: Oh, you **wanna** sleep on the radiator? [p. 44] (offer)

   'leave'-NP-VP: **Deontic-manipulative**: (4)

         EX: MOT: You **want** me to smack you?   (warning)

          EVE: No.   (rejection)

          MOT: Then put it away.   (manip.)

           Don't touch it again   (manip)

           Leave it lay right there.   (manip)

           Leave it alone.   [p. 50]   (manip)

'want'-NP-to-VP: **Deontic-manipulative**: (2)
        EX: EVE: [???].   (request)
          MOT: Do what?   (solicit)
          EVE: [???]-ing Eve.   (request)
          MOT: What do you **want** me to do? [p. 45-46] (solicit)

(d) **Perception-epistemic:**
  'see'-NP: **direct-attention**:   (4)
          EX: MOT: Where is the penny?   (Q-PRES)
              EVE: [???] fall down floor.   (PAST)
              MOT: There it is.   (direct-attention)
                I **see** it, by the table.   (direct-attention)
                On the floor. **See** it? [p. 31]   (direct attention)
  'see'-if-S: **direct-attention**: (2)
          EX: MOT: **Wanna** go **see** if the coffee is read?   (manip.; direct-attention)
              EVE: Yep.   [p. 46]   (consent)

  'see'. S: **Direct-attention:** (2)
          EX: MOT: **See**. She's heavy. **See**. She's heavy.   [p. 43]   (direct-attention)
  'look-at'-NP: **Direct-attention**: (4)
            EX: EVE: **Look**, rocking-chair.   (direct-attention)
              MOT: It's moving again.   (PROG)
                Look at the rocking chair.   (direct-attention)
                It's doing it again.   (PROG)
                There is goes again.   (direct-attention)
              What is the rocking chair doing? [p. 4-5] (Q-PROG)
(d) **Cognition-epistemic**:
  'know'-if-S: **Epistemic-quantifier**: (1)
          EX: EVE: [???] fall.   (PAST)
              MOT: It fell?   (Q-PAST)
                I don't **know** whether it did. [p. 47] (EPIST-PAST)
  'know'-S: **Epistemic quantifier**: (2)
          EX: EVE: Fall down.   (PAST)
              MOT: I **know** you fell down. [p. 17] (EPIST-PAST)
  S, 'think': **Epistemic quantifier**: (1)
          EVE: Eating bread too.   (PROG)
          MOT: She's eating bread too, I **think**. [p. 57]   (EPIST-PROG)
  'think'-S: **Epistemic quantifier**: (2)
          EX: MOT: There's a dog barking outside. Yeah.   (PROG)
            COL: I'm not **sure**. Yeah, I **think** it is. I'm **sure** it is. [p. 56) (QUANT-PROG)
  'be-sure'-(S): **Epistemic quantifier**: (2) (see above)

In sum, at this early stage Eve's use of equi-subject modal expressions shows already some late-stage, non-manipulative (non-speech-act) uses of 'can' and 'be-gonna'. The use of 'have-to' and 'wanna' is 100% manipulative (direct speech-act). The use of equi-object manipulation/causation verbs is deontic-manipulative (direct speech-act), though the sample is small (only two examples of 'let' and 'help'). Eve shows no use of perception-cognition-utterance verbs at this early stage.

Eve's adult interlocutors, while capable of non-manipulative usage of equi-subject modal predicates, still favor, overwhelmingly, the manipulative direct speech-act use characteristic of early childhood: 41-0 for 'will', 9-4 for 'can', 5-0 for 'may', 20-0 for 'want', 7-0 for 'would like', 2-2 for 'like', 2-0 for 'try', 8-4 for 'be gonna', 3-0 for 'need', and 1-0 for 'be supposed to'. With equi-object manipulation verbs, the adult's usage ratio is just as skewed towards the direct manipulative speech-act: 10 direct-manipulatives vs. 1 descriptive-causative. Finally, with epistemic verbs, all 12 adult uses of perception verbs involve the direct speech-act of **attracting attention.** And all 8 uses of cognition verbs involve their use as **epistemic quantifiers** on the complement clause . The adult interlocutors in the Eve-I transcripts behave, on the whole, like the early-stage child in Diessel and Tomasello's description.

Table 15 and 16 below summarized the distribution of complex modal expressions and their deontic or epistemic uses, for the child and adult, respectively, in the Naomi-I transcripts.

Table 15: **NAOMI-I: Distribution of child use of complex modal expressions**

(a) **Equi-subject (modality) verbs**

```
'will'-VP:  Non-deontic:  (1)
          EX:  NAO:  Daddy.                            (PRES)
                MOT: Daddy's in Florida. In Florida.   (PRES)
                 He' ll be home tonight.               (FUT)
                NAO: Daddy will be home tonight. [p. 19] (FUT)
'can'-VP:  Deontic-manipulative(?): (1)
          EX: NAO: Closed door.                          (request)
                   More.                                 (request)
                   What's this?  What's this? What's this?  (Q-PRES)
                   Can't get [it] off.                   (request?)
                   Close door.                           (request)
              FAT: Close the door.      [p. 59]          (manip.)
'want'-NP: Deontic manipulative: (20)
          EX: MOT: Want some vitamins, Naomi?         (offer)
              NAO: All gone. All gone.                 (PERFV)
                   More vitamin.                       (request)
              MOT: Wait.                               (manip)
              NAO: Sit. Juice. Mommy. I want it. [p. 27]  (request)
```

'wanna'-VP: **Deontic-manipulative:** (3)

     EX: NAO: Sit. Get up. Hug.   (requests)

          Want hug.   (request)

          Want it hug.   (request)

     FAT: Do you **want** me to hug Georgie or Naomi? [p. 51] (solicit)

'go'-to-V: **Non-manipulative:** (1)

     EX: NAO: Mouse tired.   (PRES)

       MOT: Oh, does he **want** to **go** to sleep?   (Q-PRES/VOLIT)

       NAO: **Go** to sleep.   (PRES/VOLIT)

       MOT: Oh, I don't **think** so. [p. 2]   (PRES/EPIST)

'like'-NP: **Non-manipulative:** (2)

     EX: MOT: Naomi eat it.   (manip.)

       NAO: I **like** it. I **like** it.   (PRES/EVAL)

       MOT: It's good.   (PRES/EVAL)

       NAO: No.   [p. 32]   (PRES/EVAL)

'need'-NP: **Deontic-manipulative**: (7)

     EX: FAT: How are you doing Nomi?   (Q-PRES)/(solicit)

       NAO: Sugar. **Need** sugar. **Need** sugar on. (request)

       FAT: You need sugar?   (offer)

       NAO: Need sugar on. [p. 42]   (request)

'need'-VP: **Deontic-manipulative:** (1)

     EX: NAO: Leave it.   (request)

         I **need** cook.   (request)

         I **need** it. I **need** it.   [p. 45] (request)

(b) **Equi-OBJ (manipulation) verbs**

  'get'-NP: **Deontic-manipulative:** (7)

     EX: NAO: **Get** it. **Get** it. **Get**.   (request)

       MOT: What are you **getting**, honey?   (Q-PROG)/(solicit)

       NAO: **Getting** oof-oof. **Getting** woof.   (PROG)/(request)

       MOT: Getting off?   (Q-PROG; misinterpret)

       NAO: Oof-oof.   (clarification of request)

       MOT: What are you **getting**?   (Q-PROG)

        Are you **going** to get a doggie?   (Q-intent)/(solicit)

       NAO: **Get** doggie.   [p. 17]   (request/intent)

  'get'-NP-LOC: **Causative descriptive(?):** (1)

     EX: NAO: Closed door.   (request)

       More.   (request)

       What's this? What's this? What's this?   (Q-PRES)

       Can't **get** [it] off.   (request?)

       Close door.   (request)

     FAT: Close the door.   [p. 59]   (manip.)

'leave'-NP-(ADJ): **Deontic-manipulative:** (11)

                EX: NAO: Plate.   (PRES)

                FAT: An empty plate.   (PRES)

                NAO: Empty plate.

                      Leave it. **Leave** it. **Leave** it. **Leave** it.   (manip.)

                      Leave it alone. **Leave** it. **Leave** it alone. (manip.)

                      Leave it alone. Be careful. [p. 45-46]   (manip)

(c) **Perceptual-epistemic verbs**

  'see'-NP: **Direct-attention:** (2)

               EX: NAO: Sun. Sun coming. Sun coming.   (PROG)

                     Sun coming. Sun coming.   (PROG)

                 MOT: Yeah. It is getting bright.   (PROG)

                     Sun. **See** sun. Where sun? [p. 24]   (direct-attention)

  'S. 'see': **Direct-attention**: (1)

               EX: NAO: Eating aspirin. Mommy **see**.   (direct-attention)-(PROG)

                     More Juice. More Juice. More Juice. (request)

                     Eating. Eating. [p. 34]   (PROG)

  'listen' (ellipsis): **Descriptive**: (1)

               EX: FAT: What are you doing with the sea-shell? (Q-PROG)

                     Are you holding it over your ear?   (Q-PROG)

                 NAO: Holding hear.   (PROG)

                 FAT: Are you **listening**?   (Q-PROG)

                 NAO: **Listen**.   [p. 50]   (PROG)

(d) **Cognitive-epistemic verbs:**

  'think' (ellipsis) **Descriptive**: (1)

               EX: MOT: We're not doing it.   (PROG)

                     I'm just **thinking** [of putting N. to bed]. (PROG)

                 NAO: **Thinking**.   (PROG)

                 MOT: **Thinking**, yeah. With my head.   (PROG)

                     You **think** up there. [p. 20]   (manip.)

(e) **Evaluative-epistemic verbs:**

  'feel'-ADJ: **Self-evaluative**: (1)

               EX: NAO: I **feel** better.   (PRES)-(self-eval)

                 MOT: **Good**. That's **good**.   (PRES)-(eval)

                     I'm **glad** you **feel** better. [p. 35]   (PRES)-(self-eval)-(eval)

Table 16: **NAOMI-I: Distribution of adult use of complex modal expressions**

(a) **Equi-subject (modality) verbs**

  'will'-VP: **Deontic-manipulative**: (7)

            EX: MOT: Do you **want** to comb your hair, Naomi?   (offer)

                NAO: Comb hair.   (request)

                MOT: Mommy **will** get something for you   (offer)

                    to comb your hair.   [p. 18-19]

        Non-manipulative: (7)

        EX: MOT: Sailboats. [looking at picture]   (PRES)

           NAO: Sailboats.   (PRES)

           MOT: We' **ll** see a sailboat this summer. [p. 9]   (FUT)

  'would'-VP: **Deontic-manipulative**:   (1)

            EX: NAO: That's moon.   (PRES)

               MOT: That's not the moon, honey.   (PRES)

                 Would you please don't push   (request)

                 your hands on the tray, honey?   [p. 25]

  'can'-VP: **Deontic-manipulative:** (16)

          EX: NAO: Toy doggie.   PRES/(request?)

            MOT: Show me were it is.   (manip)

              Can you point?   [p. 7]   (manip)

        Non-manipulative: (4)

      EX: NAO: Home.   (PAST)

         MOT: The piggie didn't want to stay home.   (PAST)

               See, sometime other people cry too   (HAB)

               because they have to stay home.   (HAB)

               Just like Nomi when she **can't** go outside. [p. 12-13] (HAB/ABIL)

  'could'-VP: **Deontic-manipulative**: (2)

           EX: NAO: Shadow.   (request)

             MOT: Shadow pictures. We **could** do shadow. [p. 15] (offer)

  'should'-VP: **Deontic-manipulative**: (2)

            EX: NAO: Brush hair.   (request)

             MOT: You **should** wash your hair today. [p. 19-20] (manip.)

  'might'-VP: **Epistemic**: (1)

           EX: NAO: What's this?   (Q-PRES)

            MOT: I don't **know**.   (PRES)-(EPIST)

              I **think** it **might** be a matzo crumb too. [p. 32] (PRES)-(EPIST)

  'must'-VP: **Epistemic**: (1)

          EX: MOT: Naomi, did you **see**   (PAST)

               how the trees are blowing in the wind?   (PROG)

               Must be windy.   (PRES)-(EPIST)

            NAO: Windy.   [p. 23]   (PRES)

'want'-NP: **Deontic-manipulative:** (13)
        EX: MOT: **Want** some vitamins, Naomi?   (offer)
           NAO: All gone. All gone.   (PERFV)
                More vitamin.   [p. 27]   (request)
'want'-to-VP: **Deontic-manipulative**: (6)
        EX: NAO: Fix.   (request)
           MOT: Get it in the right place.   (manip.)
               You don't **want** to break it. (manip.)
           NAO: Fix.   [p. 22]   (request)
       Non-manipulative: (3)
       EX: NAO: Mouse tired.   (PRES)
         MOT: Oh, does it **want** to go to sleep? [p. 2] (Q-PRES/VOLIT)
'would-like'-to-VP: **Deontic-manipulative**: (2)
         EX: FAT: Nomi, **would** you **like** to have some Famiglia (offer)
               this morning?
           NAO: Mmm mmm Mommy.   [p. 41]   (accept)
'like-NP: **Non-manipulative**: (3)
        EX: MOT: Did you **like** the matzo Nomi.   (PAST)
         NAO: I drop it.   [p. 28]   (PAST)
'like'-VP: **Non-manipulative**: (1)
        EX: The after that we **could** go over to school   (promise)
         and go outside for a while.   (promise)
         NAO: Yeah.   (consent)
         MOT: Yeah, outside is where you **like** to be, (PRES)
            isn't it? [p. 20-21]
'know-how'-to-VP: **Non-manipulative**: (1)
        EX: NAO: Toy doggie.   PRES/(request?)
        MOT: Show me were it is.   (manip)
            Can you point?   (manip)
            Do you **know how** to point? [p. 7]   (HAB/ABIL)
'need'-NP: **Deontic-manipulative:** (1)
        EX: NAO: Juice.   (request)
         MOT: [to F.] I think she **needs** some aspirin. (manip.)
         NAO: [???]. What 's this?   (Q-PRES)
         MOT: Aspirin.   [p. 33]   (PRES)
'try'-to-VP: **Non-manipulative**: (1)
        EX: MOT: Would you please don't push your hands
           back on your tray, honey.   (manip.)
           I'm **trying** to clean you off. [p. 25]   (PROG)

'(be)-gonna'-VP: **Deontic-manipulative**: (1)
           EX: NAO: Woof-woof.   (request)
              MOT: What are you getting?   (solicit)
                  Are you **going** to get a dogie?   (solicit)
              NAO: Get doggie.   [p. 16-17]   (request)
         Non-manipulative(?):   (2)
        EX: MOT: Watch.   (direct-attention)
                 It' **s going** to pop.   (FUT)
              NAO: [???] hot. Toast coming. [p. 29] (FUT)
'have-to'-VP: **Deontic-manipulative:** (5)
          EX: NAO: **Want** it. **Want** it.   (request)
            MOT: It's coming, Naomi.   (promise)
               You **have to** wait till it pops out. [p. 29] (manip.)
        Non-manipulative: (1)
       EX: NAO: Piggy crying.   (PROG)
          MOT: See the tears? Look at the tears.   (attract-attention)
              That's because the piggy had to stay home. [p. 12-13] (PAST/OBLIG)
'finish-up'-NP: **Deontic-manipulative context**: (1)
          EX: NAO: More Famiglia.   (request)
            FAT: You've got a little bit more in there. (PRES)
             You **finish** that **up** first.   (manip.)
           NAO: No more.   [p. 44]   (reject)
'go'-to-V: **Non-manipulative**:   (1)
         EX: NAO: Mouse tired.   (PRES)
           MOT: Oh, does it want to **go** to sleep? [p. 2]   (PRES/VOLIT)

'go'-(and)-V: **Serial-verb (manipulative context?)**: (1)
         NAO: Point.   (agree)
          MOT: Point with your finger.   (manip.)
            See, like this.   (direct-attention)
           Go point.   [p. 7]   (manip.

(b) **Equi-object (manipulation) verbs**
  'let'-NP-VP: **Deontic-manipulative**: (8)
          EX: NAO: Oof-oof. [bringing a dog puppet]   (PRES)
           MOT: **Let's** make a shadow of that puppet, honey. [p. 17] (manip.)
  'have'-NP-VP: **Non-manipulative (CAUS)**: (1)
         EX: MOT: How **should** we plan our day?   (FUT?)
             Maybe we' **ll have** Naomi take a nap   (FUT/CAUS)
             this morning.   [p. 20]

'leave'-NP-ADJ: **Deontic-manipulative context:** (1)
        EX: NAO: Leave it. Leave it.   (manip.)
          FAT: Yeah, **leave** it alone, Nomi. [p. 45] (manip.)
'want'-NP-VP: **Deontic-Manipulative:** (1)
         EX: NAO: I want it hug.   (request)
          FAT: Do you **want** me to hug Georgie or Nomi? [p. 51] (offer)
'make'-NP-VP: **Deontic-manipulative:** (3)
         EX: NAO: Comb hair.   (request)
          MOT: Here's a brush, Naomi.   (offer)
             Make your hair feel good. [p. 18-19] (offer)
         Non-manipulative (CAUS): (1)
         EX: NAO: Where sun?   (PRES)
          MOT: The sun is **making** it warm... [p. 24] (PROG/CAUS)
'get'-NP-VP: **Deontic-manipulative context:** (1)
        EX: MOT: Lie down on the floor   (manip.)
            so Mommy **can get** you dressed. (manip.)
         NAO: No.   [p. 39]   (refuse)

(c) **Perception-epistemic verbs**
  'see'-NP: **Direct attention:** (6)
        EX: MOT: Look, **see** the shadow.   (attract-attention)
         NAO: Shadow.   [p. 20]   (PRES)
       Describe perception: (5)
       EX: NAO: Where daddy?   (Q-PRES)
         MOT: Daddy is working tonight, hone.   (PROG)
           Daddy will be home tonight.   (FUT)
           You'll **see** him tomorrow morning. [p. 24] (FUT/PERCEP)
 'see'-if-S: **Direct attention:** (1)
       EX: MOT: Let's **see** if you remember all of them.   (manip)
           Who's this?   (Q-PRES)
        NAO: Mr. Gum.   [p. 9]   (PRES)
 'see'-WH/S: **Describe perception:** (2)
        EX: NAO: What's this?   (Q-PRES)
         FAT: I can't **see** what you're pointing at. [p. 58] (PRES/PERCEP)
 S. 'see': **Direct attention:** (1)
      EX: NAO: [???].   (???)
        MOT: There it is. **See.** [p. 16]   (direct-attention)-(PRES)
 'see', S: **Direct-attention:** (4)
      EX: NAO: What's this? Man. [doing]   (Q-PROG)
        MOT: **See**, this man is making shoes. [p. 62] (direct-attention)-(PROG)

'watch'-NP: **Direct attention**: (1)
        EX: MOT: Hold it up nice.   (manip)
           Sit down and **watch** the shadow. [p. 18] (direct-attention)
'watch'. S: **Direct-attention**: (1)
        EX: MOT: **Watch**. It's going to pop.   (direct-attention)-(IMM. FUT)
        NIN: [???] hot. Toast coming. [p. 29] (PRES/PROG)
'look-at'-NP: **Direct-attention**: (3)
        EX: NAO: Piggy crying.   (PROG)
        MOT: **See** the tears?   (attract-attention)>(PROG)
           Look at the tears. [p. 12-13] (attract-attention
'look', S: **Direct-attention:** (1)
        EX: MOT: **Look**, see the shadow.   (direct-attention)>(PRES)
       NAO: Shadow.   [p. 20]   (PRES)
'show'-DAT-NP: **Direct attention:** (5)
         EX: MOT: **Show** me the mommy.   (direct-attention)
          NAO: Mommy. [pointing]. [p. 5] (PRES)
'show'-DAT-WH/S: **Direct attention**: (1)
         EX: NAO: Toy doggie.   (PRES)
          MOT: **Show** me where is. [p. 7] (direct-attention)
'hear'-NP-VP: **Direct attention:** (2)
          EX: FAT: Do you **hear** the birds singing? (direct attention)>(PROG)
        NAO: [???].   (PRES)
        FAT: Yes, the sun is out. [p. 42]   (PRES)
'listen' (ellipsis) **Direct attention**: (1)
        EX: FAT: Are you listening?   (Q-PROG)
        NAO: Listen.   (PROG)
        FAT: Yeah, **listen**.   [p. 50]   (direct-attention)
        Description: (1)
        EX: FAT: Are you holding it over your ear? (Q-PROG)
         NAO: Holding ear.   (PROG)
         FAT: Are you **listening**?   (Q-PROG)
         NAO: Listen.   [p. 50]   (PROG)

(d) **Cognition-epistemic verbs**
  WH/S. 'know'   **Epistemic quantification**: (1)
         EX: NAO: What's this?   (Q-PRES)
         MOT: I don't **know**. [p. 32]   (PRES/EPIST)
  'know'-WH/S: **Epistemic quantification:** (3)
        EX: NAO: Elbow.   (PRES)
        MOT: Do you **know** where the elbow is? (Q-PRES/EPIST)
        NAO: Elbow. [pointing to picture] [p. 5] (PRES)

'think'-S: **Epistemic quantification**: (7)
        EX: NAO: What's this.   (Q-PRES)
           MOT: I don't know.   (PRES/EPIST)
               I **think** it might be a matzo crumb. [p. 32] (PRES/EPIS)

 S, 'think': **Epistemic quantification:** (2)
        EX: NAO: Go to sleep.   (request)
          FAT: I don't **think** so. [p. 2]   (PRES/EPIST)/(refusal?)
        EX: NAO: What's this?   (Q-PRES)
         FAT: It's a piece of foam I **think**. [p. 47] (PRES/EPIST)

 'think' (about): **Descriptive:** (4)
         EX: MOT: Don't cry. I'm **thinking** about it, honey. (PROG)
            We're not doing it. I'm just **thinking**.   (PROG)
          EVE: Thinking.   (PROG)
          MOT: **Thinking,** yeah. With my head.   (PROG)
           You **think** up there.   [p. 20]   (HAB)

 'remember'-NP: **Direct-attention:** (2)
        EX: NAO: What's this? Man. [doing?]   (Q-PROG)
         FAT: See, this man is making shoes.   (dir.-attention)>(PROG)
           Do you **remember** the other shoemaker? [p. 62] (dir.-attention)

 'remember'-WH/A: **Direct attention:** (2)
        EX: MOT: Just like Nomi when she can't go outside she cries (HAB)
             Remember how you cry when you can't
            go outside?   [p. 12-13] (direct-attention)>(HAB)

 S. 'understand' (ellipsis): **Non-directive:** (1)
         EX: NAO: Hi.   (greeting)
          MOT: Hi what? I don't **understand.** [p. 8] (PRES)

 'be-hard'-to-'understand': **Non-directive:** (1)
        EX: MOT: We're making toast out of bread.   (PROG)
         NAO: [???].
         MOT: It's kinda hard to understand. [p. 29] (PRES)

 'figure out'-WH/S: **Directive context**: (1)
        EX: NAO: Daddy. Hi   (greeting)
         FAT: Let's **figure out**   (dir. attention)>
          what Nomi **is going** to wear today. [p. 53] (FUT)

(e) **Utterance-epistemic verbs**

'say'-dir.quote: **Directive contexts**: (15)

        EX: NAO: Piggy sleeping.   (PROG)

          MOT: Piggy is sleeping.   (PROG)

              Can you **say**: "Piggy *is* sleeping"? [p. 12] (mark dir. quote)

      Descriptive: (2)

      EX: MOT: You don't **want** that delicious honey.   (manip.)

        NAO: Yes.   (assent)

        MOT: You **said**: "Yes".   (PAST/DIR. QUOTE)

             You don't **mean** a word of it. [p. 32]   (PRES/EPIST)

'tell'-DAT-WH/S: **Directive context**: (4)

        EX: NAO: Hat.   (PRES)

          MOT: **Tell** me who this is. Peter.   (EPIST. QUANTIFIER)

         NAO: Peter.   [p. 9]   (PRES)

      Much like Eve, Naomi's at stage-I use of equi-subject modality verbs shows only one non-manipulative (non direct speech-act) use of the modal 'will'. The bulk of her usage, in the higher-frequency operators 'want' and 'need', is heavily skewed toward the manipulative (direct speech-act). Similarly with equi-object manipulation verbs, the bulk of Naomi's usage, with the higher-frequency 'get' and 'leave', is deontic-manipulative (direct speech-acts). And as in Eve-I, epistemic verbs appear at a very low frequency in Naomi's stage-I transcripts.

      Naomi's adult interlocutors, much like Eve's, favor the deontic-manipulative use of equi-subject modality verbs by a wide margin, at least those verbs that can be used in both a deontic-manipulative (speech-act) and a non-manipulative descriptive sense. The ratio of the two usages is 55-20 for this verbal category. For the three most frequent modality verbs, the ratio in favor of the deontic-manipulative usage is even more lopsided: 16-4 for 'can', 19-3 for 'want', and 5-1 for 'have to'. Naomi's adult interlocutors' use of equi-object manipulation verbs is just as skewed toward the direct manipulative speech-act: 14-2. Finally, with epistemic verbs: Perception verbs on the whole are used by Naomi's stage-I adult interlocutors for the speech-act of **directing attention** (as against description of perception), at a ratio of 22-8. For utterance verbs, the ratio of speech-act use (directing attention) vs. description is 15-2 for 'say' and 4-0 for 'tell'. In cognition verbs, the ratio of epistemic-quantifier use vs. descriptive use is 4-0 for 'know' and 9-4 for 'think'. The 4 instances of 'remember' are all used as the speech-acts of **directing attention**. The one instance of 'figure out' is likewise directive, and the two uses of 'understand' are descriptive. Overall, as in the Eve-I transcripts, Naomi's adult interlocutors conform to Diessel and Tomasello's description of the *child*"s early stage, matching closely Naomi's own stage-I modal usage.

      Tables 17 and 18 below summarize the distribution of complex modal expressions used by the child and adult, respectively, in the Nina-I transcripts.

Table 17: **NINA-I: Distribution of child use of complex modal expressions**

(a) **Equi-subject modality verbs:**
  'go': **Locative motion description:** (1)
      EX: MOT: Is the rabbit going fast? Uh?   (Q-PROG)
          NIN: **Go**.   (PROG)
          MOT: It's going.   [p. 3]   (PROG)
  'like'-NP: **Non-manipulative description:** (2)
        EX: NIN: Kitty cat. Big kitty cat.   (PRES)
           MOT: Do you like kitty cat?   (Q-PRES)
           NIN: **Like** kitty cat. **Like** kitty cat. [p. 24]   (PRES)

(b) **Equi-object manipulation verbs**
  'have'-NP-LOC: **Manipulative context:** (2)
            EX: NIN: Duck room, **have** it o[n] wee.   (request)
                On the black. On the black.   (request)
           MOT: **Are** you **going** to put the duck in the black space? (solicit)\
              This is a puzzle.   [p. 27]
  'make'-NP: **Manipulative context**: (2)
        EX: MOT: Did you **make** the blocks fall down?   (Q-PAST)
          NIN: Here.   (request)
          MOT: Uh?
          NIN: **Make** it, Mommy.   (request)
          MOT: You **want** me to make it? [p. 44]   (solicit)
  'get'-NP: **Manipulative context**: (9)
        EX: NIN: **Get** the ball.   (request)
           MOT: **Get** the ball?   (offer)
             You **want** me to get the ball? (offer)
         NIN: **Get** the ball.   [p. 54]   (request)
  'take'-NP-LOC: **Descriptive context**: (2)
           EX: MOT: What am I doing? What is Mommy doing?   (Q-PROG)
           NIN: **Take** it off. [???] off.   (PROG)
           MOT: Taking the pants off.   (PROG)
           NIN: **Take** off clothes.   [p. 39]   (PROG)

(c) **Perception epistemic verbs**:
  'look'-(at)-(NP): **Direct attention**: (11)
           EX: NIN: Open that. [book]   (request)
             MOT: That doesn't open.   (PRES)
                That's the end of the book.   (PRES)
                Want to **look** at it some more? (offer)
          NIN: **Look** rabbit. [p. 18]   (direct-attention/request)

'look' [.]-S: **Direct attention**: (2)
        EX: MOT: What are you giving dolly to drink?   (Q-PROG)
           NIN: **Look**. Drink a dolly. [p. 42]   (direct-attention)-(PROG)
'fee'-ADV: **Descriptive:** (2)
        EX: MOT: Oh, you're hugging the lady.   (PROG)
              Does she **feel** better?   (Q-PRES)
           NIN: **Feel** better.   [p. 60]   (PRES)

Table 42: NINA-I: Distribution of adult use of complex modal expressions

(a) **Equi-subject modality verbs**
  'will'-VP: **Deontic-manipulative:** (5)
        EX: NIN: Read.   (request)
          MOT: **Won't** you read the bunny? (manip.)
          NIN: Read the bunny. []p. 2]   (request)
        EX: NIN: The book.   (request)
          MOT: No, you **can't** open that.   (prohibit)
             It' **ll** tear.   [p. 22]   (warn)
  'can'-VP: **Deontic-manipulative:** (32)
        EX: NIN: **Look**, Mommy.   (direct-attention/request)
          MOT: Do you **want** me to take off your shoes too? (offer)
          Can you take off your shoe?   (manip.)
          NIN: Hard.   [p. 40]   (complain)
  'shall'-VP: **Deontic-manipulative**:   (16)
        EX: NIN: Other kitty cat.   (request)
          MOT: **Shall** we find some other kitty cat? [p. 25] (offer)

  'have-to'-VP: **Deontic-manipulative**: (3)
          EX: NIN: The book.   (request)
            MOT: No, you can't open that. It'll tear.   (prohibit)
              You have to just turn the pages. [p. 22] (manip.)
  'want-to'-VP: **Deontic-manipulative**:   (16)
         EX: NIN: More rabbit books.   (request)
          MOT: Do you **want** to find another book   (offer)
             with a rabbit in it?
         NIN: Here.   [p. 19]   (request)
  'would-like-NP: **Deontic-manipulative**: (2)
          EX: NIN: Yummy. [eating a cookie]   (PRES)
          EX: MOT: **Would** you **like** some more cookies? [p.   38] (offer)

'would-like'-to-VP: **Deontic-manipulative**: (2)

        EX: MOT: **Want** me to drink dolly's milk?   (offer)

        NIN: Yeah.   (request)

        MOT: Oh, it's so good. Umm.   (PRES)

        Would you **like** to play with dolly's milk? [p. 49] (offer)

'like'-to-NP: **Non-manipulative**: (7)

        EX: NIN: Panda.   (PRES)

        MOT: Do you **like** the panda?   (Q-PRES)

        NIN: Yeah.   [p. 8]   (PRES)

'like'-to-VP: **Non-manipulative:** (7)

        EX: MOT: The guitar makes music, doesn't it?   (PRES)

        NIN: Yeah.   (PRES)

        MOT: Do you **like** to sing? [p. 13-14]   (Q-PRES)

'try'-NP: **Deontic-manipulative:** (3)

        EX: NIN: Hard.   (PRES/complain)

        MOT: Is it hard to put it on?   (Q-PRES)

        NIN: Here.   (request)

        MOT: You **try** it. **Try** again. [p. 27-28]

'try-to-VP: **Deontic-manipulative**: (5)

        EX: NIN: Hard.   (PRES/complain)

        MOT: It is hard?   (Q-PRES)

        NIN: Yes.   (PRES)

        MOT: You **try** to take off your shoe. [p. 40]   (manip.)

'(be)-gonna'-VP: **Deontic-manipulative**: (11)

        EX: NIN: Read.   (request)

        MO: Won't you read to bunny?   (manip.)

        NIN: Read to bunny. Read to bunny.   (request)

        MOT: Are you going to read to bunny? [p. 16] (manip.)

'go'-(LOC): **Manipulative context**: (5)

        EX: MOT: **Would** you **like** to **go** out to supper with Mommy? (offer)

        NIN: Supper.   [p. 56]   (agree)

        Descriptive: (2)

        EX: MOT: Is the rabbit **going** fast?   (Q-PROG)

        NIN: Go.   (PROG)

        MOT: It's **going**. [p. 3]   (PROG)

'go'-(and)-V (serial): **Manipulative context**: (3)

        EX: MOT: **Go** find the ball. **Go** find the ball.   (manip.)

        Can you find the ball? [p. 52]   (manip.)

'why-don't-you'-VP: **Deontic-manipulative**:   (1)
                    EX: MOT: Oh dear, we **have** to start over again.   (manip.)
                              Oh, **let's** start over again.   (manip.)
                              Why don't you bring me the yellow block? (manip.)
                                Where is the yellow block?   (Q-PRES/manip.)
                    NIN: Here.   [p. 44]   (PRES/comply)

(b) Equi-object manipulation verbs

  'let'-NP-VP: **Deontic-manipulative**: (22)
                    EX: MOT: Look at the puzzle.   (direct-attention)
                            Let's take att the pieces out.   (manip.)
                  NIN: Yeah.   [p. 26-27]   (agree)
  'make'-NP: **Manipulative context**: (3)
                 EX: NIN: **Make** it, Mommy.   (request)
                 MOT: You **want** me to **make** it?   (offer)
                       Okay, **let's make** it. [p. 44]   (manip.)
           Non-manipulative: (2)
        EX: NIN: Here.   (PRES)
         MOT: You are **making** a building? (Q-PROG)
        NIN: Building.   [p. 45]   (PROG)
  'make'-NP-VP: **Manipulative context:** (4)
                  EX: MOT: **Shall** we **make** dolly dance?   (manip.)
                       Let's see, dance, dance.   (manip.)
                     Make dolly dance.   (manip.)
                     You **make** dolly dance. [p. 38] (manip.)
  'want'-NP-VP: **Deontic-manipulative**: (11)
                   EX: NIN: Untie.   (request)
                MOT: **Want** me to tie it?   (offer)
                NIN: Off. Shoe off.   [p. 41]   (request)
  'get'-NP: **Manipulative context:** (16)
              EX: NIN: **Get** big ball. Big ball.   (request)
             MOT: **Shall** we **get** the big ball? [p. 51]   (offer)
  'take'-NP-LOC: **Manipulative context**: (4)
                  EX: NIN: Books   (PRES/request?)
                 MOT: Look at the puzzle.   (direct-attention)
                       Let's take all the pieces out. (manip.)
                NIN: Yeah.   [p. 26-27]   (agree)

(c) **Perception-epistemic verbs**:

  'see'-NP: **Direct attention**: (3)

              EX: MOT: What's the rabbit doing?   (Q-PROG)

                 NIN: Hopping.   (PROG)

                MOT: Uh-huh. And he's painting too.   (PROG)

                   See the rabbit? [p. 17-18]   (attract attention)

  'see'(ellipsis): **Manipulative context**: (3)

              EX: NIN: Other kitty cat.   (request)

                MOT: **Shall** we find some other kitty cat? (manip.)

                   Let's see.   [p. 25]   (manip.)

  'see'-if-S: **Manipulative context**: (3)

             EX: MOT: It's hard?   (Q-PRES)

                NIN: Yes.   (PRES)

                MOT: You **try** to take off your shoe.   (manip.)

                   See if you **can** take it off.   [p. 40]   (manip)

  'see'-NP-VP (raising): **Manipulative context:**

                EX: MOT: Oh, did it fall down?   (PAST)

                  NIN: Yeah.   (PAST)

                 MOT: Oh, **can** you build it some more? (manip)

                   Let's see you build it. [p. 43]   (manip.)

  'look'(at-NP): **Direct attention**: (1)

             EX: NIN: Books.   (request)

                MOT: **Look** at the puzzle.   (direct-attention)

                   Let's take all the pieces out. [p. 26-27] (manip.)

  'look' (,) S: **Direct attention**: (1)

             EX: MOT: **Shall** we build something?   (manip.)

                NIN: Oh, something.   (request)

                MOT: Oh, **look let's** put all the blocks   (direct-attention/manip.)

                  on top of each other.   [p. 43]

  'look-like-NP: **Descriptive**: (1)

             EX: NIN: Big mouse, big mouse.   (PRES)

                MOT: He **looks like** a mouse,   (PRES/EPIST)

                  but he is a seal.   [p. 16]   (PRES)

(d) **Cognition-epistemic verbs**

  'S, 'think': **Epistemic quantifier:** (1)

             EX: NIN: A bird.   (PRES)

                MOT: That's a bug, I **think**.   (PRES/EPIST)

                  Yes, that's a bug.   [p.   10] (PRES)

'think'-S: **Epistemic quantifier:** (3)
           EX: MOT: Do you **think** dolly is getting hungry again? (Q-PROG/EPIST)
              NIN: Yeah.   [p. 47-48]   (PROG)
'think' (ellipsis): **Epistemic quantifier**:
              EX: MOT: He's falling down.   (PROG)
                NIN: Yeah.   (PROG)
                MOT: Do you **think so?** [p. 3]   (PROG/EPIST)
'WH/S, 'remember': **Epistemic quantifier**: (1)
              EX: MOT: He's playing the guitar.   (PROG)
              NIN: [???].
              MOT: Who plays the guitar, Nina? **Remember**? (Q-PRES/EPIST)
'understand' (ellipsis): **Descriptive**: (1)
              EX: MOT: What can you sing?   (PRES/ABIL)
                NIN: Up down.   (PRES)
                MOT: I don't understand. [p. 13-14] (PRES)

(e) **Utterance-epistemic verbs**
'say'-dir.quote: **Manipulative context**: (9)
              EX: MOT: **Can** you **say**: "Giraffe"?   (manip.)
                NIN: Giraffe.   [p. 8]   (comply)
'say'-WH/S: **Descriptive**: (2)
              EX: NIN: Meow, meow.
                MOT: Meow? Is that what the cat **says**?   (Q-PRES)
                NIN: Meow.   [p. 9]

        At her stage-I, Nina is the least advanced child in our sample. When she does use the vestiges of complex modal expressions, however, they tend to conform to Diessel and Tomasello's observations. More striking is the way her mother conforms to the presumed early-child usage patterns. Virtually all her equi-subject (modality) and equi-object (manipulation) verbs in complex modal constructions are used as **direct manipulative speech-acts**. Virtually all her epistemic verbs of perception are used in the speech-act of **directing attention**. Virtually all her cognition verbs are used as grammaticalized **epistemic quantifiers**. And the bulk of her utterance verbs are used in **manipulative contexts**. At this early stage of child-adult communication, the adult again seems to behave like the child.
        In the interest of brevity, I will only give a numerical summary of the distribution of child and adult modal pattern found in stages II and III, dispensing with the examples, which on the whole are similar to those given above for stage-I.

6.3. **Stage II**

6.3.1. **Eve-II**

A summary of the distribution of use s of grammar-marked deontic and epistemic modalities in the Eve-II transcripts, by child and adult, are given in tables 19 and 20 below, respectively.

Table 19. **Distribution of child uses of modal patterns in Eve-II**

modality verbs	manipulative	non-manipulative
'have-to-VP	13	/
'gotta'-VP	2	/
'can'-VP	1	/
(you/I) better-VP'	2	/
'gonna'-VP	6	1
'need'-NP	4	/
'want'-NP	4	/
'try'-to-VP	1	/
'forget'-to-VP	/	1
manipulation verbs		
'let'-NP-VP	4	/
perception-epistemic	**attract-attention**	**descriptive**
'look'	4	/
'feel'	/	1
cognition-epistemic	**epistemic-quant.**	**descriptive**
'think'-S	1	/

==

Table 20. **Distribution of adult uses of modal patterns in Eve-II**

modality verbs	manipulative	non-manipulative
'will'-VP	20	7
'can'-VP	7	2
'would'-VP	1	1
'might'-VP	/	1
'gonna'-VP	6	2
'have'-to-VP	3	/
'want'-NP	1	1
'want'-to-VP	1	/
'would-like'-NP	5	/
'need'-NP	5	/
'(had)-better'-VP	5	/

manipulation verbs		
'let'-NP-VP	3	/
'want'-NP-VP	3	/
perception-epistemic	**attract attention**	**descriptive**
'look'-WH/S	1	/
'look'-like-NP	/	1
'watch'-NP-VP	1	/
'show'-NP-VP	6	/
'hear'-NP	3	/
'listen' (ellipsis)	1	/
'feel'-ADJ	/	1
cognition-epistemic	**epistemic quantifier**	**descriptive**
'know'-if-S	1	/
'know'-S	3	/
'know' (ellipsis)	3	/
'remember'-WH/S	1	1
'think'-S	11	/
S, 'think'	1	/
utterance-epistemic	**manipulative**	**descriptive**
'ask'-DAT (ellipsis)	1	/
'say'-dir.quote	1	/

==

With some obvious differences, both the child and adult in the Eve-II transcripts conform to Diessel and Tomasello's early-stage child pattern. Most of their modality and manipulation verbs are used in direct manipulative speech-acts. Most of their perception verbs are used in the direct speech-act of directing attention. Most of their cognition verbs are used as epistemic quantifiers. And most of their utterance verbs are used in manipulative contexts. The 2-3 months of extra development haven't yet changed the usage pattern.

6.3.2. **Naomi-II**

A summary of the distribution of uses of grammar-marked deontic and epistemic modalities in the Naomi-II transcripts, by child and adult, are given in tables 21 and 22 below, respectively.

Table 21. **Distribution of child uses of modal patterns in Naomi-II**

modality verbs	manipulative	non-manipulative
'will'-VP	5	/
'can'-VP	9	/
'gonna'-VP	31	4
'go-and-V' (serial)	6	/
'go'-LOC	17	/
'want'-NP	4	/
'wanna'-VP	2	/
'stop'-(VP)	4	/
'like'-NP	5	/
manipulation verbs		
'let'-NP-VP	2	/
'have'-NP-VP	1	/
'make'-NP	3	/
'get'-(NP)	8	/
perception-epistemic	**attract-attention**	**descriptive**
'see'-(NP)	2	/
'see'-NP-VP/S	6	/
S, 'see'	2	/
'look'-(at)-NP	18	/
'look'. S	2	/
utterance-epistemic	**manipulative**	**descriptive**
'say'-WH/S	/	1
'say-dir. quote	/	1

===

Table 22. **Distribution of adult uses of modal patterns in Naomi-II**

modality verbs	manipulative	non-manipulative
'will'-VP	7	/
'can'-VP	5	/
'could'-VP	2	1
'should'-VP	2	/
'may'-VP	1	/
'gonna'-VP	5	1
'have'-to-VP	3	1
'gotta'-VP	1	/
'want'-NP	2	/
'want'-to-VP	7	/

'like'-NP	/	1
'need'-NP	1	/
'try'-to-VP	/	1
'come-(and)-V (serial)	1	/
manipulation verbs		
'let'-NP-VP	9	/
'have'-NP	/	2
'have'-NP-VP	2	/
'want'-NP-VP	2	/
'make'-NP	1	1
'make'-NP-VP	4	/
'get'-NP-VP	/	1

perception-epistemic	attract attention	descriptive	evidential
'see'-NP	/	1	
'see'-NP-VP (raising)	1	/	1
'see'-WH/S	1	/	1
S. 'see'	/	/	1
'look'-at-NP	/	1	/
'show'-NP (ellipsis)	1	/	/
'hear'-(ellipsis)	/	/	1
'listen' (ellipsis)	2	/	/

cognition-epistemic	epistemic quantifier	descriptive
'know'-(ellipsis)	5	/
S, 'know'	1	/
'know'-WH/S	3	/
'know'-S	1	/
'remember-(S/WH/S)	5	/
'think'-S	3	/
S, 'guess'	1	/

utterance-epistemic	manipulative	descriptive
'say'-dir.quote	1	/
'say'-NP	2	1
'say'-WH/S	/	/

==

As in the case of the Eve-II trabscripts, the bulk of the modal behavior by both the child and adult in the Naomi-II transcripts conforms to Diessel and Tomasello's description of early-stage child usage.

6.3.3. **Nina-II**

Tables 23 and 24 below summarize the comparable results for Nina's stage-II transcripts.

Table 23. **Distribution of child uses of modal patterns in Nina-II**

modality verbs	manipulative	non-manipulative
'will'-VP	11	1
'can'-VP	1	/
'gonna'-VP	6	1
'go-and-V' (serial)	2	/
'go'-LOC	3	2
'go'-to-V	3	/
'come-(and)-V (serial)	1	/
'want'-NP	27	1
'wanna'-VP	25	2
'like'-NP	/	1
manipulation verbs		
'let'-NP-VP	17	/
'have'-NP	/	14
'make'-NP	2	/
'get'-(NP)	13	/
'get'-LOC (incho.)	5	2

perception-epistemic	directive-manip.	descriptive
'see'-(NP)	2	2
'see'-S	1	/
S. 'see'	1	/
'look'-(at)-NP	1	/
'show-DAT-NP	1	/

cognition-epistemic	epistemic-quantifier	directive
'know'-WH/S	2	/
'pretend'-S	/	1
'wonder-WH/S	3	/

==

Table 24. **Distribution of adult uses of modal patterns in Nina-II**

modality verbs	manipulative	non-manipulative
'will'-VP	14	6
'would'-VP	1	/
'can'-VP	16	8
'may'-VP	2	/
'shall-VP	13	/
'must'-VP	/	3
'might'-VP	/	/
'have-to'-VP	7	1

'gonna'-VP	21	6	
'go'-LOC/WH	/	7	
'go-(and)-V (serial)	1	/	
'come'-(and)-V (serial)	1	/	
'want'-NP/WH	14	1	
'want'-to-VP	27	2	
'would-like'-NP	2	/	
'would-like'-to-VP	6	/	
'like'-NP	/	4	
'like'-to-VP	/	2	
'need'-NP	1	/	
'be-ready-(to-VP)	2	/	
'finish'-NP	1	/	
'why-don't-you'-VP	1	/	
manipulation verbs			
'let'-NP-VP	12	/	
'have'-NP	/	21	
'want'-NP-VP	5	/	
'would-like'-NP-VP	1	/	
'make'-NP	8	/	
'make-NP-(into)-NP	2	/	
'get'-NP-(NP)	6	/	
'get'-LOC (incho.)	2	1	
'get'-to-VP (incho.)	1	/	

perception-epistemic	**attract attention**	**descriptive**	**evidential**
'see'-(NP)	14	5	3
'see'-WH/S	3	/	/
'see'-if-S	2	/	/
'see'-S	1	/	/
'look'-at-NP	1	/	/
'look'-LOC	1	/	/
'look-WH/S	2	/	/
'look-like'-NP	/	1	/
'watch'-NP	/	1	/
'show-DAT-(NP)	3	/	/

cognition-epistemic	**epistemic quantifier**	**descriptive**	**direct attention**
'know'-(ellipsis)			
S, 'know'			
'know'-WH/S	2	/	/
'remember-NP	/	/	2
'think'-S	8	/	/
S, 'think'	1	/	/
'think'-if-S	1	/	/

'understand'-(ellipsis)	/	1	/
S, 'guess'	1	/	/
'bet'-S	1	/	/
'pretend'-S	1	/	/
utterance-epistemic	**manipulative**	**descriptive**	
'tell'-WH/S	1	/	
'ask'-for-NP	/	1	

==

With allowance for some variation, the distribution of child and adult modal usage in the Nina-II transcripts matches closely those found in Eve-II and Naomi-II transcripts, above.

6.4. **Stage-III**

A summary of the distribution of the use of grammar-marked deontic and epistemic modalities by the child and adult in the Eve-III transcripts is given in tables 25 and 26 below, respectively.

Table 25. **Distribution of child uses of modal patterns in Eve-III**

modality verbs	**manipulative**	**non-manipulative**
'will'	2	2
'can'-VP	7	2
'gonna'-VP	12	2
'go'-V (serial)	4	/
'want'-NP	6	/
'want'-to-VP	1	/
'need'-NP	1	/
'have-to-VP	12	/
'like' -(ellipsis)	1	/
manipulation verbs		
'let'-NP-VP	6	/
'get'-NP	4 (context)	/
'have'-NP	4 (context)	/
'make'-NP	9 (context)	/
perception-epistemic	**attract-attention**	**descriptive**
'see'-NP	2	2
'see'-S	2	/
'see'-NP-VP (raising)	5	/
'look'-NP.S	1	/

cognition-epistemic	epistemic-quant.	descriptive	attract attention
'think', S	1	/	
'guess'-S	1	/	
'find-out'-WH/S	1	/	
'remember'-S	/	/	1

==

Table 26. **Distribution of adult uses of modal patterns in Eve-III**

modality verbs	manipulative	non-manipulative
'will'-VP	30	9
'would'-VP	5	1
'can'-VP	15	5
'could'-VP	1	/
'may'-VP	5	/
'might'-VP	/	1
'shall'-VP	6	/
'should'-VP	7	/
'must'-VP	2	/
'have-to'-VP	7	1
"ve-got-to'-VP	1	/
'supposed-to'-VP	/	1
'go'-LOC	3 (context)	1
'gonna'-VP	9	2
'want'-NP	4	/
'want'-to-VP	3	/
'would-like'-NP	2	/
'like'-NP	/	1
'need'-NP	5	/
'try'-to-VP	1 (context)	/
'go'-(and)-V (serial)	5 (context)	/
'come'-(and)-V (serial)	1 (context)	/
'wait'-and-V (serial)	1 (context)	/
'(had)-better'-VP	2	/
'why-don't-you'-VP	5	/
manipulation verbs		
'let'-NP-VP	3	/
'want'-NP-VP	1	/
'would-like-NP-to-VP	1	/
'make'-NP	10 (context)	2
'make'-NP-VP/PRED	6 (context)	/
'have'-NP	8 (context)	/
'take'-NP	2 (context)	/
'get'-NP	2 (context)	/

perception-epistemic	attract attention	descriptive	
'see'-NP	6	3	
'see'-if-S	1	/	
'see'-NP-VP (raising)	/	1	
'look'-(at-NP)	3	/	
'watch'-NP-VP	1	/	
'hear'	1	/	
'listen'	1	/	
'feel'-ADV	/	/	
cognition-epistemic	**epistemic quantifier**	**descriptive**	**direct attention**
'know'-if-S	1	/	/
'know'-S	2	/	/
S, 'know'	1	/	/
'find-out'-WH/S	/	/	1
'remember'-(WH/S)	/	/	6
'forget'-about-NP	/	1	/
'think'-S	11	/	/
'think'-(ellipsis)	1	/	/
'guess'-S	2	/	/
'be-sure'- (ellipsis)	1	/	/
utterance-epistemic	**manipulative**	**descriptive**	
'say'-dir.quote	2	/	
'tell'-WH/S	/	1	
'ask'-DAT	1	/	

===

The general pattern seen above persists. And the adult modal use pattern in the Eve-III transcripts remains, essentially, the early-child pattern.

A summary of the distribution of the use of grammar-marked deontic and epistemic modalities by the child and adult in the Naomi-III transcripts is given in tables 27 and 28 below, respectively.

Table 27. **Distribution of child uses of modal patterns in Naomi-III**

modality verbs	manipulative	non-manipulative
'can'-VP	10	/
'could'-VP	1	/
'gonna'-VP	7	3
'go'-LOC	4	/
'want'-NP	36	/
'wanna'-(ellipsis)	4	/

'wanna'-VP	21	/
'need'-NP	3	/
'have-to-VP	1	/
'like'-NP	/	6
'finish'-(ellipsis)	/	2
manipulation verbs		
'let'-NP-VP	1	/
'get'-NP		
'have'-(NP)	/	1
'get'-NP	3	2
'get'-LOC (icho.)	3	1

perception-epistemic	**attract-attention**	**manipulative**	**descriptive**
'see'-NP	2	1	/
'see'-(ellipsis)	1	2	/
'see'-NP-VP (raising)	1	/	/
'look'-(at)-NP	2	/	/
'look'-at-NP-VP (raising)	2	/	/

cognition-epistemic	**epistemic-quant.**	**descriptive**	**attract attention**
'think'-WH	2	/	/

utterance-epistemic	**manipulative**	**descriptive**
'say'-WH	/	1

==

Table 28. **Distribution of adult uses of modal patterns in Naomi-III**

modality verbs	manipulative	non-manipulative
'will'-VP	9	3
'would'-VP	/	4
'can'-VP	9	4
'could'-VP	/	2
'be-able'-to-VP	/	1
'should'-VP	1	/
'have-to'-VP	1	/
'seem-to-be'-VP	/	1
'go'-LOC	3 (context)	1
'gonna'-VP	6	19
'go-(and)-V (serial)	1 (context)	/
'come'-(and)-V (serial)	1 (context)	/
'want'-NP	9	/
'want'-to-VP	9	1

'need'-NP	3	/	
'need'-to-VP	1	/	
'would-like'-to-VP	1	/	
'have'-to-VP	3	/	
'like'-NP	/	7	
'finish'-(VP/NP)	/	2	
'why-don't-you'-VP	2	/	
manipulation verbs			
'let'-NP-VP	3	3	
'want'-NP-VP	7	/	
'wish'-S	1	/	
'ask'-NP(VP)	/	1	
'help'-DAT-(VP)	2	2	
'get'(DAT)-NP	5 (context)	/	
've-got'-NP	/	2	
'be-time-for'-NP-to-VP	1	/	
perception-epistemic	**attract attention**	**descriptive**	**epist. quantifier**
'see'-NP	/	3	1
'see'-(ellipsis)	1	1	/
'look'-(at-NP)	2	/	/
'listen', S	1	/	/
cognition-epistemic	**epistemic quantifier**	**descriptive**	**direct attention**
'know'-(ellipsis)	3	/	/
'know'-WH/S	4	/	/
'remember'-(WH/S)	/	/	2
'think'-S	3	/	/
'think'-(ellipsis)	1	/	/
'wonder'-WH/S	1	/	/
'mean'-dir.quote	1	/	/
utterance-epistemic	**manipulative**	**descriptive**	
'say'	4	4	
'tell'	1	1	

===

With one conspicuous exception--the adult's use of 'be-gonna' as a descriptive/epistemic future marker, the distribution of modal uses by both child and adult in the Naomi-III transcripts conforms to the general pattern seen above. The exception is due to two episodes where the adult chose to discuss the future at great length. Such referential displacement, as we noted earlier, was not characteristic of our CHILDES transcripts at this age range.

A summary of the distribution of the use of grammar-marked deontic and epistemic modalities by the child and adult in the Nina-III transcripts is given in tables 29 and 30 below, respectively.

Table 29. **Distribution of child uses of modal patterns in Nina-III**

modality verbs	manipulative	non-manipulative
'will'-VP	5	6
'would'-VP	2	1
'can'-VP	7	3
'could'-VP	1	/
'should'-VP	2	1
'gonna'-VP	7	9
'go'-LOC	7 (context)	8
'want'-NP	5	/
'wanna'-(ellipsis)	1	/
'wanna'-VP	5	1
'like'-NP	/	/
'try'-VP	5 (context)	/
'it's time'-(for you-to-VP	2	/
manipulation verbs	**manipulative**	**non-manipulative**
'let'-NP-VP	20	/
'have'-NP	/	5
'make'-NP	11 (context)	/
'make'-NP-VP (caus.)	1	1
'get'-NP	1 (context)	/
'get'-LOC (incho.)	/	3
perception-epistemic	**attract-attention**	**descriptive**
'see'-(ellipsis)	3	/
'see'-WH/S	1	/
'see'-S	2	/
S. 'see'	1	/
'look'-at-NP	5	/
'look'-at-NP-VP (raising)		
cognition-epistemic	**epistemic-quant.**	**descriptive**
'know'-NP	1	/
'forget'-(ellipses)	/	1
'forget'-to-VP	/	1
'understand'-(NP)-(ellipsis)	/	2
utterance-epistemic	**manipulative**	**descriptive**
'say'-dir. quote	/	5
'say'-S	/	1

==

Table 30. **Distribution of adult uses of modal patterns in Nina-III**

modality verbs	manipulative	non-manipulative
'will'-VP	4	6
'can'-VP	18	6
'could'-VP	/	1
'shall'-VP	16	/
'should'-VP	2	3
'must'-VP	/	1
'have-to'-VP	5	3
'go'-LOC	3	14
'gonna'-VP	1	22
'go-(and)-V (serial)	2	/
'go'-to-V	1	1
'come'-(ellipsis)	/	1
'want'-NP/WH	2	/
'want'-to-VP	23	2
'love'-to-VP	/	1
modality (cont.)	**manipulative**	**non-manipulative**
'would-like'-to-VP	5	/
'like'-NP	/	2
'like'-to-VP	/	4
'need'-NP/WH	/	3
'be-ready'-to-VP	/	2
'like'-NP		
'try'-NP	2	/
'try'-to-VP	1	1
'be-time'-(for-NP)-to-VP	1	/
'be-better'-VP	3	/
manipulation verbs		
'let'-NP-VP	8	/
'have'-NP	/	4
'make'-NP/WH	3 (context)	2
'make-NP-VP	7	4
'get'-NP-ADJ	/	2
'take'-NP-ADJ	/	1
perception-epistemic	**attract attention**	**descriptive**
'see'-NP	4	4
'see'-(ellipsis)	11	/
'see'-WH/S	2	/
'see'-S	2	/
'see', S	1	/

S, 'see'	1	/	
'see'-if-S	1	/	
'look'-(at-NP)	15	/	
'look'-at-NP-VP (raising)	1	/	
'look'-WH/S	4	/	
WH/S, 'look'	1	/	
'look'-for-NP	/	2	
'look'-ADJ	/	1	
'watch'-NP	/	1	
'feel'-WH/S	1	/	
'feel'-ADJ	/	1	
cognition-epistemic	**epistemic quantifier**	**descriptive**	**direct attention**
'know'-(ellipsis)	10	/	/
'know'-WH/S	4	1	/
WH/S, 'know'	3	/	/
'remember'-NP	/	/	1
'wonder'-WH/S	3	/	/
'think'-S	22	/	/
'think'-(ellipsis)	2	/	/
WH/S-'think'	2	/	/
'guess'(-S)	2	/	/
'understand'-WH	/	1	/
'mean'-S	3	/	/
S, 'mean'	2	/	/
'pretend'-to-VP	1	/	/
'forget'-to-VP	/	1	/
utterance-epistemic	**manipulative**	**descriptive**	**evidential**
'say'-dir.quote	1	/	/
'say'-WH	/	1	/
S, 'say'	/	/	1
'tell'-S	/	/	1

===

While the distributional pattern of modal usage remains substantially the same, one change can be again noted, this time in both the child an adult: The expansion of the use of 'will' and 'gonna' towards the non-manipulative epistemic sense of 'future'. This may be related to a gradual displacement of reference away from 'here-and-now' (or the immediate future) toward a more remote future. Since this pattern, at least in the Nina-III transcripts, is found in both the child and adult, the developmental expansion is in the **communicative goals of the diad**, not just in the child's evolving competence. Indeed, a gradual expansion of the domain of reference toward non-immediate future has been shown earlier above in the Nina transcripts, in both the child and adult (section 5.3. above): Nina-I: **0%** non-immediate future uses in either the child or the adult.

Nina-II: **0.8%** non-immediate use for the child and **2.3%** for the adult. Nina-III: **4.7%** for the child and **3.1%** for the adult. While this a small incrementation, but it may turn out to be significant.

7.   **Paratactic precursors to complex syntax**: **Cross-turn distributed syntactic complexity**

We come finally to the crux of this investigation, the distribution of grammatically-marked complex clauses across adjacent adult-child or child-adult conversational turns. I have attempted to arrive at a typology of the various ways this is done in our CHILDES transcripts. It is a preliminary and somewhat subjective typology, but all typologies have, in principle, a subjective component. I will begin by illustrating all the types with examples from the Nina-II transcripts. I will then present the quantitative distribution of the types for all three subjects at all three stages.

7.1.   **Qualitative analysis: Types of cross-turn distributed modal structures**

The following examples of the types of cross-turn distribution of complex modal expressions are taken from the Nina-II transcripts. I have divided them into two main categories: (i) The child's various responses to adult-initiated marked modal structures. And (ii) the adult's response to two types of child modal expressions: (a) grammatically-unmarked and (b) grammatically marked. For each category, I'll give at least one deontic and one epistemic example. The response types are ordered from the least elaborate to the most elaborate and, eventually, grammatically-marked.

(i) **Child responses to grammatically-marked adult modal expression (Nina-II)**

(27) a. **Appropriate yes-no elliptic responses**
      EX: MOT: **Would** you **like** to play with the village?   (offer)
        NIN: Yeah. [p. 5]   (accept)
      EX: MOT: Do you **think** he'**ll** eat another one?   (Q-FUT)
        NIN: Yup. [p. 1]   (FUT)
   b. **Response with an object of the complement clause**
      EX: MOT: You **want** to give Poy a cookie?   (offer)
        NIN: That one.   [p. 1]   (accept)
      EX: MOT: What **is** he eating?   (Q-PROG)
        NIN: A dog cookie. [p. 1]   (PROG)
   c. **Response with an unmarked complement clause**
      EX: MOT: What **are** you **gonna** do?   (solicit)
        NIN: Pat him. [p. 4]   (intent)
      EX: MOT: Do you **know** what these are?   (Q-PRES)
        NIN: What this thing? [p. 11]   (Q-PRES)
   d. **Response with a marked complex modal construction**
      EX: MOT: **Can** you make him do that?   (manip.)
        NIN: I **can't** do that. [p. 18]   (refuse)

EX: What **is** Poy doing?   (Q-PROG)
  NIN: He'**s** eating a cookie. [p. 1]   (PROG)
EX: MOT: That **would** hurt, **wouldn't** it?   (Q-FUT/HYPOTH)
  NIN: Yeah, on the road it **would**. [p. 48]   (FUT/HYPOTH)
e. **Child-initiated marked complex modal construction with no adult prompt**
EX: MOT: Many little houses.   (PRES)
  NIN: **Let. Let's** put, **let's** build these. [p. 13] (request)
EX: NIN: Oh, oh, there **will** be another picture.   (FUT)
    Just a minute.   (request)
    See what this is.   [p. 14]   (direct-attention)
EX: MOT: What's on his pajamas? Oh.   (Q-PRES)
  NIN: He'**s** hanging on two feet. [p. 21]   (PROG)

(ii) **Adult response to child's previous turn (Nina-II)**

(28) a. **Expansion: Adult marked complex-modal response to child unmarked expression**
    EX: NIN: The cookie for Poy.   (request)
      MOT: Do you **want** to give Poy a cookie? [p. 1]   (offer)
    EX: MOT: What's he eating?   (Q-PRES)
      NIN: A banana.   (PROG)
      MOT: Oh, **can** you **make** him eat a banana? [p. 3] (manip.)
    EX: NIN: What's he doing?   (Q-PROG)
      MOT: I don't **know**. [p. 14-15]   (EPIST-PROG)
    EX: NIN: These wheels don't move, Momma.   (PRES)
      MOT: Oh, I **think** they'll move. [p. 15]   (EPIST-FUT)
    EX: NIN: Where does it belong?   (Q-PRES)
      MOT: Where does it go?   (Q-PRES)
      NIN: Yeah.   (Q-PRES)
      MOT: I **think** it goes right here.   (EPIST-PRES)
      NIN: Where?   (Q-PRES)
      MOT: I don't **know**... Maybe...   (EPIST-PRES)
        I don't **know** where it goes.   (EPIST-PRES)

b. **Reinforcement: Adult marked complex-modal response to child's marked**
   complex-modal expression:
    EX: NIN: I **want**...   (request)
      MOT: What do you **want** to do?   [p. 1-2]   (solicit)
    EX: NIN: **Would** you make a whole building?   (request)
      MOT: **Would** I make what?   [p. 53]   (solicit)
    EX: This is **gonna** be a nurse.   (FUT)
      MOT: Is that **gonna** be a nurse?   (Q-FUT)

EX: NIN: Cami doesn't **understand**.   (PRES)
　　 MOT: What doesn't Cami **understand**?   (Q-PRES)
　　 NIN: Doesn't **understand** [how not to play] the rough.   (PRES)
　　 MOT: You have to play gently, you **mean**.   (PRES)
　　 NIN: Yup.   [p. 3]   (PRES)
EX: NIN: He' **s** eating that.   (PROG)
　　　 MOT: What **is** he eating?   [p. 1]   (Q-PROG)

Of the five types of adult-child adjacent turns in (27a), the first three (27a,b,c) can be considered **joint constructions** of the complex modal structures, where the adult opens by contributing the modality marker and the child then contributes various chunks of the complement proposition--the gist of the communication--without any modal marking. Only in types (27d,e) does the child contribute the full complex construction, in (27d) with adult prompting, at (27e) without it. As we shall see below, these two types are not found in the early Stage-I.

Of the two types of child-adult adjacent turns in (28), (28a) is of course the most interesting kind of joint child-adult construction of a complex structure. The child contributes an unmarked, often truncated, expression, which is then interpreted via **modal expansion** by the adult. Again, this type is more prevalent in the early stages, awhile type (28b), **modal reinforcement**, appears later.

7.2. **Quantitative analysis: Distribution of the various response types across diads and stages**

Table 31: **Child responses to adult previous turn** (i)

interaction   type

child stage		(a) N	(a) %	(b) N	(b) %	(c) N	(c) %	(d) N	(d) %	(e) N	(e) %	TOTAL N	TOTAL %
EVE	I	25	32.0	12	**15.3**	36	**46.1**	5	**6.6**	/	**0.0**	78	100.0
	II	20	19.2	10	9.5	19	18.2	19	18.2	36	34.9	104	100.0
	III	19	16.5	22	19.1	12	10.4	26	22.6	36	31.4	115	100.0
NAO	I	6	5.6	36	**33.9**	35	**33.0**	12	**11.3**	17	**16.2**	106	100.0
	II	6	4.7	7	5.5	6	4.7	25	19.6	83	60.5	127	100.0
	III	36	19.5	13	7.0	15	8.1	20	10.8	100	54.6	184	100.0
NIN	I	35	28.9	33	**27.2**	51	**42.1**	/	**0.0**	2	**1.8**	121	100.0
	II	41	24.2	30	17.7	28	16.5	21	12.4	49	29.2	169	100.0
	III	75	30.0	33	13.2	12	4.8	23	9.2	107	42.8	250	100.0

Table 32: **Adult response to child previous turn** (ii)
interaction type

child	stage	(a)		(b)		TOTAL	
		N	%	N	%	N	%
EVE	I	75	**79.7**	19	21.3	94	100.0
	II	76	75.2	25	24.8	101	100.0
	III	30	65.2	16	34.8	46	100.0
NAO	I	82	**85.4**	14	14.6	96	100.0
	II	36	59.0	25	41.0	61	100.0
	III	45	41.6	63	58.4	108	100.0
NIN	I	117	**100.0**	/	/	117	100.0
	II	51	57.9	37	42.1	88	100.0
	III	59	65.5	31	34.5	90	100.0

Because of the way the original modal interactions were selected, (and within them the adjacent-pair types), and because of the low number of subjects and data points, it is not feasible to do inferential statistic on these numerical distributions. Still, several trends seem plausible and make sense.

(i) In the adult-child adjacent turns, type (a) should have no correlation to developmental stage, since it is a perfectly universal elliptic response strategy to both epistemic questions and deontic suggestions. Types (b) and (c) are the best candidate for early-stage syntax. Both show a drop in late stages. Types (d) and (e) are the end-products of learning, so their rise in the later stages should not be surprising.

(ii) In the child-adult adjacent turns, type (a) is the most striking early-stage cross-turn collaboration, where the child opens with relatively little grammatical modal structure, and the adult then expands on the unmarked structure. It is thus not surprising that this type is most prevalent at the early stage.

My aim in presenting the numerical distribution of all these types of interaction was merely to show the high prevalence in the text of adjacent turns of type (i-b,c) and (ii-a), where the complex structure distributes across adjacent turns. In such configurations, the adult contributes most of the grammatical marking, and the child either responds with (i), or contributes initially (ii), various chunks of the complement clause, including the most elliptic yes/no responses (i-a).

8. **Child-adult comparisons**

As I said earlier, I consider this study a supplement to Diessel and Tomasello's work. To quite an extent, my results uphold their general thesis that in early child language the use of

complement-taking main verbs is heavily tilted toward deontic or epistemic direc-speech-act marking, and thus that the main clause is not as semantically focal as the complement. But the results reported above also suggest that, at least in our early-stage CHILDES transcripts (roughly age 1;8 to 2;9), the adult's use of modal structures does not deviate significantly from that of the child.

This brings us to our earlier assessment of the type of communicative context we deal with here. We showed that the context was strongly tilted towards **non-displaced reference** (here-and-now, you-and-I, this-and-that-visible). It was heavily invested in **manipulative speech-acts**. And it was largely **speaker-hearer centered**. This is the quintessential communicative context of both pre-human and early-childhood communication. So it may be plausibly asked whether it isn't this 'primitive' communicative context that motivates the adult's child-like modal behavior. Are these adults slumming? Are they **down-shifting** their register?

To assess this possibility, I have selected as a comparison one chapter from recorded (and then transcribed) face-to-face oral narrative, the life-story of a retired rancher and oil-field worker. His story is, predominantly, about displaced time, place and referents, about other times and places and people not known to his audience.**[FN 6]** The question we are concerned with is his use of deontic and epistemic main verbs--to what extent does he use them as **grammaticalized direct speech-act markers**? His past-time narrative is tilted heavily towards the epistemic, since his listener (myself) was interested primarily in his life story. But deontic grammatical markers are found in both the narrative and direct-quoted conversation portions of the texts. This affords us a revealing comparison between the two communicative contexts--within the same speaker.

As an example of the use of epistemic and deontic modal operators in both in the narrative and quoted conversation portions of the text, consider:

(29) ...And I **knew** I **was gonna** get so far so that I ever drive over there to see the family. So about this time this [oil] boom started here, **see**. Boy, I **mean** it was, I **think** a hundred and seventy-five rigs in here through most of the Fifties, **y'know**, drillin' all this country up... So I came over here and started on this roughneckin' job. But when I got here there was an old preacher up there that had seven, a little seventeen-acre place, and he'd been **wantin'** to sell it and he ah, **you know**, he'd known him, I **guess** knew at least, kinda **wanted** family, he knew my dad. So he **told** me he **said**: "Harris you **need** a place", **said** "**let me** sell you that little ol' seventeen-acre farm..." It had a little three-room shack on it, **see**... It was up at Cedar, this side of Cedar Hill... That's where my dad lived is up in that Cedar Hill area. So ah... he **said**: "I'**ll** sell it to you for fifty dollars down..." I **said**: "Well, OK, I'**ll** buy it". And at that time, after we got all that movin' done, **y'know**, I wasn't making any money with the state... [p. 78]

To further illustrate the high concentration of **direct manipulative speech-act** use of deontic modal expressions inside direct-quoted conversation, consider:

(30) ...He said: "Well" he said, "I **'m gonna** draw you a picture right here on this piece of paper,
what you' **re gonna** find". He said: "**We gotta**, **we gotta** come out of that hole 'cause" he
said, "this bit is wore out". And he said: "I **can't** get these other two guys to go up and I' **m
gonna have** to have a man up there" he said. "**Would** you go up and **try** it for me as a favor?"
he said, "'cause I **got to** come out"... [p. 73]

Table 33 below offers a quantitative summary of the uses of modal operator in the oral
narrative portion of text (10 pp.; 70-79).

Table 33: **Distribution of modal uses in the narrative text**

modality verbs	manipulative	descriptive
'be-gonna'-VP		10
'go'-to-VP		2
'have-to'-VP		11
'will'-VP		14
'would-VP		4
'want'-to-VP		11
'want'-NP		1
'can'-VP		7
'could'-VP		17
'most-'ve'-VP		1
'need'-NP		1
'might'-VP		1
'ought'-to-VP		1
'try'-to-VP		5
'come-V (serial)		1
'be-supposed-to'-VP		1
'be-liable'-to-VP		1
'threaten'-to-VP		1
'be-liable'-to-VP		2
'('ve)gotta'-VP		4
'start'-VP		1
'gotta'-VP		2
total MOD:	0 **(0%)**	99

manipulation verbs:

'tell'-NP-how-to-VP		1
'tell'-NP-to-VP		1
'tell'-NP-WH-VP		2
'have'-NP-VP		5
'let'-NP-VP		1
'keep-NP-VP		1
'get'-NP-(to)-VP		2
'want'-NP-VP		1
===========================		=================
total MANIP	0 **(0%)**	14

epistemic verbs:	**epistemic quant.**	**descriptive**
'think'-S	4	2
S, 'think'	1	
'find-out-S		1
'know'-S	2	
S, 'know'	50	
S. 'know'	1	
'know', S	7	
'know'-if-S	1	
'know'-WH/S	7	6
'know' (ellipsis)	2	
'guess'-S	3	
S, 'guess'	1	
'figure'-S	1	
S, 'remember'	1	
'see'-that-S		1
'see'-if-S		1
S, 'see'	30	
. 'See', S	16	
'see'-WH/S		1
'see'-NP-VP	1	1
'tell'-NP-about-NP	2	1
'tell'-NP:"..."		10
'tell'-WH/S		2
'tell'-if-S		2
'say':..."/"..."-'say'		53
'say'(,) S	2	
'mean', S	6	
'figure-out'- (ellipsis)	1	
================================		===========
total EPIST	139 **(63.1%)**	81

Table 34 below offers the comparable distribution in the quoted conversational portion of the text.

Table 34: **Distribution of modal uses in the quoted conversation**

modality verbs	manipulative	descriptive
'be-gonna'-VP	6	5
'hate'-to-VP	2	
'go'-V (serial)	1	
'will'-VP	26	5
'would'-VP	3	
'can'-VP	8	2
'could'-VP	1	
'want'-to-VP	5	1
'would-like'-VP	2	
'why-don't-you'-VP	1	
'feel-like'-VP		1
'need'-NOM		1
'supposed-to'-VP		1
'have-to'-VP	5	
'gotta'-VP	4	
'you-better'-VP	1	
'try'-VP	2	
total MOD:	67 **(80.7%)**	16

manipulation verbs:

'let'-NP-VP	6	
'want'-NP-VP	2	
	8 **(100%)**	0

epistemic verbs:	epistemic quant.	descriptive
'know'-WH/S	1	
'know'-if-S	1	
'know'-S	1	
S, 'know'	1	
S. 'know'	2	
'say'-S	1	
'hear'-S	1	
'see'-NP-VP (raising)		1
'tell'-NP-WH/S	1	
===============================	===============	
total EPIST:	9 **(90.0%)**	1

While the data again does not allow inferential statistics, its main thrust is fairly dramatic. Narrative about the past, be it oral or written, is predominantly an **epistemic** ('descriptive') enterprise. This is because the main transactional goal in this face-to-face narrative is descriptive-informative. It is hardly an accident that the bulk of epistemic verbs of belief, perception and utterance used in such narrative-- **63.1%** in this adult oral text--are used as **grammaticalized epistemic quantifiers** on the complement clause, withe the latter remaining the main semantic focus. The speech-act here is directed at the face-to-face listener.

Likewise, it is hardly an accident that the modality and manipulation verbs that appear in narrative, are used--**100%**-- in their **descriptive or epistemic** senses. Manipulation as a direct speech-act is not relevant in this here-and-now transaction, whose goal-posts have been set in advance, firmly, in the epistemic domain. But the face-to-face conversations inside the quotation marks had, apparently, primarily-deontic goals--to get things done. And the modal operators used in that context change their valuation dramatically: They are used at the level of **80%-to-100%** as **direct manipulative speech-act**.

The modal intent of complement-taking main verbs, it seems, has nothing to do with the child vs. adult developmental stage. Rather, it has much more to do with the communicative context. Of course, it just so happens that the communicative context of early childhood is, as shown above, predominantly here-and-now, you-and-I and non-displaced reference, and heavily tipped toward deontics ('getting things done') over epistemics ('what is the state of the world').

9. **Some tentative conclusions**

9.1. **Child development and the communicative context**

(a) In their early stage of modal-structure development, children indeed exhibit a strong tendency towards using grammatical modal operators--deontic and epistemic verbs--as direct speech-act indicators.

(b) But their adult interlocutors exhibit the very same trend in their face-to-face communication with the child.

(c) This usage patterns is strongly associated with the intimate face-to-face communicative context of here-and-now, you-and-I, this-and-that visible.

(d) The same modal usage pattern is evident in oral face-to-face adult narrative and quoted conversation embedded within it.

(e) In the non-conversational portion of the adult oral text we studied, deontic modal operators are not used as manipulative speech-act markers because the transaction goals in that context are predominantly epistemic. Once inside the quotation marks, with the goals shifting toward the deontic, the very same modal operators shift their use back to the deontic-manipulative.

It is of course yet to be determined which discourse type, or rather, which communicative context, is the true **prototype** of human language use. My own private bias conforms with Sandy Thompson's, tilting strongly toward the phylogenetically-and-ontogenetically--indeed also diachronically--prior context of **face-to-face oral communication**.

9.2. **Semantics vs. syntax**

Diessel and Tomasello's description of the two stages of child modal-use development pertains, strictly speaking, to **semantic interpretation**. There is no independent syntactic evidence that the two usages--direct speech-act vs. descriptive--differ syntactically in any way. The semantic developmental trend observed by Diessel and Tomasello thus in no way supports the thesis that children **expand** simplex syntactic structures into complex ones. At most, the process involves a semantic shift-- **change of modal scope**. But the directionality of this change is context-dependent, and it is practiced by both children and adults, in the latter both synchronically and diachronically.

9.3. **Syntactic condensation: From parataxis to syntaxis**

Our survey of the data suggests, strongly if not conclusively, that the earlier precursor of the child's complex verb-phrase constructions, of whatever modal sense, is to be found in the **joint coding** of complex clauses across adjacent child-adult or adult-child conversational turns. This conforms closely to what has been observed in the diachronic rise of both complex verb-phrases (V-complements) and complex noun-phrases (REL-clauses) . In both, earlier paratactic structures, with the two clauses packed under separate intonation contours, condense into later syntactic structures, with the two clauses falling under a joint intonation contour. The main difference between the diachrony and ontogeny of complex syntax, it seems, is that in diachrony this condensation takes place primarily across two adjacent intonation units of the **same speaker**. While in ontogeny, at least of complex VPs at this early developmental stage, the condensation occurs **collaboratively**, across adjacent child-adult or adult-child turns.

Footnotes

1
  The cross-turn construction--thus sharing--of clauses, propositions and discourse topics is just as prevalent in adult communication (Chafe 1994, 1997; Ervin-Tripp and Kuntay 1997; Linell and Karolija 1997; *inter alia*).
2
   Reference to the CHILDES data base... [re. Brian MacWhinney].
3
  The transcribed recording sessions for each of the three children from the CHILDES data-base studied here are as follows:

		STAGE I	STAGE II	STAGE III
EVE:	**age**:	1;9	1;10	2;0
	date:	1-14-63	2-25-63	4-29-63
	pp:	1-69	1-60	1-62
		I	II	III
NAOMI:	**age**:	1;10;10	2;0;02	2;2;25
	date:	4-18-70	6-10-70	9-08-70
	pp:	1-26	1-41	1-52
	ref #:	Naomi.11	Naomi.35	Naomi.51
		1;10;14	2;0;18	
		4-22-70	6-26-70	
		27-39	42-62	
		Naomi.13	Naomi.38	
		1;10;17		
		4-25-17		
		40-53		
		Naomi.14		
		1;10;18		
		4-26-70		
		54-62		
		Naomi.15		
NINA:	**age**:	1;11	2;3;18	2;9;26
	date:	11-05-70	3-07-71	9-15-71
	pp:	1-65	1-54	1-57
	ref #:	Nina01.cha	Nina.18	Nina.34

4

  Bates *et al.* (1979) deemed this issue problematic, suggesting that adults often misinterpret the child's speech-act intention at an early stage. I find this to be, largely, not the case at the age range studied here (1;8-2;9).

5

  The following example is taken out of a fictional account of adult epistemic-modal fencing match between two characters, Momma and Mrs P.J. King (Pearson 1985):

    "..."Pepsi Cola" she said. "Yes, I **believe** is was Pepsi Cola because **I'm near certain** it was Mr. Womble who ran the Nephi outfit". And Momma sat straight up and said, "Helen?"... But Mrs. Phillip J. King just went straight on and said, "It **had to be** Pepsi Cola. He owned the bottling plant **you know** in Burlington. **I mean** his daddy, **now I don' think** he ever owned it himself, but his daddy did and made a killing putting out Pepsi Cola until he sold the business and made another killing doing that. **Momma said** it was just a ton of money that changed hands. She was brought up in Burlington **you know**". "But Helen", said Momma... "And **they tell me** his wife was just a gorgeous woman but not from around here...**Momma said** he went out and got one all the way from Delaware or Ohio, **she couldn't ever remember** exactly which, but **I imagine** it was Delaware since **P.J. tells me**...that Delaware is one of your urban states...and **P.J. says** there's plenty of money in Delaware mostly on account of the Duponts, and she **might have even been** a Dupont herself, anyway **I don't know** that she **wasn't** and she was **probably** from Delaware **I imagine**, which is where they all come from..." "Wasn't it cookies instead of Pepsi-Cola?" Momma wanted to know. "Didn't Mr. Alton's Daddy make those savannahs with white cream filling and those little oval shortbread cakes that came in the blue sack?" And Mrs. Phillip J. King got a little hot on account of the cream-filled savannahs and the shortbread cakes and she said to Momma, "Now Inez, he **might have** dabbled in cookies later but **I can tell you for a fact** it was Pepsi-Cola at the first because **Momma said** it was Mr. Womble at the Nehi and Mr. Foster at the Coca-Cola and Mr. Tod W. Smith at the Sundrop and Mr. Nance at the Pepsi-Cola, and **Momma herself told me** it was Pepsi-Cola that made him his money but **I don't ever recall** a whisper of cookies **passing her lips**..."..." (T.R. Pearson, *A Short History of a Small Place*, pp. 193-195)

6

  The narrative was tape-recorded over several long sessions in Bloomfield, NM in 1981-1982, when the speaker as ca. 62 years old. The text was then transcribed but not edited, with punctuation marks reflecting, as much as possible, the oral intonation units. For the narrative portion, the first 10 pages (70-79) were counted. For the inside-the-quotes portion, the whole 32 page chapter (70-101) was counted. For the text, the endless conversations, the winter trapping and year-round fiddlin' and more, I am eternally indebted to Harris A. Brown (1923-1992). R.I.P.

References

Bates, E., L. Camioni and V. Volterra (1976) "The acquisition of performatives prior to speech", in E. Ochs and B. Schieffelin (eds 1976)

Boye, K. and P. Harder (2007) "Complement-taking predicates: Usage and linguistic structure", *Studies in Language,* 31.3

Carter, A. (1974) *Communication in the Sensory-Motor Period*, PhD dissertation, UC Berkeley

Chafe, W. (1994) *Discourse, Consciousness and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing*, Chicago: University of Chicago Press

Chafe, W. (1997) "Polyphonic topic development", in T. Givón (ed. 1997)

Diessel. H. (2005) *The Acquisition of Complex Sentences*, Cambridge: Cambridge University Press

Diessel, H. and M. Tomasello (2001) "The acquisition of finite complement clauses in English: A corpus-based analysis", *Cognitive Linguistics*, 12.2

Dixon, R.M.W. (1991) *A New Approach to English Grammar on Semantic Principles*, Oxford: Clarendon Press

Ervin-Tripp, S. (1970) "Discourse agreement: How children answer questions", in J. R. Hayes (ed.) *Cognition and the Development of Language*, NY: Wiley

Ervin-Tripp, S. and A. Küntay (1997) "On occasioning and structure of conversational stories", in T. Givón (ed. 1997)

Givón, T. (1979) *On Understanding Grammar*, NY: Academic Press

Givón, T. (1991) "The evolution of dependent clauses in Biblical Hebrew", in E. Traugott and B. Heine (eds 1991, vol. II)

Givón, T. (1993) *English Grammar: A Function-Based Introduction* (2. vols), Amsterdam: J. Benjamins

Givón, T. (ed. 1997) *Conversation: Cognitive, Communicative and Social Perspectives,* TSL #34, Amsterdam: J. Benjamins

Givón, T. (2001) *Syntax: An Introduction* (2 vols), Amsterdam: J. Benjamins

Givón, T. (2006) "Multiple routes to clause union: The diachrony of syntactic complexity" (in this symposium)

Givón, T. (2007) "Toward a diachronic typology of relative clauses" (in this symposium)

Heine, B., U. Claudi and F. Hünnemeyer (1991) *Grammaticalization: A Conceptual Framework*, Chicago: University of Chicago Press

Heine, B. and T. Kuteva (2007) *The Genesis of Grammar: A Reconstruction,* Oxford: Oxford University Press

Heine, B. and T. Kuteva (2008) "The genesis of complex clauses" (in this symposium)

Hopper, P. and E. Traugott (1993) *Grammaticalization*, Cambridge: Cambridge University Press

Linell, P. and N. Karolija (1997) "Coherence in multi-party conversation: Episodes and context in interaction", in T. Givón (ed. 1997)

Ochs, E., B. Schieffelin and M. Platt (1979) "Propositions across utterances and speakers", in E. Ochs and B. Schieffelin (eds 1979)

Ochs, E. and B. Schieffelin (eds 1979) *Developmental Pragmatics*, NY: Academic Press

Pearson, T. R. (1985) *A Short History of a Small Place*, NY: Ballantine

Scollon, R. (1974) *One Child's Language from One to Two: The Origins of Construction*, PhD dissertation, University of Hawaii at Manoa, Honolulu, Hawaii

Scollon, R. (1976) *Conversations with a One Year Old*, Honolulu: University of Hawaii Press

Thompson, S. (2002) "'Object complements' and conversation", *Studies in Language*, 26.

Thompson, S.A. and A. Mulac (1991) "A quantitative perspective on the grammaticalization of epistemic parentheticals in English", in E. Traugott and B. Heine (eds 1991)

Traugott, E. and B. Heine (eds 1991) *Approaches to Grammaticalization*, II, TSL 19.2, Amsterdam: J. Benjamins