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DEVELOPMENT OF DESIRE TERMS BY YOUNG GERMAN CHILDREN: A SEMANTIC-PRAGMATIC ANALYSIS

Use of the German desire terms *wollen* (want), *moechte* (would like), and *brauchen* (need) in three mother-child dyads was studied longitudinally in semi-naturalistic settings over a period of four months. At the onset of the study, two children were 23 months old and the third was 24 months old. Detailed semantic-pragmatic analyses of utterances containing the desire terms showed that the children were able to spontaneously refer to their own and others' desires with an increasing range of pragmatic functions. Both mothers and children focused mainly on the children's desires although children's reference to others' desires increased slightly over time. Children's use of the terms was differentially facilitated by activity type. Results were in broad agreement with previous findings for English speaking children and supported a theory of desire psychology in young children.

It is only in the last few years that greater attention has been given to the study of how the child acquires the use of the desire terms *want* and *need* as a window into the child's developing theory of mind. Previously, attention had been concentrated on more typical mental state terms like *think* and *know* because the focus was on when the child develops a belief psychology that is characterized by representational thought (see, for example, Johnson & Maratsos, 1977; Johnson & Wellman, 1980; Shatz, Wellman, & Silber, 1983). It was not until Wellman and Woolley (1990) postulated a desire psychology that is antecedent to a belief-desire psychology in the child that interest in the acquisition of desire terms per se (instead of these being just a subset of mental state terms in general) began to increase. Underpinning these studies is the idea that the child's development of language provides the researcher a means to infer the cognitive development that either undergirds it or is concurrent with it. Nevertheless, study of the acquisition of these terms is in itself of interest to child language development research, especially with the current focus on

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the acquisition of verbs. However, most of the studies that have been reported are in the English language. In line with the call by Slobin (1997) for more cross-linguistic research into language acquisition phenomena in order to substantiate, qualify and extend findings that have been garnered in the English speaking realm, the present study investigated the acquisition of these desire terms by young German children whose age ranged from 23 months to 27 months during the study.

This section will first consider how conceptions of a developing theory of mind lead to a study of the acquisition of desire verbs. It will then review some of the developmental psycholinguistic work that has already been done on the English desire verbs. This will be followed by a consideration of a number of theories of grammatical development which are germane to the acquisition of the German desire terms *moechte*, *wollen* and *brauchen*. Directly translated, want has two equivalents in German, i.e., *wollen* (want) and *moechte* (would like), and the German equivalent of need is *brauchen*.¹

Theory of mind conceptions

A theory of mind was initially conceptualized by Premack and Woodruff (1978) as the ability to impute mental states to the self and others. Subsequently, most early work (for example, Wimmer & Perner, 1983; Perner, Leekam, & Wimmer, 1987) interpreted this to mean a representational mind that could correctly solve false belief tasks which require the simultaneous representation of two conflicting beliefs. The results of these studies pointed to a developmental milestone at four years when the ability to solve these tasks emerged. However, these studies have been criticized on the grounds that given the right conditions, even three-year-olds succeed on these tasks (Bartsch & Wellman, 1989), and that children must first acquire a sense of the hypothetical before they can predict others' actions on the basis of false beliefs (Shatz, 1994). Indeed, already in the early 1980s developmental psycholinguists had started to document how children as young as 28 months use mental state words in conversations in natural settings (Bretherton & Beeghly, 1982; Shatz, Wellman & Silber, 1983). These findings, when combined with empirical support for the specificity hypothesis of Gopnik and Meltzoff (1986), which asserts that semantic and conceptual development are closely related, cast further doubt on such a narrow definition of a theory of mind for the developing child. According to the specificity hypothesis, the development of a particular cognitive concept, e.g. object permanence, leads to semantic items linked to that concept appearing in the vocabulary of the child, and vice versa. Therefore, use of mental state words or internal state words, should index development of the corresponding concepts.

More recently, Wellman, and Woolley (1990) have postulated a two-stage theory of the development of a theory of mind. In the first stage, which is evident by the age of two, the child functions with a desire psychology that affords her the ability to predict actions

¹ A complication here is that *wollen* and *moechte* are modal verbs and *brauchen* is a semi-modal whose auxiliary use requires the preposition *zu*. By comparison, *want* is not considered a modal verb in English whereas *need* is. However, *want* and *need* have been principally treated strictly as desire terms in the literature on desire psychology except when considered as the catenatives *wanna* and *needta* (e.g., Gerhardt, 1991). Therefore, it was considered appropriate to also treat their German equivalents only as desire terms for the purposes of this exploratory study.

and reactions in terms of simple desires. Only late in the child's third year does she develop the concept of belief and begin to function with a belief-desire psychology. Using a rigorous analysis of contrasts that children had made in their utterances, either between mental states and the world or between the mental states of different people, Wellman and Bartsch (1994) argued that "children understand crucial aspects of people's internal mental lives long before understanding beliefs and false beliefs" (p.346). In essence, they demonstrated that a desire-based theory of mind is plausible from the age of two and that this can be studied through analyzing children's use of desire terms. Their focus on linguistic evidence for a theory of mind is complemented by Shatz (1994) who views language as the medium through which a child develops a theory of mind. Shatz postulates that a theory of mind grows out of a developing social-linguistic intelligence that parallels language acquisition. In her view, it is through increasing facility with the language of her speech community that a child is able to participate in conversations in which internal states are expressed in public. By comparing herself to others in such interactions she reinforces her ideas of the role of these states in motivating behavior both for herself and others.

In a broad study of the desire talk of ten American-English speaking children from the age of 1;6 to 6;0, Bartsch and Wellman (1995) found that children as young as 1;6 could make genuine reference to desire states. In defining reference to genuine desire states, Bartsch and Wellman (1995) excluded the use of desire terms in simple behavioral requests, e.g. *I want* that, objectless uses, e.g., *I wanna*, and conversational uses including direct repetitions and idiomatic expressions. They reported that the proportion of the children's utterances that referred to genuine desire states increased from the ages of 2 to 3 years after which it remained relatively stable. In addition, they focused on how children could contrast their own desires to the desires of their interlocutors as the main indicator of a desire psychology that the children were operating with. They also found that, in general, children referred to their own desires before referring to the desires of others and that the lag between the two abilities is less than two months. Nevertheless, they observed that three children referred to both their own and others' desires right from the start, while one child referred to his own desires only months after referring to the desires of others. Bartsch and Wellman (1995) summarized their findings by stating that "children's early uses of desire terms in fact encompasses substantial genuine reference to psychological states of desire in themselves and others" (p.93).

It is also interesting to note that while still emphasizing the pre-eminence of representational thinking in the development of a 'true' theory of mind, Perner (1991a, 1991b) concedes that young children below the age of four do function with a simple desire psychology of goal-directed behavior. In sum, it would be safe to say that there is now a consensus among theory of mind researchers that a theory of mind begins with a desire-psychology, one manifestation of which is an increasing use of desire terms by the child.

Previous developmental psycholinguistic research

Many instances of earlier developmental psycholinguistic research, although not focusing exclusively on the desire terms *want* and *need*, either did include them in more general categories of internal state words or, when exclusively examining mental state verbs, did provide a valuable foundation on which more recent studies are based. One of

the earliest studies (Bretherton & Beeghly, 1982) examined maternal reports of the use of internal state words grouped in six categories (perception, physiology, affect, volition/ability, cognition, moral judgement /obligation) by their 28-month-old English-speaking children, including the terms *want* and *need* in the category volition/ability. It was found that by 28 months, 93% of the children had acquired the use of the term *want* while 67% were using *need*. Further, although the terms were more commonly applied to the self, 77% were using *want* to refer to others and 60% were doing the same with *need*. A main conclusion of this study was that the mastery of language renders the children's theory of mind increasingly observable and explicit because it was clear that they could interpret their own and others' internal states, refer to past and future experiences, and talk about the causes of, and changes in, these states. However, the study mainly examined whether a child used particular mental state terms, whether she talked about them in a negative sense and whether she asked questions about them. There was also an *a posteriori* analysis of causal relationships between pairs of utterances but an analysis of the pragmatic function of each utterance for the speaker was not done.

In a subsequent study, Beeghly, Bretherton, and Mervis (1986) examined the maternal input of internal state language according to the same categories in three naturalistic settings, i.e., during free play, a snack and a story-telling session, when the children were aged 13, 20 and 28 months. They found that mothers increased their use of internal state language as children matured linguistically, that concurrently the attribution of internal states was to an increasing variety of social agents, and that this mirrored the children's increasing abilities to differentiate self and other. Additionally, mothers' use of terms describing volition/ability (including *want* and *need*) was found to be significantly more frequent in the free play and snack situations. The cause of this was taken to be that in these situations mothers were more concerned with their children's behavior than in the story-telling context. This study concentrated on the frequency of occurrence of internal state terms, the frequency of their use in reference to self and other, and the frequency of internal state attributions about the children, others and objects. Hence, attention was not paid to how utterances were used by speakers to achieve different pragmatic functions.

A functional analysis would differ from analyses that examine the age of onset of using a term or frequencies of use of a term by focusing on how speakers use linguistic forms to achieve particular pragmatic functions (see Budwig, 1995). Since it cannot be assumed that children use particular forms to achieve the same functions as adults do, it will always be important to analyze children's use of forms from the perspective of the children in terms of what the forms are doing pragmatically for them (Bamberg, Budwig, & Kaplan, 1991). In this vein, Shatz et al. (1983) analyzed the functions of mental state verbs by their child users, coming to the conclusions that the earliest use of mental verbs are for conversational purposes, that the first attempts at mental reference begin to appear in the second half of the third year, and that "natural language data, when analyzed appropriately with regard for both form and function, provide a viable tool to access information about the child's understanding of the internal world" (p.318).

In a functional analysis of the talk about internal states by mothers and children, Brown and Dunn (1991) found that the use of a desire psychology by mothers in their everyday interactions with their children between the ages of 24 and 36 months contributed to children's early focus on desires. This effect was due to mothers talking more about desires and feelings in didactic/controlling contexts, mainly referring to the children when talking

about desires and making more causal references in conversations about desires. Hence, children's talk about their own desires and feelings, mainly in relation to their own immediate needs, emerged at 24 months, increased in frequency, and predominated until around 36 months, when other mental terms began to be used more frequently, in broader contexts, and with much greater reference to others. This shift was observed to coincide with a change in focus by mothers onto mental state terms.

This developmental sequence in children's talk was confirmed by a longitudinal variation analysis of both desire and belief terms by Moore, Furrow, Chiasson, and Patriquin (1994) but they found no evidence of a correlation between maternal use of desire terms and children's concurrent or future use of either desire or belief terms. The latter disparate finding is probably due to the different analyses employed. While Brown and Dunn (1991) conducted a functional analysis of desire talk and subjected the data to non-parametric analyses (Chi-square and log-linear analysis), Moore et al. (1994) limited their data to frequencies of occurrence of desire and belief terms which were then subjected to parametric analysis of variance and correlational analysis. Thus, although it has been repeatedly found that *want* and *need* are by far the two most common desire terms in children's productive vocabularies in the pre-school period (Moore et al., 1994), the role of mothers' use of desire terms on children's production of these terms has yet to be unambiguously understood due to research methodologies that are not consistent from one study to another.

Another unresolved issue is how the young child uses desire terms in a pragmatic sense since previous studies either used broad categories (Brown & Dunn, 1991) or did not include a functional analysis at all (Bartsch & Wellman, 1995; Bretherton & Beeghly, 1982; Moore et al., 1994). More recently, Budwig (in press) has demonstrated that a detailed semantic-pragmatic analysis of the way children use desire terms is an effective method to gain insights into children's developing theory of mind. Specifically, through her analysis, Budwig showed that a major shift occurs when children realize that "desire alone is not enough to motivate action" (p.14). Rather, children learn that they have to seek social permission in order to fulfill their desires when previously they had only to use their expressions of desire instrumentally to get adults to act for them. It thus appeared that a semantic-pragmatic analysis was the method of choice because it would provide a better insight into how children use desire terms from their own perspectives and not according to assumed adult usage.

Further, the question of whether an experimental setting or the analysis of spontaneous production in a naturalistic setting was the more appropriate can be considered. Although it has been reported that the semantic and pragmatic differences between *want* and *need* can be discerned by children in experiments only at the age of four (Moore, Gilbert, & Sapp, 1995), earlier work by Johnson and Maratsos (1977) indicated that true mental state reference appears earlier than the age reported for comprehension in experiments. Moreover, Gerhardt (1991), using a semi-naturalistic observation method, has shown that three-year-old children are able to use *wanna* and *needta* with different meanings and for different pragmatic functions. Most recently, when summarizing the findings of a large longitudinal study on mental state terms, Hughes and Dunn (in press) concluded that, although laboratory tasks may be a quick method of assessing children's social insights, they might not be sensitive enough to thoroughly capture how children apply their understanding of mind to the everyday social world. These considerations contributed to the

choice of a semi-naturalistic setting for the present study and a focus on a detailed semantic-pragmatic analysis of utterances containing the desire terms.

Language acquisition and linguistic considerations

Because there is very little research on the acquisition of the German modal verbs *wollen* (want), *moechte* (would like) and *brauchen* (need) in the literature, a consensus on when they begin to be used by children has not yet been established. In a general review of the acquisition of German, Mills (1985) noted that such forms begin to appear in children's speech at around the age of three years and that they are usually used correctly. This appears to be rather late in comparison to the theory-of-mind and developmental psycholinguistic literature on the acquisition of *want* and *need* in English. Moreover, Adamzik (1985), on analyzing a corpus of diary studies, reported onset of the use of *wollen* as early as 17 months (with a range of 17 to 28 months) and also noted that *wollen* is the modal verb used most frequently by young children. From Adamzik's (1985) frequency data it was clear that *moechte* and *brauchen* were the two most infrequent modal verbs used by young children learning German and that the children's use was not as error free as Mills had reported. Adamzik also argued that frequency and pattern of usage were related to children's needs to fulfill their desires and to the frequency of adult usage.

In an analysis of English-speaking children's use of *will* and *gonna*, Gee (1985; Gee & Savasir, 1985) concludes that children frequently use modality with meanings and functions that are different from adult usage. Gee goes on to advocate more 'ethnographic' studies of modality which analyze how children use modal forms for functions that differ from assumed adult functions. This is similar to a developmental-functionalist perspective (Budwig, 1995, in press) which takes the language-learning child to be actively constructing language with the forms available to her in order to fulfill the functions of her communicative needs. Research based on this line of reasoning emphasizes a thorough semantic-pragmatic analysis of the language forms used by the young child because it cannot be assumed that the use of particular forms automatically entails the usual adult functions associated with them. Additionally, this position would predict that a comparison of the pragmatic use of desire terms by children and their caregivers would show important differences because of their different communicative needs.

To argue that children's early use of linguistic forms will relate to their communicative needs does not necessarily deny the important role of children's cognitive development in this process. Slobin's (1985) earlier position arguing for a Basic Child Grammar suggests as well that children are not simply copying adult patternings but rather relating linguistic forms to particularly salient scenes (see Budwig, 1989; Slobin, 1985 for illustration). Nelson (1996) also has linked cognitive, linguistic, and social development suggesting that early language development rests firmly within mimetic event structures such as "mealtime" or "having a bath." These event structures are mentally represented as action schemes by children before particular linguistic forms are acquired. As language is constructed by the child, linguistic forms that are typical to particular events are said to be learned more easily and within the framework of these situations. One remaining question concerning the acquisition of German desire verbs is whether early patterning is similarly related to particularly salient activities.

The present study

This was an exploratory study that investigated young German children's early use of the desire terms *wollen* (want), *moechte* (would like) and *brauchen* (need) from the age of 23 months to 27 months, focusing both on the role of the linguistic input and the pragmatic functions of their utterances. Specifically, the following questions were of interest:

- 1) Were the children using these forms to express their own desires and the desires of others as predicted by a desire psychology?
- 2) Were there patterns of change in the frequency of the use of these forms by the children and/or their mothers over time?
- 3) Did the children and/or their mothers have preferences in expressing the form of the experimenter?
- 4) Were there systematic relationships between mothers' and children's use of these forms?
- 5) Did children and mothers show pairings of forms of desire terms and pragmatic functions and, if so, were these related?
- 6) Were there certain activities that were particularly conducive to the use of these desire terms?

Following Nelson's (1996) theory, we questioned whether particular events such as "mealtime" with its routinized use of desire verbs might be a site for early desire verb usage.

Method

Participants

The data used in this study stem from Budwig's crosslinguistic research on early grammatical development (see Budwig, 1989; Budwig, Stein, & O'Brien, in press, for details). Three German children and their mothers participated in the study. They were of middle class background and from the former East Berlin. The data were collected just after reunification. To maintain anonymity the children were given the code names Johannes, Lisa and Kathrin. At the onset of the study Johannes and Kathrin were 23 months old while Lisa was 24 months of age.

Procedure

Each mother and child dyad was videotaped and audiotaped in their own home while engaging in semi-naturalistic play. The average length of each session was 45 minutes with each dyad being recorded once a month for four months. The activities during each play session were the same across all four months and involved play with blocks and a locomotive and with a teaset and toy kitchen utensils.

Using a modified version of the CHAT procedure (see MacWhinney & Snow, 1990), transcripts were made of each session. These transcripts were used with both the videotapes and the audiotapes to code the target utterances that contained the desire terms *wollen* (want), *moechte* (would like) and *brauchen* (need).

Coding

All the targeted utterances were coded according to the following multi-level system based in part on a scheme developed by Budwig, Smith, Moissinac, and Curtin-Mosher (1998):

Level 1: Frequency of verb use. Coding here involved which of the three verbs, *wollen*, *moechte* or *brauchen*, was used.

Level 2: Stated experiencer. The stated experiencer of the desire term was noted. This functioned as the measure of how children's use of these terms apply to the desires of self and other as well as how caregivers frame their interactions with children concerning desire. The categories used were: self, other, joint, normative (use of the German impersonal pronoun *man* which can be translated either as *one* or the impersonal *you*), and unclear experiencer.

Level 3: Form of the experiencer. The verbalized form of the experiencer was recorded to determine whether children had particular preferences in expressing whose desire they were referring to. Coding categories at this level were: noun, pronoun, pseudopronoun (which included both children's made-up forms and colloquial forms), reflexive pronoun and a null form when the experiencer was not stated.

Level 4: Pragmatic function. The pragmatic function of each utterance for its speaker was coded according to the following categories:

- (1) Active Assertion: speaker asserts a desire and acts on it. This is not limited to actions that realize the desire but also to actions that emphasize the speaker's desire or those that point in the direction of desire fulfillment.
- (2) Internal State Assertion: speaker states desire without acting on it. This differs from an active assertion in that the speaker remains passive and waits for her interlocuter to act to fulfill the stated desire.
- (3) Clarification: speaker reaffirms the desire of other.
- (4) Permission: speaker seeks permission to fulfill her own or her interlocuter's desire.
- (5) Inquiry: speaker acts on own desire to inquire about other's desire concerning an object or action in the form of a question, without seeking permission.
- (6) Invitation: speaker invites other to co-participate in action.
- (7) Objection: speaker protests/objects to other's desire/action.
- (8) Prohibition: speaker tries to stop or prevent other's action.
- (9) Suggestion: speaker suggests an action to her interlocuter. This is usually in statement form but occasionally takes the form of a question.
- (10) Other Directive: a directive that does not fit into categories (1)-(9).
- (11) Multifunctional Act: any combination of the above.
- (12) Uncodable: utterances that cannot be interpreted and 'pretend talk'.

Level 5: Discourse context: At this level it was of interest whether a target utterance had been spontaneously generated by the child or was in response to a question or statement by the mother that contained the same verb. The criterion used was whether the mother had used that verb in the three turns prior to the target utterance.

Level 6: Activity type. Each target utterance was coded according to the type of play activity in which it occurred. The different activities were grouped into the following two categories:

- (1) Blocks and locomotive
- (2) Teaset and kitchen utensils

Analysis

Analysis focused mainly on how children used the desire terms at each level as well as whether there were observable systematicities between maternal use and children's use in terms of frequency and pragmatic function. In addition, relationships between levels were also investigated. Analysis was facilitated by the use of SPSS for windows.

Results

Taken across all the recorded sessions, mothers used the desire terms in 353 utterances whereas the children as a group used the terms a total of 69 times. Further, use of the desire terms by each child in the sessions began at 25 months of age, which was at the second session for Lisa and Kathrin and at the third session for Johannes. Results will thus be subsequently reported from the second session onwards. Children's use of *wollen*, *moechte* and *brauchen* was observed to increase over time while their mothers' use of the terms showed a slight decrease over the same time period (see Figure 1).

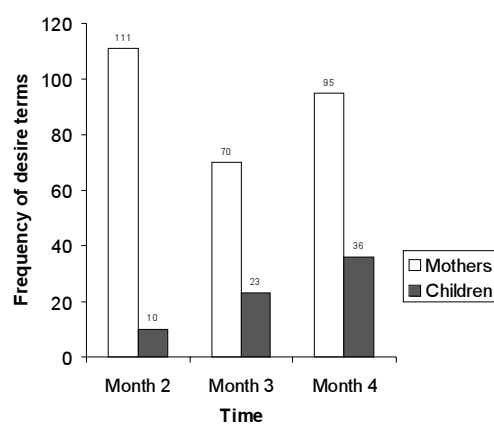


Figure 1. Frequency of use of desire terms by mothers and children over time

Of the three desire terms, *wollen* was consistently used most frequently by both mothers and children. Mothers used *moechte* proportionately more often than *brauchen* (26.3% versus 5.1%) while children used *brauchen* proportionately more frequently than *moechte* (13% versus 8.7%). These preferences are depicted in Figure 2.

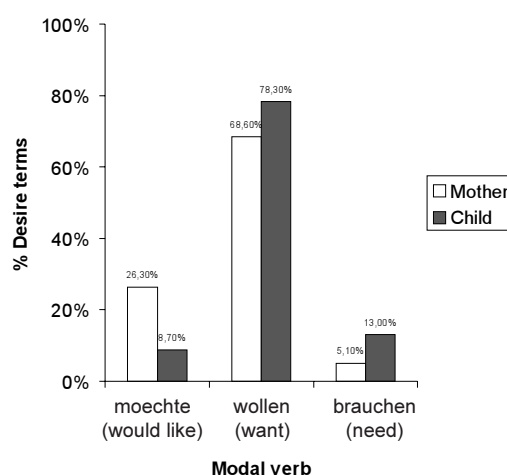


Figure 2. Percentage of different desire terms used by mothers and children

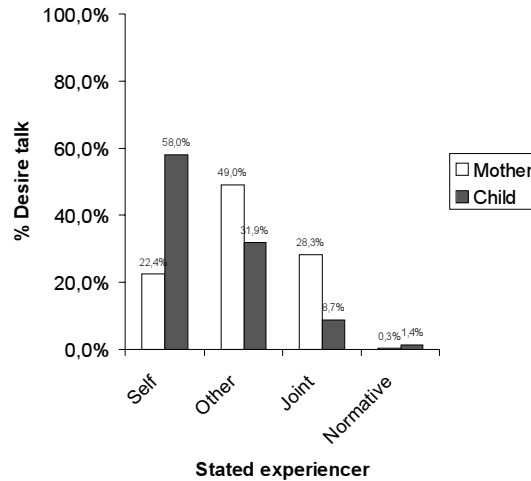


Figure 3. Reference to experiencer in mothers' and children's desire talk

It was clear from the data that children's use of the modal forms was generally grammatically correct except for instances when the subject of the sentence was left out.

Examples (1)- (4) illustrate children's use of *wollen*, *moechte* and *brauchen*:

- (1) *Ich will die Schippe.*
I want the scoop
{ 'I want the scoop' }
- (2) *Wollen wir ein Essen kochen?*
want we a meal cook
{ 'Do we want to cook a meal?' }
- (3) *Ja, ich moechte noch ein bisschen.*
yes, I would like more a little
{ 'Yes, I would like a little more.' }
- (4) *Hier brauchen wir keine.*
here need we not any
{ 'We do not need any here.' }

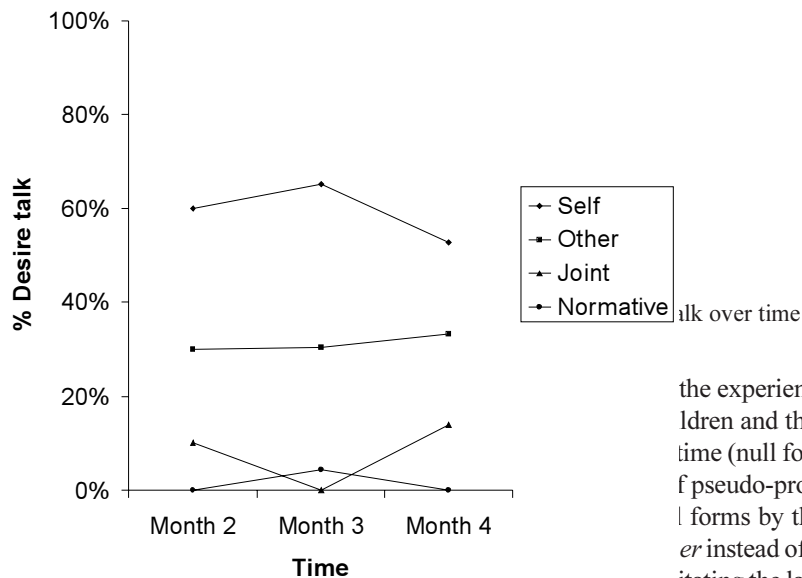
The next level of analysis concerned whether children were only able to express their own desires or whether they could also refer to the desires of others. In general, the children referred to their own desires nearly twice as much as to the desires of others, principally their mothers (see Figure 3), although they also on occasion referred to the desires of third persons (see Example (5)). Two of the children (Johannes and Kathrin) referred to desires of both self and other right from the onset of the use of the desire terms while Lisa took two months before she began to refer to the desires of others. Overall, the children infrequently referred to desires that were jointly shared with their mothers.

- (5) *Die wollen auch mitspielen.*
they want also play along with
{ 'They also want to play along.' }

The mothers, on the other hand, referred to the desires of the children more than twice as much as to their own desires (see Figure 3). Furthermore, mothers frequently expressed an inquiry about the child's desire to participate in play activity in terms of a joint desire (see Example (6)). Normative reference to desires by both mothers and children was rare.

- (6) *Wollen wir noch 'n anderen Bahnhof bauen?*
 want we yet an other railway station build
 {'Do we want to build another railway station?'}

From a developmental standpoint, the children showed a slight downward trend in the expression of their own desires while reference to others' and joint desires increased slightly over the three months (see Figure 4).



the experiencer of the expressed desire
 children and their mothers (see Figure 5).
 time (null form) and used nouns in 14.5
 pseudo-pronouns was very low, espe-
 cially forms by their mothers (22.4 %), e.g.
er instead of *wollen wir* ('do we want').
 imitating the language forms used by their

mothers. In addition, the mothers used nouns and null forms very infrequently.

A comparison of the desire talk of the children and the mothers on the level of pragmatic function also indicated that the children were not imitating their mothers in an indiscriminating way. The children were most frequently using desire talk to make Active Assertions, Internal State Assertions and Invitations, these together making up 82.6 per-

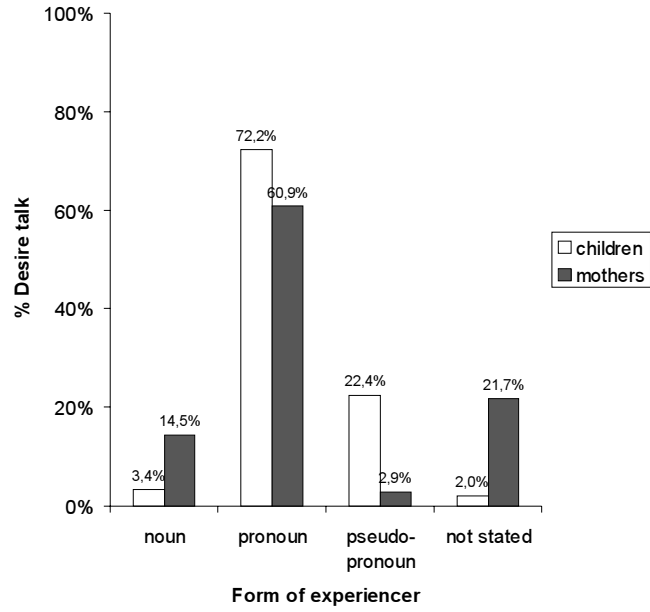


Figure 5. Form of experiencer in desire talk

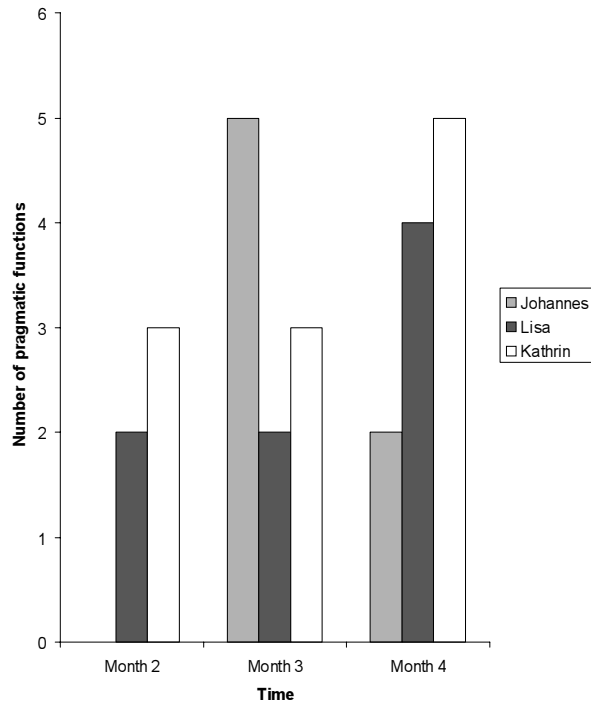


Figure 6. Children's pragmatic functions over time

Table 1. Relative frequency of pragmatic functions used by mothers and children.

	Mother	Child
Active Assertion (AA)	4.5	42.0
Internal State Assertion (IA)	13.0	20.3
Clarification(CA)	12.5	10.1
Permission (PE)	4.0	0.0
Inquiry (IQ)	20.7	4.3
Invitation (IN)	28.6	20.3
Objection (OB)	5.1	1.4
Prohibition (PR)	4.2	0.0
Suggestion (SU)	6.8	1.4
Other Directive (DO)	0.3	0.0
Uncodable (UN)	0.3	0.0
Total	100.0	100.0

cent of the children's desire utterances. An approximately corresponding proportion (81.6%) of the mothers' desire talk was used pragmatically as Invitations, Inquiries, Clarifications, Permissions and Suggestions (see Table 1).

It was notable that, although Active Assertions and Internal State Assertions were not exclusively limited to reference of the desires of the self, both mothers and children used them in this way with very few exceptions (these isolated cases referred to joint desires and never to the desires of others). In this way, children used speech acts that were principally focused on their own desires (AA + IA = 62.3%) but it was clear that they also could use speech acts that attend to the desires of others (IN + CA + IQ = 34.7%). By contrast, the mothers seemed mainly to employ speech acts concerned with the desires of their children (IN + CA + IQ = 61.8%) rather than with their own desires (AA + IA = 17.5%). The children were thus not just copying pragmatic use of the desire terms according to how often mothers were using particular pragmatic functions. Rather, they were using the desire terms for pragmatic functions that mainly fulfilled their own desires, and by extension, their own communicative needs.

A central finding with respect to pragmatic function concerns the range of functions co-occurring with the desire terms. It is evident that mothers used desire talk to achieve the full range of pragmatic functions whereas the children were more limited in their range, Permissions and Prohibitions being absent in this three-month period. Developmentally, Lisa and Kathrin increased the number of pragmatic functions they used over time but Johannes seemed to use fewer functions from onset to the next month (see Figure 6).

Examples (7)-(11) illustrate how children used the desire terms to achieve different pragmatic functions:

- (7) AA: *Ich will haben* (Lisa, 25 months, reaching for the toy train)
I want have
{‘I want to have (that)’}
- (8) IA: *Der braucht noch ein(en) Baustein* (Johannes, 26 months, with no movement)
he needs still one building block
{‘He needs another building block’}

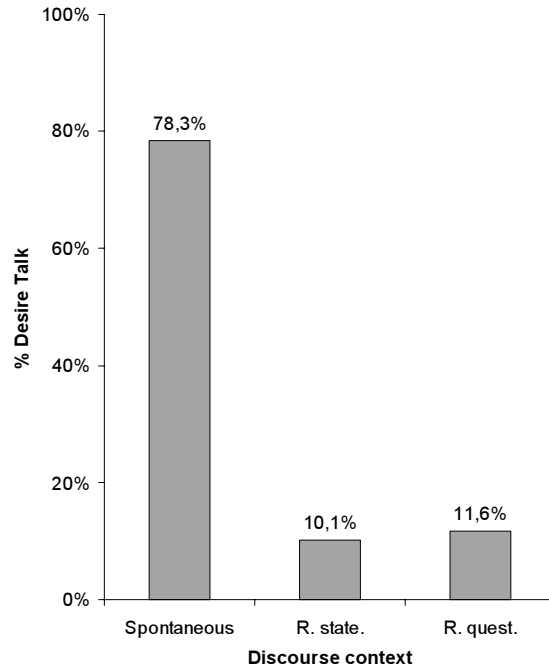


Figure 7. Discourse context of children's desire talk

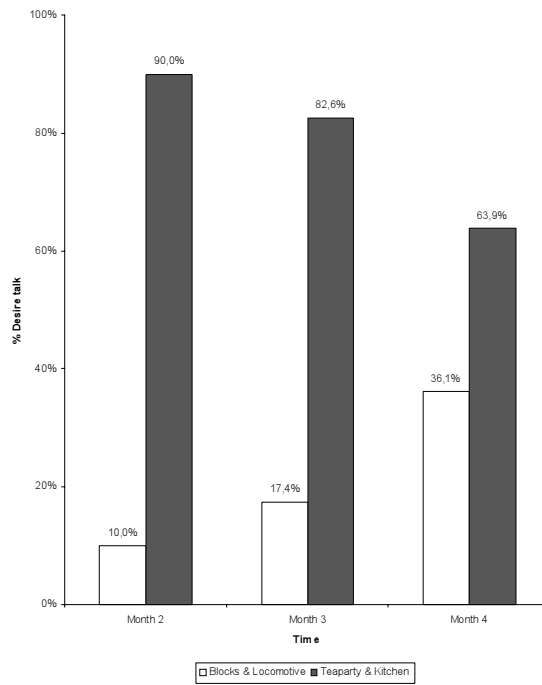


Figure 8. Percentage of children's desire talk by activity and time

- (9) IN: *Willst du nicht mehr?* (Kathrin, 25 months, offering food to mother)
 want you not more
 {'Don't you want any more?'}
- (10) (Lisa, 27 months, responding to her mother's question asking her whether she could cook her mother another meal)
 CA: *Wollen wir ein Essen kochen?*
 want we a meal cook
 {'Do we want to cook a meal?'}
- (11) IQ: *Willse (will sie) mal da hinfahren?* (Kathrin, 27 months, asking about the train) want she once there move away
 {'Does it want to move there?'}

Further support for the idea that children were not imitating their mothers' use of the desire terms comes from the fifth level of analysis of the discourse context of the children's utterances. Based on whether the same term had been used in the previous three conversational turns by the mother, children's use of the desire terms was found to be predominantly spontaneous (78.3%). Responses to questions containing desire terms i.e., which would represent responses to the highest level of discourse scaffolding, generated only 11.6 percent of desire term use by the children (see Figure 7). The remaining proportion of desire term use by children was in response to statements containing the corresponding term (10.1%).

On the final level of analysis, children were found to use desire talk differentially according to the play activity they were engaged in. Children consistently used more desire talk within the teaparty and kitchen activity compared to the play with blocks and the locomotive. Additionally, it seemed that, as desire talk increased within the play with blocks and locomotive, it decreased in the other activity (see Figure 8). It was also found that children made reference to the desires of a more balanced range of experiencers within the teaparty and kitchen activity compared to the activity involving blocks and locomotive, in which children started out by referring to their own desires.

It was only in the fourth month that desire talk while playing with the blocks and locomotive began to refer to others (see Figures 9a and 9b).

It would seem that the children refer more, and more consistently, to the desires of others within the teaparty/kitchen activity. However, when the desire talk within the teaparty/kitchen activity was subjected to closer scrutiny it was found that reference to others' desires overwhelmingly involved formulaic utterances that were defined to be related to the offer and transfer of food or drink (80%). These formulaic utterances should not be considered to be genuine references to desire because they are essentially script-like in character. On the other hand, references to the children's own desires were found to be mainly non-formulaic (59.3%). These results indicate that although the use of desire terms is more prevalent within the teaparty/kitchen activity and references to others' desires also occur with higher frequency here, caution must be exercised in interpreting these references to others' desires as indexes of genuine desire. Examples (12)-(15) illustrate formulaic and non-formulaic desire utterances with reference to both self and other:

- (12) Self/Formulaic: *Ich will noch nichts trinken.*
 I want still nothing drink.
 {'I still do not want anything to drink.'}

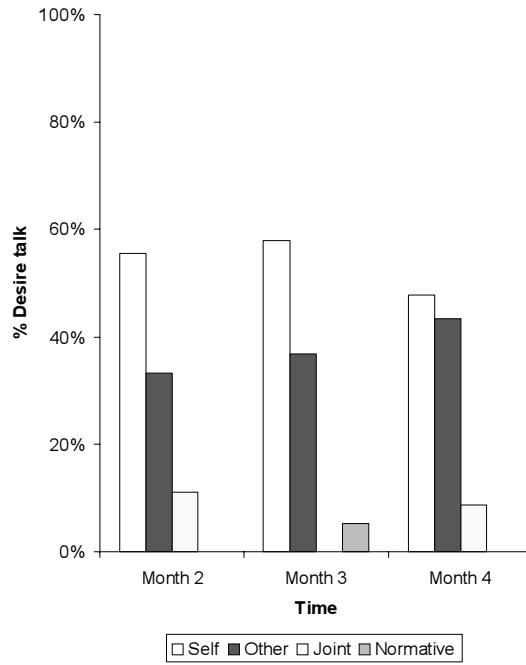


Figure 9a. Children's desire talk within the teaparty/kitchen activity

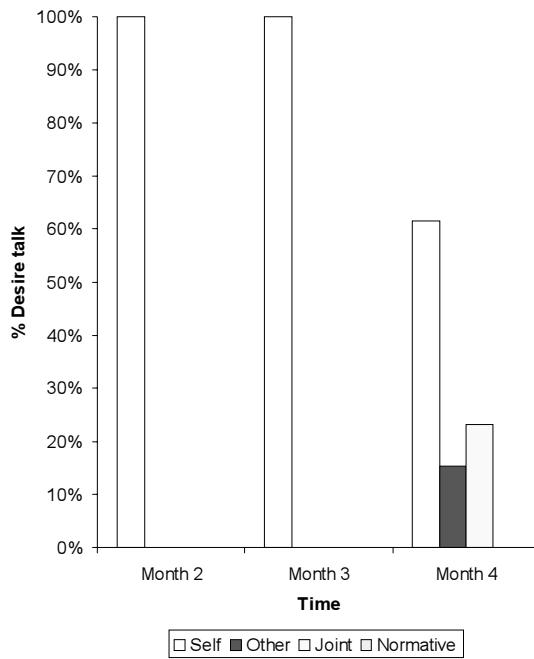


Figure 9b. Children's desire talk within the blocks/locomotive activity

- (13) Self/Non-Formulaic: *Ich will kochen.*
I want cook.
{‘I want to cook.’}
- (14) Other/Formulaic: *Willst du auch essen?*
want you also eat
{‘Do you also want to eat?’}
- (15) Other/Non-Formulaic: *Die wollen auch mitspielen.*
they want also play along with.
{‘They also want to play along.’}

In summary, it was found that German children spontaneously began to use the desire terms *wollen*, *moechte* and *brauchen* at about 25 months of age. *Wollen* was used most frequently but the use of all three terms showed an upward trend with increasing age. In general, these German children were able to refer to their own and others’ desires right from the onset of use of these terms. It was clear that the children were not imitating either form or pragmatic function from their mothers’ use, according to frequency of use, but were using the terms to construct utterances that fulfilled their own communicative needs. There was also a clear facilitating effect of the type of play activity on the use of the desire terms. Use of the terms was much more prevalent within the teaparty/kitchen activity within which children used the terms to refer much more to the desires of others than in the play activity with blocks and locomotive. Within the latter activity, desire reference was limited to the self for the first two months after which it was extended to reference to others. However, it was also found that a majority of the references to the desires of others was limited to formulaic, script-like utterances related to the offer and transfer of food or drink. This was not the case with respect to children’s reference to their own desires when non-formulaic utterances were most common.

Discussion

Consistent with many similar findings for English-speaking children (Bartsch & Wellman, 1995; Bretherton & Beeghly, 1982; Brown & Dunn, 1991; Moore et al., 1994), this study found that young German children between the ages of 25 and 27 months could refer to both their own and others’ desires. Although the children consistently referred more to their own desires, over the course of the three months the children showed a slight decrease in the reference to their own desires and a slight increase in the reference to the desires of others. This can be interpreted according to Shatz’s (1994) theory of the developing child’s increasing social-linguistic intelligence. As the child participates in more linguistic interactions she increasingly realizes that others have desires like her own and consequently makes more reference to them.

With respect to previous findings on the use of these German modal verbs, age of onset at 25 months was more consistent with the range reported by Adamzik (1985) than that reported by Mills (1985). The children’s predominant preference for the verb *wollen* and the relatively infrequent use of *brauchen* and *moechte* were also in line with Adamzik’s description. The finding that the children made few grammatical errors in using the modal verbs seems to provide support for Mills’s report that initial use was generally accurate. This is not altogether contradictory to the analysis of errors of early modal verb use by Adamzik because the children in this study were only constructing very simple sentences

whereas Adamzik's analysis extended to complex sentences. It might thus be the case that early use in simple sentences is generally accurate but errors set in as children attempt more complex constructions.

There were only very few direct similarities between the children's and their mothers' use of the desire terms. At the level of form, both children and mothers predominantly preferred to use *wollen*. It was nevertheless clear that the children were not simply imitating their mothers' use of *wollen* since their use of the desire terms was mainly spontaneous. Another similarity was that pronouns were principally used by both children and mothers when referring to the experiencer of a desire. But it was clear that this did not involve imitation because the children very rarely used the colloquial forms that were quite prevalent in their mothers' speech. In addition, both mothers and children referred mainly to the desires of the children and this was borne out by the analysis of pragmatic functions of the desire utterances. However, there were no specific form-function pairings used by either mothers or children. Moreover, the pragmatic analysis also indicated that the children were not imitating their mothers' pragmatic uses of the terms. Taken together, these findings provide some support for the idea that mothers' use of desire terms is not predictive of their children's use (Moore et al, 1994). It must be kept in mind, though, that this study is only a small scale one and these results should not be taken as definitive.

While the children could not be said to be imitating caregivers, it was observed that the children could use the desire terms for pragmatic functions that fulfilled their own desires. Further, they generally were able to use an increasing number of pragmatic functions over time. It would be reasonable to suggest that this pattern of development reflected the children's progressive ability to add new functions to established forms to satisfy their communicative needs (Bamberg, Budwig, & Kaplan, 1991; Werner & Kaplan, 1963/1984).

One of the most interesting findings of the study was the differential use of the desire terms in the two different play activities that the children were engaged in. In the play with the teaset and kitchen utensils, the children appeared to be able to refer to the desires of both self and other from the outset. On the other hand, use of the desire terms in the activity involving the blocks and locomotive was limited in the first two months to reference to the children's own desires. Closer scrutiny revealed that most of the references to others' desires in the teaset/kitchen utensil situation were of a script-like nature that relate to the offer and transfer of food or drink. Whether these should be considered references to genuine desires is a matter of debate. Whatever the case, this finding lends support to Nelson's (1996) theory of language acquisition since the desire terms were first used most frequently and with most variety in a situation that seems to be conducive to their use. In this view, new language forms enter most easily into situations appropriate to their use that have already been represented as mimetic or action schemes in the child's cognitive system.

It was also observed that, as the use of the desire terms increased within the activity with the blocks and locomotive, there occurred a corresponding decrease in their use in the teaset/kitchen utensil situation. This development was paralleled by an extension of reference to the desires of others in the fourth month within the blocks/locomotive activity. These observations can be understood within an organismic-developmental framework in which development is protracted and involves increasing differentiation and hierarchical integration (Budwig, 1995; Werner & Kaplan, 1963/84). It could thus explain how the use of the desire terms within the blocks/locomotive activity became functionally differenti-

ated over time as well as how the use of the desire terms within both activities gradually became integrated into a common system.

In general, this study has demonstrated that young German children are able to use desire talk to fulfill the communicative needs related to their desires and the desires of others as predicted by a desire psychology. It was also found that development of the use of the terms is protracted and related more to a growing theory of mind than to pure linguistic development. These findings broadly parallel those already obtained from research on English-speaking children. The study also indicated that children do not simply imitate the characteristics of the speech of their mothers with regard to the desire terms. On the other hand, specific form-function relationships in the use of these terms were not found for either the children or their mothers.

The findings of the present study suggest reason for further study. Clearly a larger sample of German speaking children is needed to determine how much individual variation exists. Furthermore, it would appear productive to examine modal aspects of desire terms in slightly older children since it is clear that this study has only tapped into the earliest phase of development (see Quigley, in press, for further support). Finally, our ongoing comparative analysis of a matched sample of English-speaking children (see Moissinac, Smith, & Budwig, in progress) will help to better understand universal and particular aspects of the development of desire verbs.

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