Östman, J.-O. 1981. *You know: a discourse functional approach.* Amsterdam: Benjamins.
Quine, W. V. 1960. *Word and object.* Cambridge: M.I.T. Press.
Rommetveit, R. 1974. *On message structure.* London: Wiley & Sons.
Talmy, L. 1988. The relation of grammar to cognition. In B. Rudzka-Ostyn (ed.), *Topics in cognitive linguistics*, 165-205. Amsterdam: Benjamins.

Lund University, Dept. of Linguistics
Working Papers 38 (1991), 29-44

Who Takes Whom?

Response-Analysis of Mother-Child Interaction[1]

Boel De Geer

Certain aspects of the interaction between internationally adopted children and their mothers are described, such as choice of interactive strategy, patterns of responsiveness, use of different utterance functions and syntactic form of utterances. These patterns are studied developmentally and compared to behaviour in non-adoptive dyads. Furthermore, it is shown that differences between mothers' performance are not only a matter of individual style, but also a result of the children's behaviour.

Introduction

Mother-child interaction has become an increasingly popular topic of investigation during the late 1970's and throughout the 1980's. This study deals with a special kind of mother-child interaction – namely of dyads where the mother and the child are complete strangers to each other. This kind of dyad constellation can be found in families who have adopted a child from abroad. In such a family the child and the mother are strangers to each other both in the sense of acquaintance and lack of a common and continuous background and in the sense that they speak different languages. The internationally adopted child is a language switcher, at whatever age the adoption takes place.

Ever since international adoptions (IA) started in the 1950's, Sweden has been a major adopting country. There are now over 30,000 people in Sweden who have been adopted from abroad and the yearly number of children arriving is approximately 1,000. The most important countries of origin are at present Korea, India and Columbia. For a review of the adoption procedure in Sweden and its participants and consequences as well as a presentation of previous research within the field, I refer to De Geer 1990.

Interaction in IA dyads

There are many interesting aspects of the interaction between IA mothers and children. In this study I have concentrated on the following:

[1] With financial support from the Swedish Research Council for the Humanities and Social Sciences.

- Responsiveness and patterns of response.
- The adjustment of the mother towards the child's interactive style.

Responsiveness

How sensitive are IA mothers towards their children's communicative signals? How does this behaviour develop over time? Does IA mothers' responsive behaviour differ from that of Swedish mothers with non-adopted children? How does child responsiveness develop?

In order to find an answer to the above questions, I have applied a somewhat modified version of the IR-analysis model, as constructed by Linell & Gustavsson 1987.

The IR-analysis model aims to measure the dynamics of dialogues in terms of dominance, dialogue flow, and coherence. The basic unit of analysis is the turn, and every turn is coded in terms of its initiative or responsive characteristics. Initiatives can be either strong and explicitly demanding a response (questions, imperatives), or weak and only implicitly requesting a response (assessments, declaratives). Responses can be either minimal, expanded, or even combinations of response and initiative. Responses can be both adequate or inadequate, and their scope can vary (being directly or indirectly linked to the preceding turn, etc.).

The IR-analysis model was originally developed to account for adult data in order to among others capture dominance relations between interactors. In order to use it on my adult-child language data, I made some adjustments. The reason for this was that the original model does not take into account nonverbal communication, something which is crucial in adult-child interaction. Furthermore, the original model contained too many categories for my purposes. I was interested in the actual initiative and response characteristics of the turns. It was therefore sufficient to use a smaller number of categories. Another adjustment of the original IR-analysis model has been to change the notational system from symbols into abbreviations. Influenced by the simple notation of McTear 1985, I have chosen to name the initiatives I, with a + for strong initiatives and a – for weak ones. Responses, R in my version, include the following: R = minimal response, R/I+ = response and strong initiative in combination, R/I– = response and weak initiative in combination. Non-responding continuations of own contributions are marked by =I+ or =I–. Back-channel items are treated as a subcategory of minimal responses and are marked with B. Uncertain and therefore non-codable turns are marked ?, and self-

interruptions or 'aborted' turns by X. Non-responses, marked by –, as well as ? and X are not included in the analysis, following the praxis of the IR-analysis.

Adding a nonverbal component to the IR-model is not without problems. The most difficult part is to decide what behaviour is to be coded as communication and what is not. As the primary criterion of intentionality I judge the mother's reaction. Any utterance, verbal or nonverbal, that triggers a response is obviously judged as being intentional by the mother, and therefore also by me. As a secondary criterion I rely on obvious signs of intentionality from the child, even though the utterance for some reason does not receive a response. One fairly safe sign of child intentionality is eye-to-eye contact or the child turning the body towards the mother, or pointing or reaching an object towards the mother during the turn, etc.

Another difficult situation is to judge the force of the children's nonverbal intentional behaviour, i.e. to decide whether a nonverbal child initiative is to be coded as strong or weak. Apart from the above-mentioned eye-to-eye contact, turning towards the mother, or pointing and reaching, Feilberg 1991 also regards change of voice intensity as a sign of a strong initiative.

Maternal adjustment

It has traditionally been claimed that mothers are superior to their children as far as linguistic and communicative competence is concerned. It is thus viewed as the mother's responsibility whether or not the interaction is successful. One of the aims of this study is to show that the already acquired interactive style of the IA children plays an important role in the interaction and that their behaviour influences the mothers' interactive performance.

Among previous studies of maternal interactional styles we find e.g. Lieven 1978, Wells 1980, and Howe 1981. In all these studies it is emphasized that the mothers' choice of style is, at least to some extent, determined by the communicative behaviour of the children. Lieven 1978:185 further argues that:

> ...if it turns out to be the case (1) that many of the features of adult speech that have been noted in the literature as potentially helpful to the language-learning child are dependent for their efficacy on the already acquired conversational skills of the child, and (2) that individual differences in language learning are related to individual differences in conversational interaction between the child and others, then perhaps we shall have to look more closely at the development of

pragmatic skills in young children. Amongst other things, this would involve investigating individual differences in the development of turn-taking in infancy and possible manifestations of these during the period of language learning.

In the case with an IA child this appears to be quite a probable hypothesis. Here we have a child with a totally unknown communicative background experience. Assuming that the infant creates his communicative skills in interaction with his mother and that these skills will depend on the mother's communicative performance, an adopted child of two years has by far already acquired a certain communicative competence. Most of the mother's performance will depend on how the child behaves. A mother who adopts a child with poor communicative experience may as a consequence behave dominantly in terms of using many regulatives and commands etc., i.e. the kind of behaviour which has traditionally been argued not to favour the child's linguistic and communicative development.

For the purpose of highlighting this maternal adjustment I will distinguish between two dimensions – *form* and *function*. Within the form category we find what is usually called sentence types: declaratives, interrogatives, imperatives and interjections. Interrogatives have been found to be the most frequent sentence type used in child-directed speech, and also the type which best promotes language acquisition (Newport et al. 1977). However, imperatives are argued not to favour language development (Newport et al. 1977), so obviously there are differences between mothers.

The function category contains different speech acts such as requests, statements, descriptions, confirmations, etc. It makes sense to distinguish e.g. between different kinds of requests, since this will enable us to single out different maternal styles: request for action vs. request for information, etc. Among the different utterance functions I distinguish between five main functions:

- *Provide:* information, identity, confirmation, denial, imitation, etc.
- *Request:* information, identity, confirmation, clarification, action, imitation, etc.
- *Social function:* the primary goal is not to further the conversation, but rather to regulate a partner's attention or behaviour, evaluate a partner's behaviour, utter an exclamation, or perform a social ritual (greetings, thanks etc.).
- *Vocal play:* illustrate or mirror (own or partner's behaviour), laugh, other verbal/vocal play.

- *Nonverbal* with none of the above functions: different facial expressions such as smile, surprise, neutral face, etc.

Data

In the following I will present developmental data from three children – two IA Columbian boys, adopted at the age of almost two (1;10), and one Swedish monolingual, non-adopted and age-matched boy. All children have been videorecorded in free play interaction with their mothers in their homes during a period of two years. Both IA boys have been living in foster homes in Columbia since the age of a couple of weeks, and have thus had the chance to experience a fairly family-like interactive infancy and toddlerhood.

The two IA boys illustrate two very common and also extreme interactive strategies. IA children are reported to employ a *'silent period' strategy* immediately upon arrival in the new country (Berntsen & Eigeland 1986, Hene 1987). This period can last from only a couple of days up to one or two months, and in a sample of 241 IA children, 14% of the children were reported to have 'silent periods' and 22% of the children talked 'very little' (Berntsen & Eigeland 1986). The boy who settles for the 'silent period' strategy I call Juan.

A second strategy was identified in De Geer 1990 as the *'talk a lot', or 'chattering' strategy*. This choice of behaviour is characterized by either much talk (in original or new language), babbling, or pure nonsense talk with the obvious impression that the child is trying to appear to be talking. 21% of the children in the Berntsen & Eigeland 1986 sample were reported to be babbling or talking 'very much'. I call the 'chattering' boy Paolo.

The two different strategies can be exemplified by a developmental analysis of choice of *communicative channel*. In Figures 1 and 2 all child utterances have been assigned one of the characteristics, based on the categories introduced by Söderbergh 1984:

- *Verbal,* for verbal utterances, including 'lexicalized vocalizations', such as *nam nam* 'yum yum' or *vov vov* 'bow wow'.
- *Vocal,* for all nonverbal vocalisations (and non-intelligible utterances).
- *Somatic,* for utterances performed by face, body and posture.
- *Verbal-somatic,* for utterances performed simultaneously in the two different channels.

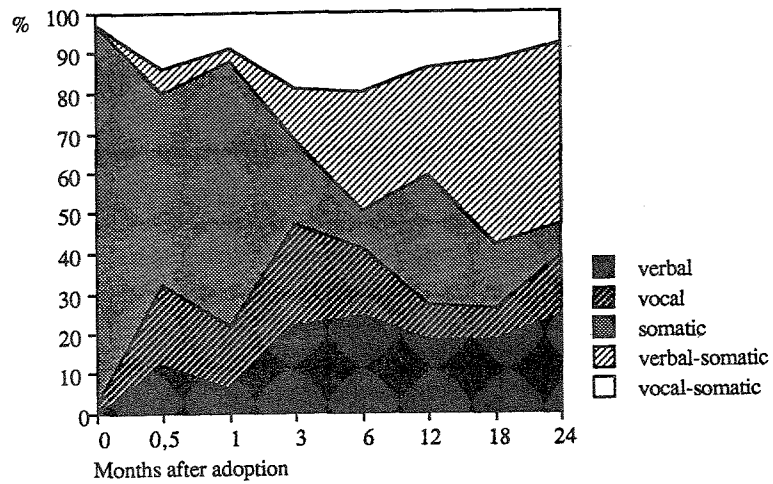

Figure 1. Channels of communication, Juan.
Percentage of own utterances.

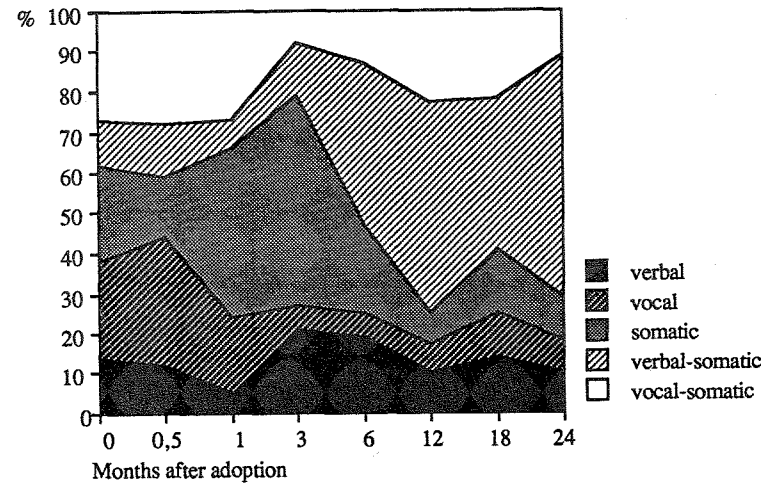

Figure 2. Channels of communication, Paolo.
Percentage of own utterances.

- *Vocal-somatic,* for utterances performed simultaneously in the two different channels.

We may compare the results of Figures 1 and 2 with the results of the Swedish boy, Rupert, recorded at 1:11 (approx. the same age as Juan's and Paolo's adoption age), and with 6 month intervals at 2:5 and 2:11 (a final recording at 3:11 still remains to be made). In all three recordings Rupert produces 55% verbal or verbal-somatic and 20-25% vocal or vocal-somatic utterances. His purely vocal and somatic utterances are decreasing from 11% to 5% and from 26% to 17%.

Results

Aldready the children's choice of strategy influences the mothers' behaviour. The mother of Juan, who is silent, produces 33 words per minute; the mother of the chattering Paolo produces 68 words, and the mother of the Swedish child 58 words per minute. This pattern is not present in later recordings, when the children have abandoned their strategies of being silent or chattering.

Responsiveness

When it comes to responsiveness, i.e. to what degree mothers and children respond to the initiatives of the partner, regardless of the channel of communication, we get the following result for the two-year period[2]:

Table 1. Percentage of initiatives responded to per partner

	Initiative of	Months after adoption 0	6	12	18	24
Juan	C	92	76	87	86	92
	M	37	61	61	53	65
Paolo	C	93	94	95	84	91
	M	26	21	57	62	56
Rupert	C	87	79	81	–	–
	M	59	62	62	–	–

It appears that immediately after adoption both the IA children make fewer responses to their mothers than the Swedish boy at the same age.

[2]There still remains one recording to be made with the Swedish boy, Rupert, at time 24 months. He was not recorded at time 18 months.

Already after one year this difference has diminished. Already after 6 months Juan has caught up with the Swedish boy Rupert, and continues to respond to around 60% of the mother's initiatives throughout the period. Paolo, on the other hand, needs more time, and even though he improves considerably, he never reaches the level of Juan and Rupert. A tempting explanation to this would be that a 'chattering' style is less favourable when it comes to concentration and therefore it takes more time for a 'chattering' learner to acquire a high degree of responsiveness.

Concerning the mothers it becomes clear that IA mothers are extremely responsive to their two-year-olds; they appear to be even more attentive towards their children than Swedish mothers, who already know their children well. Interestingly enough, this pattern seems to become fairly permanent over the two years of the study. Juan's mother, who could have been expected to score lower than the other mothers since she has a 'silent' child whose initiatives might be more difficult to read than those of a talking child, does indeed present a 'dip' in the 6 months' recording, when the boy has started to talk. Apart from this she does not perform much differently than the other mothers.

A sequential response analysis, i.e. an analysis of what response follows on what initiative will result in a number of space-consuming tables like Table 2. Instead of presenting a never-ending row of tables, the most important findings of the sequential response analysis will be summarized in the following sections.

Age 1:10, 0 months after adoption. Immediately after adoption (age 1:10) both IA boys respond to their mothers' initiatives mainly by responses including a weak initiative (R/I-) or by a minimal response (R). However, their main category – the most common turn of communication – is a weak initiative and non-responding continuation of their own previous turn (=I-). Paolo also produces a large number of fresh weak initiatives (I-), a result of a constant shift of conversational topic. A check with the transcriptions reveals that he is actually presenting a number of different toys to his mother, not being able to settle for one single toy to play with.

The kind of initiative required from the mothers to elicit a response is almost exclusively a strong one, and mothers use mainly strong initiatives in combination with a response (R/I+). It takes a question or an imperative to get a response at this age. This assumption is confirmed by the behaviour of the Swedish boy, who hardly ever responds to a weak initiative. However,

Table 2. Sequential response analysis.
Percentage of total number to responses per initiative

Juan, 0 months after adoption

	Child's responses							
	I+	I-	R/I+	R/I-	=I+	=I-	R	No
Mother's initiatives								
I+	-	-	-	-	-	-	-	1
I-	-	-	-	-	-	-	-	-
R/I+	-	2	3	10	4	18	6	3
R/I-	-	6	-	10	3	25	2	-
=I+	-	-	2	2	-	-	-	-
=I-	-	-	-	3	-	-	-	-
R(B) (abs. nos.)	-	3	-	1	-	10	-	-
	Mother's responses							
	I+	I-	R/I+	R/I-	=I+	=I-	R	No
Child's initiatives								
I+	-	-	1	-	-	-	1	-
I-	-	-	6	6	-	1	3	-
R/I+	-	-	1	2	-	-	-	-
R/I-	-	-	4	13	-	-	5	-
=I+	-	-	1	2	-	-	3	-
=I-	-	-	18	21	-	1	6	5
R(B) (abs. nos.)	-	-	4	-	-	-	1	-

as already shown in Table 1, he is more responsive than the IA children, because he is well tuned in with his mother and he knows the language.

The mothers behave very similarly. They respond to almost all child initiatives. When they do not, it is after a weak initiative and especially so if the weak initiative is a continuation of the child's previous turn. As seen in Table 1, the IA mothers are slightly more responsive (and attentive) than the Swedish mother. Furthermore, all mothers often confirm their children's minimal responses or back-up signals – R(B) – in the above case either with a response combined with a strong initiative or by another minimal response.

Age 2:10, 12 months after adoption. At this age the children's degree of responsiveness has increased. The most common response of the IA boys is still a response in combination with a weak initiative (R/I-) or a minimal response (R), whereas it does not have to be elicited by a strong initiative. The boys now respond to weak initiatives as well. Although the degree of weak initiatives continuing a previous own turn is still high, they no longer dominate the children's performance.

In the Swedish boy we can now recognize a pattern that is quite close to adult responsiveness, i.e. mainly responses and few fresh initiatives (I+ or I-) or continuations of own previous turns (=I+ or =I-). The mothers' behaviour has remained constant.

Age 3:10, 24 months after adoption. At this time we can now see the 'adult pattern' also in the IA boys' behaviour. All I+'s and virtually all I-'s are responded to by all kinds or responses and the degree of continuations of own previous turns has decreased considerably.

The mothers' responsive behaviour is unchanged. Very few turns are not responded to. Only weak initiatives in a few instances do not receive a response.

Utterance function and maternal adjustment

The adjustment of the mothers towards their children as manifested by the use of different utterance functions is presented in Table 3, which allows the following interpretation:

Age 1:10, 0 months after adoption. Starting from the left in Table 3 we find Juan. He is the boy who had a 'silent period', but he is nevertheless an outgoing and communicative boy already from the very beginning. His share of Providing is considerably larger than his Requesting. He manipulates toys, shows his mother what he is doing with the things, and shows that he knows what they are used for. For example, he 'drinks' from a doll's bottle (providing information). He sometimes wants his mother to tell or show him what to do with something or to actually do it herself (requesting information or action). He also often uses facial expressions instead of another utterance, i.e. utterances which can not be regarded as having any obvious function.

Juan's mother provides identity, information and minimal confirmations as a response to his somatic behaviour. She does not request much, but when she does this is request for action. Presumably this is because Juan does not speak – it would not make sense to ask when he cannot answer. Furthermore, Juan is an active boy and moves around with the toys with interest and enthusiasm. Therefore, it makes sense to ask him to do things with the toys, now that he cannot talk about them. A further consequence of his silence is her use of the social function, mainly attention regulatives, used

Table 3. Functions, % of own utterances

	J0		J12		P0		P12		R0		R12	
	C	M	C	M	C	M	C	M	C	M	C	M
Provide	*87*	*47*	*80*	*53*	*48*	*43*	*67*	*40*	*89*	*65*	*65*	*49*
Identification	-	14	21	6	10	10	20	2	11	1	12	2
Information	80	15	44	19	30	14	29	20	67	27	45	35
Confirmation	-	2	1	5	1	-	6	6	7	-	1	
minimal	4	16	10	20	8	10	16	11	3	28	8	8
of own	-	-	-	2	-	8	1	1	-	-	-	1
Refusal	3	3	1	-	-	1	-	1	2	-	2	
Imitation	-	-	1	-	-	-	-	-	1	-	-	-
Request	*4*	*34*	*11*	*34*	*30*	*45*	*22*	*50*	*4*	*33*	*13*	*21*
Identification	-	2	2	15	11	8	16	14	1	5	2	2
Information	1	10	3	8	5	6	2	15	1	4	5	5
Action	3	19	6	6	14	7	4	5	2	4	3	4
Confirmation	-	3	-	5	-	10	-	3	-	17	2	5
minimal	-	-	-	-	-	14	-	13	-	3	1	5
Social function	-	*15*	*6*	*11*	*11*	*8*	*11*	*9*	*4*	*1*	*10*	*28*
Regulate attention	-	8	-	1	2	2	5	1	1	1	1	-
Regulate behaviour	-	-	-	1	-	-	-	-	-	-	-	-
Evaluation	-	2	-	1	-	-	-	1	3	-	-	-
Interjection	-	3	3	3	9	5	6	6	-	-	1	2
Social	-	2	-	-	1	1	-	-	-	-	-	-
Dolls' conv.	-	-	3	5	-	-	-	1	-	-	8	26
Play	-	*8*	*2*	*1*	-	*4*	-	*1*	*4*	*3*	*11*	*2*
Mirror	-	-	-	-	-	-	-	-	-	-	-	-
Illustrate	-	2	-	-	-	3	-	1	4	1	11	-
Vocal play	-	1	-	-	-	-	-	-	-	-	-	-
Laugh	-	5	2	1	-	1	-	-	-	2	-	2
Nonverbal	*7*	*2*	*1*	*1*	-	-	-	-	-	-	*1*	-
Smile	3	1	1	-	-	-	-	-	-	-	-	-
Neutral	1	-	-	-	-	-	-	-	-	-	1	-
Surprise	1	-	-	-	-	-	-	-	-	-	-	-
Blank	1	-	-	-	-	-	-	-	-	-	-	-
Assistance	1	1	-	1	-	-	-	-	-	-	-	-
?	-	-	-	-	11	-	-	-	-	-	-	-
TOTAL	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

by the mother. She is not certain that he is following her unless she checks his attention every now and then.

Paolo employs the 'chattering' strategy. As we saw in the sequential responsiveness analysis, he also changed the topic of conversation often. In this first recording he did not play much, but he clearly wanted his mother to do things for him. In Table 3, P1, we see that Paolo used many more requests than Juan did, and most of the requests were for action. He provided only half the amount of information that Juan did, because he did not undertake much. He often produced uncertain vocal utterances, which in

turn resulted in his mother having to request confirmation. This increased his mother's total share of requests, but otherwise she did not differ from Juan's mother. Paolo and his mother also developed a frequent use of exclamations – every time a new toy was presented this was rewarded with a long 'ooooh!'.

The Swedish boy almost exlusively provided, and he mainly provided information – he talked about the toys and what he was doing or going to do with them. He did not have to request identity because he knew the words for the things, nor action because he knew what to do with the things. He did not request any information either, since he was a normally self-centered two-year old (just like the IA boys).

His mother provided more than both IA mothers, presumably because she knew her son would understand and be able to answer. She used requests in about the same amount as Juan's mother, and mainly requests for confirmation – usually as an interpretation check of the boy's somatic utterances.

Age 2:11, 12 months after adoption. After one year, Juan's proportions of providing and requesting utterances have remained constant. The only noticeable change is that he is now providing identity and minimal confirmations, and of course that he is now talking (see Figure 1). His mother has stopped checking his attention, but otherwise her proportions between the main functions are stable. She is no longer asking for action, but rather for identification of things. This can be explained by two facts: (1) The boy is now speaking and can answer requests of this kind. (2) At this recording I changed the set of toys, so that there are many new things (doll house furniture) to identify. The mother's providing identity has decreased; she now requests identity instead.

Paolo has increased his proportion of providing, especially of providing minimal confirmations. Consequently his requests have decreased – he is no longer asking his mother for action, since he can now do things on his own. Just like Juan he is requesting the identity of the new toys. He is no longer producing unclear utterances, so his mother's share of requests for confirmation has decreased accordingly. Another similarity to Juan's mother is that the proportion of providing identity has decreased – like Juan it is now Paolo who provides the identity of things. The exclamatory behaviour noticed at Age 1:10 is still used.

Table 4. Syntactic form, % of own verbal utterances

Children	J0	J12	P0	P12	R0	R12
DECLARATIVE	-	2	-	23	17	60
INTERROGATIVE	-	-	-	30	2	22
INTERJECTIVE	-	7	-	1	-	3
IMPERATIVE	-	13	-	6	4	2
ONE-WORD	-	78	100	40	77	13
	100	100	100	100	100	100
Mothers	J0	J12	P0	P12	R0	R12
DECLARATIVE	31	38	25	36	40	51
INTERROGATIVE	32	39	47	47	35	25
INTERJECTIVE	6	5	1	5	-	3
IMPERATIVE	10	2	1	1	1	1
ONE-WORD	23	15	25	12	24	18
?	-	1	1	-	-	2
	100	100	100	100	100	100

The Swedish boy has at Age 2:11 increased his share of requests at the expense of the providing. A remarkable difference is that he (and his mother) use a much lower proportion of both providing and in particular requesting identity of the new toys than both IA boys. Is this because he has grown up among things like these? In any case he knows what the things are, so instead of requesting their identity, he and his mother are providing information about the things and what can be done with them. Rupert and his mother also engage in a new activity which is not as frequent in the IA dyads, namely doll's conversation. They spend much time on the social or the play function, either through make-believe conversations or by illustrating own play.

Utterance form and maternal adjustment

The mothers' and children's choice of syntactic form per verbal utterance is presented in Table 4.

Age 1:10, 0 months after adoption. Juan, being silent, must of course be excluded from analysis. Paolo, using a few Swedish words and some Spanish, can be said to use only one-word utterances. The Swedish boy Rupert, on the other hand, with an MLU (word) of 3.7 still produces many one-word utterances, but also many declaratives.

The mothers differ in their use of syntactic form. Is this because of the interactive style of their children? It appears to be so:

Juan's mother, a mother of a silent child, does not use a lot of questions – her silent boy would not be able to answer. Instead she uses a comparatively high proportion of imperatives (cf. the use of requests for action as shown in Table 3).

Paolo's mother uses many questions (cf. the use of requests for confirmation), but approximately the same proportion of declaratives as Juan's mother. She uses hardly any imperatives.

The Swedish mother uses mainly declaratives (provides information and confirmation) and questions (cf. requests for confirmation), but hardly any imperatives.

Age 2:11, 12 months after adoption. For the IA children, Juan and Paolo, the one-word utterances still dominate their production. Juan's share of one-word utterances is much larger than Paolo's (78% vs. 40%) and his next most common form is the imperative. May this be a reflection of the mother's earlier use of imperatives, or simply a way for a three-year old child to rule his mother? It was noted in Table 3 that Juan's most common request was a request for action, which one can assume (at least for a small child) would be formulated in the imperative. Paolo's next most common form was the interrogative, possibly because his mother is using many questions, closely followed by the declarative. His most common request was a request for identity, a function normally performed as a question. For Rupert the declarative dominates other syntactic forms by far, and according to Table 3 he does not make many requests.

At this age the difference between the mothers is no longer as evident as earlier. Juan's mother has ceased using imperatives and is now producing an equal proportion of declaratives and questions. Paolo's mother still produces almost 50% questions. Rupert's mother, however, only produces 25% questions, but 51% declaratives. A frequent use of questions may be because the IA children still need to be stimulated in order to get talking, whereas the Swedish boy knows enough of the language and language use to get started.

Concluding remarks

Apart from describing a number of interactive aspects of the communication between IA mothers and children, such as responsiveness, sequential responsiveness, use of different utterance functions and syntactic forms, it has been proposed that certain differences between mothers are not entirely due to mothers' individual styles but are determined by the children's performance.

We can compare different IA mothers, and we can also compare IA mothers with non-adoptive mothers. Mothers of silent IA children tend to speak less, use more requests for action in the imperative form, and ask less questions. On the other hand, mothers of chattering IA children appear to speak much more, using many confirmation requests in question form.

Furthermore, IA mothers use considerably more questions toward their children than do non-adoptive mothers, who seem to prefer exchanging information and providing and requesting confirmation of this information. Both IA mothers and non-adoptive mothers are quite responsive toward their children, with IA mothers scoring even higher as a probable consequence of their high attentiveness.

Since many of the differences both between the IA mothers themselves and between IA mothers and non-adoptive mothers tend to become less evident over time it seems correct to assume that at least some aspects of the mothers' interactive performance can be explained in terms of child behaviour.

References

Berntsen M. & I. Eigeland. 1986. *Utenlandsadopterte barn og overgang til nytt språk. Foreldrenes vurdering av hvordan deres utenlandsadopterte barn lærte seg norsk og mestrer dette språket i dag.* Hosle: Statens speciallærerhøgskole.

De Geer, B. 1990. *The boys from Columbia. The language switching process of internationally adopted children – The first three months after adoption.* Child Language Research Institute, Paper no 5. Lund: Department of Linguistics.

Feilberg, J. 1991. *To må man være. Mor-barn dialoger i et utviklingsperspektiv.* Trondheim: Universitetet i Trondheim.

Hene, B. 1987. 'De utländska adoptivbarnen och deras språkutveckling. Projektpresentation'. *SPRINS-rapport nr 36.* Göteborg: Department of Linguistics.

Howe, C. 1981. *Acquiring language in a conversational context.* New York: Academic Press.

Lieven, E. 1978. 'Conversations between mothers and young children: individual differences and their possible implication for the study of

language learning'. In N. Waterson & C. Snow (eds.), *The development of communication*, 173-188. New York: Wiley & Sons.

Linell, P. & L. Gustavsson. 1987. *Initiativ och respons. Om dialogens dynamik, dominans och koherens*. Linköping Studies in Communication 15.

McTear, M. 1985. *Children's Conversation*. Oxford: Blackwell.

Newport E., H. Gleitman & L. Gleitman. 1977. 'Mother, I'd rather do it myself: Some effects and non-effects of maternal speech style'. In C. Snow & C. Ferguson (eds.), *Talking to children. Language input and acquisition*, 109-49. Cambridge: Cambridge University Press.

Söderbergh, R. 1984. 'Linguistic effects by three years of age of extra contact during the first hour post partum'. Paper presented at the Third International Congress for the Study of Child Language, Austin Texas.

Wells, G. 1980. 'Apprenticeship in Meaning'. In K. Nelson (ed.), *Children's language 2*, 45-126. New York: Gardner Press.

Lund University, Dept. of Linguistics
Working Papers 38 (1991), 45-70

On the Perception of Prosodic Phrase Patterns

Eva Gårding and Lars Eriksson

In our search for perceptual correlates of intonation and accentuation we have conducted a series of experiments with some Swedish prosodic phrase patterns: Prototypical productions have been digitized and subjected to manipulations which have served as stimuli in categorization tests. The stimuli are obtained in different ways, (1) by shifting a fundamental frequency (Fo) peak in the time domain of two different carriers, (2) by shifting Fo values over neighbouring vowels in the frequency domain of one carrier and (3) by stripping the prototypical signals of their various acoustic components in four carriers. The results, displayed as categorization functions (1,2) and confusion matrices (3), indicate that the pitch movements over the vowels, their relational pitch levels and the temporal and spectral properties of the carrier are important cues to a prosodic phrase pattern. The importance of acoustic correlates varies from one prosodic pattern to another in such a way that an absolute rank order between them does not seem meaningful. The notion of markedness may be used to explain the asymmetry of confusion patterns.

Introduction

The phrase and its place in a linear or hierarchical structure of speech has gained increasing importance in phonetic and phonological analyses.

In Gårding and House 1987 production and perception of phrases in Scandinavian dialects and Finnish were studied in utterances consisting of different groupings of similarly accentuated numbers and the results supported the following phonetic definition of a prosodic phrase: A prosodic phrase is a part of an utterance which is connected by a special rhythmic and tonal pattern and demarcated by discontinuities in the range or general direction of the pitch contour (pivots).[1]

In the experiments to be reported here, we have used complex accentuation patterns as our basic material, namely a segmentally invariant sequence *långa män* which on account of its prosodic pattern may be tied to distinctive syntactic structures and semantic meanings (Table 1 and Fig. 4).

[1]Similarity of the elements of a group and recurrent special patterns ('hats' or 'troughs' depending on the dialect) could be interpreted as connective cues, breaks of similarity and special markers at the beginning or end of a group as demarcative ones (Gårding & House 1987). For a conceptual framework see Gårding 1985.