A characteristic feature of cleft palate speech is the tendency to retract the articulation of obstruents normally produced in front, of to a place below the velopharyngeal valve as a compensatory obstruction of the airflow, resulting in glottal stops and pharyngeal fricatives. This deviant pronunciation is often very damaging to intelligibility - because each of the compensatory sounds is often used as realization of several phonemes, whereby the number of contrasting sounds is reduced. Also, this type of deviant pronunciation has proved very difficult to correct, even after surgical normalization of the velopharyngeal mechanism (see, e.g., Bzoch 1979). In the status mentioned above of all individuals with cleft palate from East Denmark, born during the period 1970-78 (N=293), about 10% were found to use glottal stop articulation in their speech at three years of age, and this was only reduced to 7% at six years of age, in spite of logopedic intervention. It would therefore be essential to be able to predict which infants are likely to use compensatory sounds so that prophylactic intervention could be initiated. And since glottal babbling before surgical closure of the palate is sometimes observed (Olson 1965, Henningsson 1981), this intervention could be initiated very early.

From clinical experience we venture the hypothesis that these children have certain features in common: extrovert personality, eagerness to communicate and to be noticed socially, and earlier initiation of language than usual for most cleft palate infants. It was therefore relevant to see if the children in this study who are using glottal stops show features in their communication behaviour which differ from the children who use other "strategies".

From the video-recordings used in the phonetic analysis the communicative interaction between parent and cleft palate child was analyzed. It must be stressed, however, that because of the very limited number of children in the study and also because of the limitations in which the experimental setting was created (see p. 3), the results should only be viewed as a guideline for more comprehensive studies.

The method used for this pilot study is descriptive and derives from an etiological frame of reference (Blurton Jones 1979, Nielsen and Damholt 1982). The first phase consists of describing interaction between the child and parent through a rough analysis of the video recordings. Throughout this phase we did not operate with any specific hypothesis. The

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second phase of the analysis required a detailed description of specific elements in the parent-child interaction, and how these elements interact and influence each other. This requires a frame by frame analysis which could not be carried out in this study.

It was not possible, from the rough analysis alone, to determine any definite impressions of the children's behaviour or character, since the experimental setting limited free and natural interaction between the parent and the child. However, it was observed that the children using glottal stops seemed to use their voice more accompanied by gestures, when they lacked words, and they also used more onomatopoeia than the other children.

On the basis of the observations of parent-child interaction a hypothesis could be formulated: The children with glottal stops are exposed to greater expectation regarding their communicative competence than the children who do not use glottal stops.

Communicative competence is defined as the child's knowledge of and ability to use language (Hymes 1971). Thus, it can be considered as a process involving interaction between impressive and expressive language.

An attempt to verify the above hypothesis was made by examining the dialogue between parent and child. A categorization similar to Newport et al.'s (1977) method of scoring Mother's speech into sentence types was used. The sentence types are the following:

**Sentence types**

- Declarative: You can sing a song.
- yes-no question: Can you sing a song?
- Imperative: Sing a song.
- Wh-question: What can you sing?
- Deixis: That's a dog.

Thus, the first fifty utterances of each dialogue in the study were categorized in order to study the differences in the ways in which the parents communicated with their children. In figure 6 is shown examples from the dialogues.

In example 1 the parent's sentence types are the following: yes-no questions - declarative - deixis, in the parent's first utterance. In example 2 the following combination is seen: imperative - declarative - yes-no questions - imperative - imperative, all in the parent's first utterance. In examples 3 and 4 the parents only use one sentence type for each utterance.
The demand on the child to understand the message seems to be greater in ex. 1 and 2 than in 3 and 4. The frequency of the parent's use of successive sentences of different structure for the first 50 parent utterances in each recording was found to be: child I: 36%, II: 36%, III: 6%, IV: 2%, and V: 8%. These results show a significant difference in the ways in which parents communicate with their children. This shows that the parents of child I and child II seem to have greater expectations of their children's communicative competence than the other parents.

Child I and child II were the same children who showed predominant use of phonemic glottal stops in their speech. From clinical and parent information it appears that child I and child II used sentences several months earlier than the other children in the study, and that they used glottal babbling. According to the linguistic analysis child IV used glottal stops as well but in an atypical manner (see p.20).

The observations and the analysis carried out by the psychologists have led to many new questions concerning the communicative behaviour of children with glottal stops, as well as their parents' behaviour. Therefore, before any definite conclusions can be made concerning the findings in this study, further studies must be conducted.

It would be essential to study how parents of children with glottal stop communicate with their children during the years of language acquisition. The parents of children who use glottal stop may also have a significant role in their child's habit, since they may expect the child to understand their long and complicated sentences. They may also expect that their child has the ability to communicate with other, non-linguistic forms of vocal utterance, such as onomatopoeia and sounds accompanying gestures.

Perhaps better insight into this process could show how a child's communicative competence can influence his/her parents' communicative behaviour. Such a study could also include a closer examination of whether a child's eagerness to speak is expressed when he/she first begins using words and sentences, and also whether the language acquisition occurs at a different rate than in other children with cleft palate. Finally, the parents' expectations of their child's communicative competence could be studied through interviews, observations, and analyses of their communication.

To be able to study these suggestions properly, the experimental conditions should be different from those of the present pilot study, which was primarily set up for the linguistic analysis. A study of this kind should include a detailed analysis of the children's spontaneous communication and behaviour in a more natural setting, with an emphasis placed on the behaviour occurring during the communicative dialogue. The number of children should be sufficient, including a control group of normal children and their parents.
The children should be as young as 1-2 years, which is the period in which glottal stops may change from a non-phonemic status in babbling into a phonematic function in emerging language. Also, the rate of language acquisition should be studied. A follow-up study some years later could perhaps be compared to the results of the present observations on 4-5 year old children.

REFERENCES


Nielsen, C.L. and Damholt, H. 1982: *Samtale med et spedbarn (Conversation with an infant)*, Unpublished thesis, University of Copenhagen

### Ex. 1

<table>
<thead>
<tr>
<th>P: Make flowers? - But it's not yellow all of it - they are green.</th>
<th>P: Yes, green to begin with - and then a red flower</th>
<th>P: Hmm, a green one like that, and then a red flower - now you're making it wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>C: Where's green - oh yes, green</td>
<td>C: Oh yes - green</td>
<td></td>
</tr>
</tbody>
</table>

### Ex. 2

<table>
<thead>
<tr>
<th>P: I think you ought to take your boots off - you're not sitting very comfortably, are you? - Yes, boots off - and put them next to you</th>
<th>P: Oh yes, it's just like the one we just saw on TV about water - what can you use water for - can you remember?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C: Look, a little watermill</td>
<td></td>
</tr>
</tbody>
</table>

### Ex. 3

<table>
<thead>
<tr>
<th>P: Look here</th>
<th>P: What's that?</th>
<th>P: What is it getting to drink?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C: A hat</td>
<td>C: Some clothes</td>
<td>C: Milk</td>
</tr>
</tbody>
</table>

### Ex. 4

<table>
<thead>
<tr>
<th>P: What are you going to draw first?</th>
<th>P: First a house, yes, and then you make the wall</th>
<th>P: Hm-m</th>
</tr>
</thead>
<tbody>
<tr>
<td>C: I'm drawing a house</td>
<td>C: This is inside, and that's outside</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 6*

The figure shows examples from the child-parent dialogues (in translation). P = parent, C = child.