

Let Me Join Your Tactile Attention: A Sign Language Perspective on the Communicative Togetherness with a Child who is Congenitally Deafblind

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Abstract

This article will describe and discuss how tactile language might develop in a child who is congenitally deafblind (cdb), based on a real world enquiry of a five-year-old boy. This article is based on the RuG Master Thesis LET ME JOIN YOUR ATTENTION (Brede, 2008). It will draw attention to and give examples on how it looks like, when a teacher sees the child's communicative skills and acts to and answer the child's utterances, accepting it as language. Language development in seeing and hearing children normally happens very fast and is usually uncomplicated. The joint attention and perception of a *tactile sign language* is much more complicated, and the cdb children's natural gestural manner of being in the world can seem complicated to their communication partners. The children with cdb need competent partners, who need knowledge about features in the early processes to support the development. In this article, video capturing and analyses are presented as a research methodology. The results of this study describe ten steps within a period of 16 months where bodily experiences led to a shared meaningful sign. They describe and discuss joint attention in tactile language development. They also present an interesting path for meaning making, leading to linguistic units, which are influenced both by the culture and by the child himself. The results from a single case study of a boy with cdb may be of interest to the community of deafblindness, and to the augmentative and alternative communication community.

Key Words

Congenitally deafblindness, tactile sign language development, articulation place, joint attention frames, gestures – proto-signs – signs, narratives.

Introduction

The earliest language development in seeing and hearing children are well documented. Even their development is incompletely documented and not very detailed, because it normally happens very fast and is usually uncomplicated. The situation is even worse for children with congenitally deafblindness (cdb). Their first and early language development in tactile modality is not very well described or documented.

Some documentation we do have, is given by Rieber-Mohn (2003). She described two paths as possible for children with cdb to develop tactile language: through bodily experiences leading to gestures from the child with cdb himself, or bodily experienced tactile signing introduced by the communication partner. Brede gave examples on how both paths may look like in a real world enquiry of a five-year-old boy in the RuG Master Thesis *Let Me Join Your Attention* 2008. It shows how a young boy can develop joint attention and features in a tactile language through dialogues with his skilled teacher. This publication based on the master thesis, present the example on how a sign develops through bodily experiences in dialogues over time. It describes and analyses how a gesture develops from a BET, Body Emotional Trace (Daelmann et al, 2004), influenced by a culturally derived sign, through negotiation of meaning in joint attention frames (Tomasello, 2003), until it occurs as a sign in “full blown joint attention” (Elian, 2005). The framework of the research is the dialogism (Linell, 2001; Marková, 2006). Linell (2001) characterized dialogism as a kind of interactionism and social constructionism. Meaning does not exist “ready-made”, before dialogues, but is constructed *in* dialogues. Furthermore, the overall linguistic perspective of this study is the Cognitive Grammar. Langacker (2000, p.2-3) was the first linguist to develop Cognitive Grammar, describing important general cognitive abilities, which are fundamental to linguistic meaning and language structure. Selvik (2006) and Raanes (2006) used this perspective in their studies on respectively Norwegian Sign Language and Norwegian Tactile Sign Language.

Background and design of the study

The purpose of the study was to investigate a young boy, who seemed to have higher cognitive than communicative abilities. Fredrik is a boy with congenitally deafblindness, totally deaf and blind. He was cochlear implanted on his left ear at the age of 28 months, but the effect was not yet clear. He has Hydrocephalus and has a shunt on his right side. Fredrik is an explorative boy, feeling the details of the place with his whole body. He had been tactually avoidant in hands for a long period, which limited his communication and experiences of the world. He only accepted signs on “his articulation places”: his head and shoulders. Fredrik’s facial mimics and readable bodily expressions gave his partners cues

for communicative intentions in their interaction. He had skills to express his wishes for activities, using gestures to show his intentions.

Following Fredrik through several months could give some answers about how he made the first steps towards language. Studying his development, could gain some general knowledge about development of language in several young children with cdb.

Method

Data collection chosen for the study was a selection of video recordings and observations in real situations. Video-observation and video-analysis are often seen as the best way of studying cdb communication, (Nafstad & Rødbroe, 2015; Mesch, 1994; Raanes, 2006; Nafstad, 2008). These give possibilities to see details impossible to catch with the “normal eye”, and subsequently for analyses and discussions. The videos contain spoken and tactilely signed discourses.

The video analysis has followed the procedures described by Henriette Ehrlich (2007), based on Nafstad & Rødbroe (1999) and Andersen & Rødbroe (2003) with some adjustments: 1. Fredrik usually *showed his best* in the unexpected situations. The capturing was therefore less scheduled and the amount of capturing large. 2. The *videos taped* showed mostly Fredrik and his teacher, smaller amounts were with his parents or the investigator, some captured a year earlier by the parents. The video material consists of 8 hours 4 minutes recorded scenes of Fredrik in dialogue with his partners (See Table 1).

Table 1:

Recorded video material.

Participants	Captured by:	Captured video	Used material	Video nr:
Fredrik and the teacher	The investigator	5 h:15 m	6 m: 39 sec 1 m: 07 sec	1 2
Fredrik and his mother	Private	1 h:00 m	0 m: 06 sec	2
Fredrik and the investigator	The teacher / investigator	The 0 h:55 m		
Fredrik, the teacher and the investigator	The investigator	0 h:50 m		
Fredrik and the teacher	The teacher	0 h:02 m	0 m: 46 sec	2
Fredrik, the teacher and mother	The investigator	0 h:02 m	1 m: 28 sec	2
Total		8 h:04 m	8 m: 06 sec	

3. The *videos have been carefully watched* and discussed by the investigator, the teacher and a psychologist specialized in cdb. 4. *The selection* has been a flexible process during the work. The selection criteria has been: *High quality communication*, defined as reciprocal, tactile perceivable, and within a dialogical context. 5. For *transcribing* the sequences, a system created with elements from Conversation Analysis and the Nordic conventions for transcribing sign language, a notation system modified to tactile sign languages and deafblind gestures (Ask Larsen, 2002), in combination of pictures with notations by arrows (Raanes, 2006; Selvik, 2006; Nafstad, 2008) was created. The images handle the formats of handshape, orientation, movement, and location, in addition to non-manual features. Example of the conventions and notation system are presented in figure 1.

Figure 1: Transcription.

					F	W
27	01:14	W	<u>TENKE</u> THINKING	(THINK performed by W on F's head)		
28	01:15	F	28			
29	01:16	F	UNDERGROUND	Similar to 20		
30	01:18	F	24	Similar to 24		
31	01:20	NN	["greier du å legge hånden din utenpå hans" "Is it possible to put your hand outside his?"			
32	01:21	F	[MAMMY <u>MAMMY</u>	Similar to 22		
33	01:23	W	[TENKE / "tenker du..." / TENKE WIBECKE/"tenker Fredrik sånn..." [THINK / "You think..." / THINK WIBECKE/ "Fredrik thinks like..."	(THINK performed by W on F's head)		
34	01:25	W	<u>UNDERGROUND</u>			
35	01:28	F	35			
36	01:32	W	TENKE FREDRIK T-BANE / "tenkte Fredrik T-bane?" THINK FREDRIK UNDERGROUND / "did Fredrik think of underground?"			
37	01:34	F	UNDERGROUND	Similar to 19		

6. The transcribed video sequences were *analysed*. The Conceptual Blending Theory (Fauconnier, 1997) could be used for analysing and documenting the negotiation of meaning in dialogues with children with cdb and their partners. The models from the cognitive semiotic (Brandt 2004, Ask Larsen 2003) described the concept of scenarios, the mental and communicative processes in the meaning-making and the negotiation of meaning without concern if the utterances, gestures or signs are conventional or not. 7. The video sequences were then *interpreted* and discussed from different aspects.

Reliability and Validity

Observations and video recordings are used as tools for measuring cause and effect in this study. Video analysis is very useful because it allows the observer to view the situation repeatedly in details. For studying tactile language development, video analysis is recommended (Nafstad and Rødbroe, 2015: p 203):

“When one works professionally with persons with congenital deafblindness, one should constantly attend to scaffolding the communication between the individual deafblind person and his partners so as to be the highest possible quality. The most effective and best way to achieve this is to use video documentation and analysis that lead to individualized prioritization of interventions and their continual evaluation.”

However, there are a few disadvantages associated with this method. Considerations whether the captured situations are the best examples, whether the angle of the camera captures the important part, and whether the selection of video clips are the most representative, can be discussed. In this study video clips are chosen, analyzed and discussed in “communication groups” consisting of the parents, a special psychologist and three teachers from Fredrik’s school, all highly educated on cdb and communication. The collected material is also discussed with colleagues at the University of Groningen. Qualitative studies like this case study limits the reliability compared with quantitative studies. By including colleagues in interdisciplinary discussions and analysis, the results were given the best possible reliability.

There is a methodical disadvantage with this visual form of registration. Raanes (2006) pointed that the aspect of *touch* is not easily caught, and that is consistent with the experiences from this enquiry. Tests for measuring language development in children with cdb do not yet exist.

Verifiability and Ethical Reflections

Video material, transcriptions and notations from observations in the study are carefully stored, available for other scientists and professionals to watch and discuss. Some of the material was used by other professionals in the field of deafblindness for giving practical examples of theoretical views (Souriau and Brede, 2008). Video analyses by experts in the field are seen to be the best method, but it requires human and economic resources and might be looked at as not cost-effective.

Presentation of persons in single case studies do not support anonymity. The parents, however, are very proud of their son and his skills, and do not wish anonymity or a fictive name. Therefore Fredrik is presented in photos and with his real name.

One of the Paths of Developing Language

The study followed the little boy in his struggling of understanding the world and his habit to share his experiences. He gave examples on how he shared, used and understood gestures and signs. This example showed how bodily experiences led to a shared meaningful sign from the child with cdb himself. The result describes ten steps, documented by video/photos or observation notations with duration of 16 months. This description counts 10 steps. The steps follow each other logically, they also influence each other, and often occur as an effect of a dialogue.

“From Gestures to Sign in Dialogue” – Ten Steps

Step 1: A spontaneous non-directed gesture pointing to a BET.

Mother was going to brush Fredrik's teeth (4 years old). The sign (pointing), the pyjamas and the time of the day gave him cues enough to know that what he hated was coming: Tooth-brushing. The gesture (Figure 2) was an emotional embedded gesture that pointed to a BET. Those gestures usually have a high meaning potential, often a basic category with a wide potential interpretation. They might be followed through the exchanges that transform them into signs (Daelmann et al, 2004). The emotion pointed to something he felt sorry about. This gesture came from the body.

Figure 2: A BET.

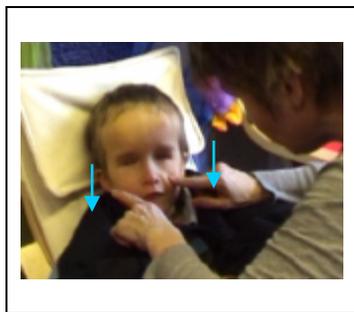


Step 2: A proto-sign imitated by the adult.

The adults observed this gesture in situations where Fredrik felt uncomfortable, was sorry or crying: The inner state of sorrow. From he was four years until the study started when he was five, the adults already saw and confirmed the gesture by immediate imitation. The gesture changed, Fredrik used the gesture more consciously. It became a gesture that expressed his thoughts, and may be called a proto-sign, a sign “in the making” (Ask Larsen, 2003).

Step 3: A cultural sign mapping on his inner state.

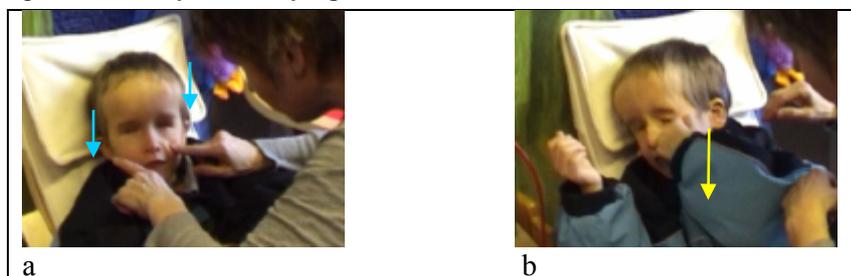
Figure 3: CRY.



Situations, like experiences of all children, appeared: Fredrik hurt his head and started crying, the teacher tuned in to his sadness. The teacher signed the cultural sign from NSL: CRY, performed on his cheeks, his signing place (Figure 3). His experience of attunement and signing probably mapped on his inner state in this here-and-now situation. The story emerged. Later that day the next steps took place:

Step 4: A narrative initiated by the cultural sign and emotions mapping his memory.

Figure 4: A story about crying.



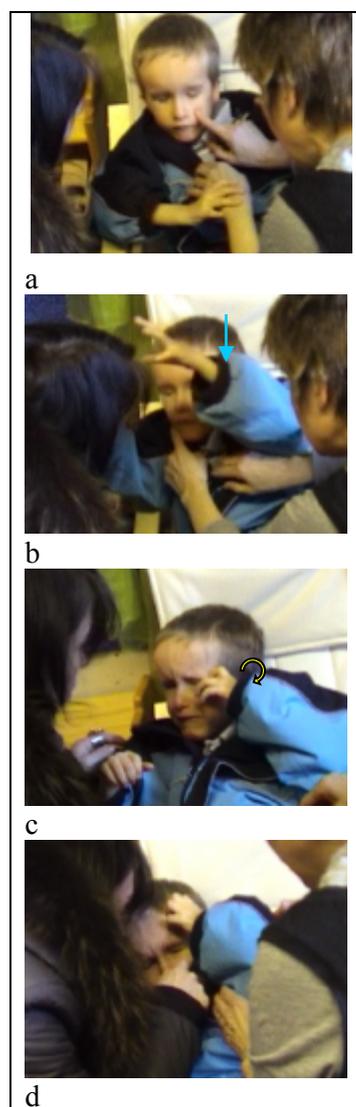
The teacher initiated a conversation about the story of banging his head and crying. She signed the cultural sign CRY (Figure 4 a), added by spoken words, creating a pretending-game with her voice: “aauuuu”. We can assume that Fredrik might sense some of the sad vocal elements. The pretending-game and sign might give Fredrik cues enough to map the

story to his experience earlier that day. His contribution to the story was his emotional gesture and facial expression (Figure 4 b). The story got a narrative structure that Fredrik could follow.

Step 5: A co-authorized narrative shared with mother.

The teacher invited both Fredrik and his mother into the story. (Figure 5a) Fredrik became directed to mother by locating and grabbing her (Figure 5b). Fredrik and the teacher co-created the story by signs, gestures and mime (Figure 5 c and d).

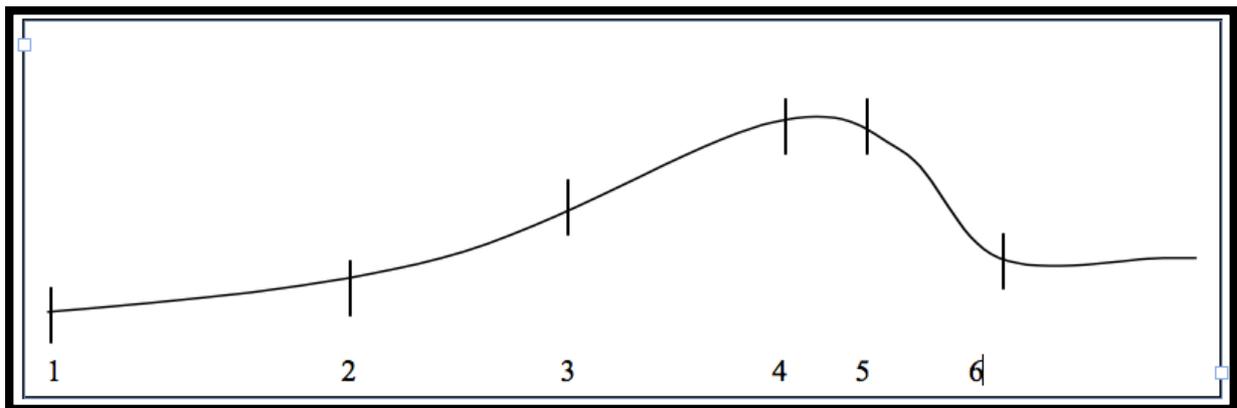
Figure 5: A shared story about crying.



When they finish talking about it, Fredrik also finish his crying. This indicated the narrative aspect in Fredrik's perspective; there was no sorrow here-and-now, it was in the story about it. Fredrik's location of mother, and his contribution to the story (cry, gestures and signs) gave cues to his other-directedness and consciousness in the dialogue. Fredrik,

the teacher and mother shared each other's story; they co-created the narrative structure. This gave the cue to the existence of a joint attentional frame (Tomasello, 2003: p 22) defined as *"The joint attentional frame is those objects and activities that the child and the adult know are part of the attentional focus of both of them."* They knew the context and they were attentive to each other's part in the story. This time Fredrik's contribution was more complicated: The narrative in the story is illustrated in figure 6.

Figure 6: Narrative structure of the hurt-and-cry-story (x-axis shows time, y-axis shows degree of arousal).



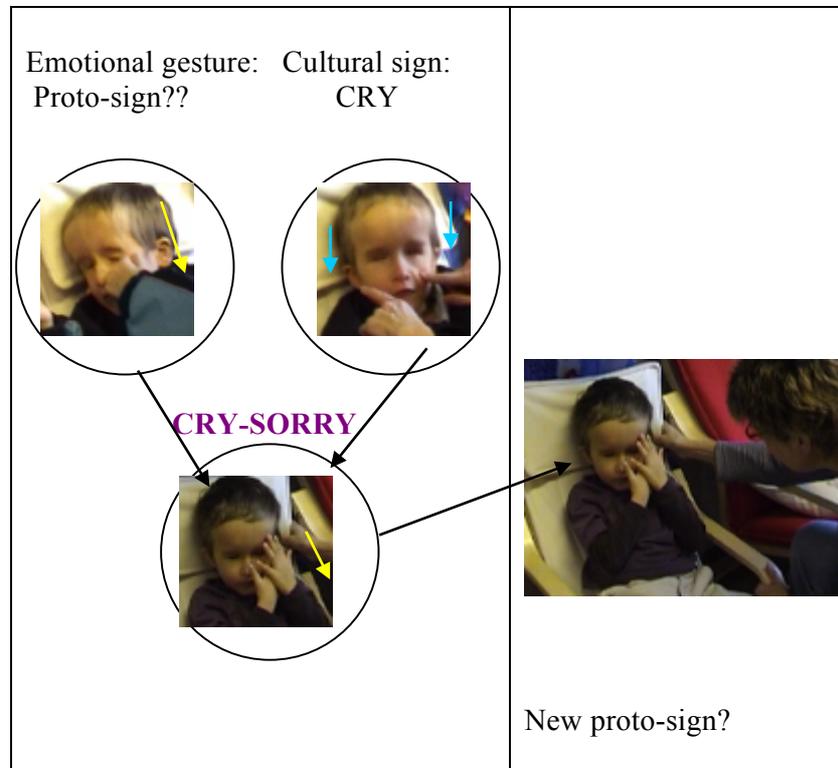
It started by mother initiating the story: 1, Fredrik contributes with locating the hurting place: 2, together they authorize the story through several exchanges of gestures and emotions 3-4. At 5 Fredrik starts crying, at the climax of the story, which culminates at 6 when Fredrik stops crying and mother can comfort him. The gestures and signs are visible. Still there is something lacking from the dialogical point of view: the signs and gestures are all performed on Fredrik's head. He has not yet learned to listen – to move the sign and its symbolic structure away from his own body.

Step 6: The proto-sign and the cultural sign is blended and given a specific meaning.

In the next step, Fredrik was observed gesturing to himself. The new gesture contained a dialogical aspect: he listened to his own sign. The slow speed might indicate a consciousness to the gesture (Nafstad, 2008). The gesture occurred both in situations when he was sorry, but also in situations when there were no cues indicating his feeling of sorrow. Using the blending theory, might explain how this sign was created. Fredrik's own sorry-emotional proto-sign, combined with the traces from the cultural sign he received from outside blended, and a new *modified* gesture emerged (Figure 7). The new gesture probably had a new variation of meaning: Fredrik's manner of being "CRY-SORRY". To establish as a

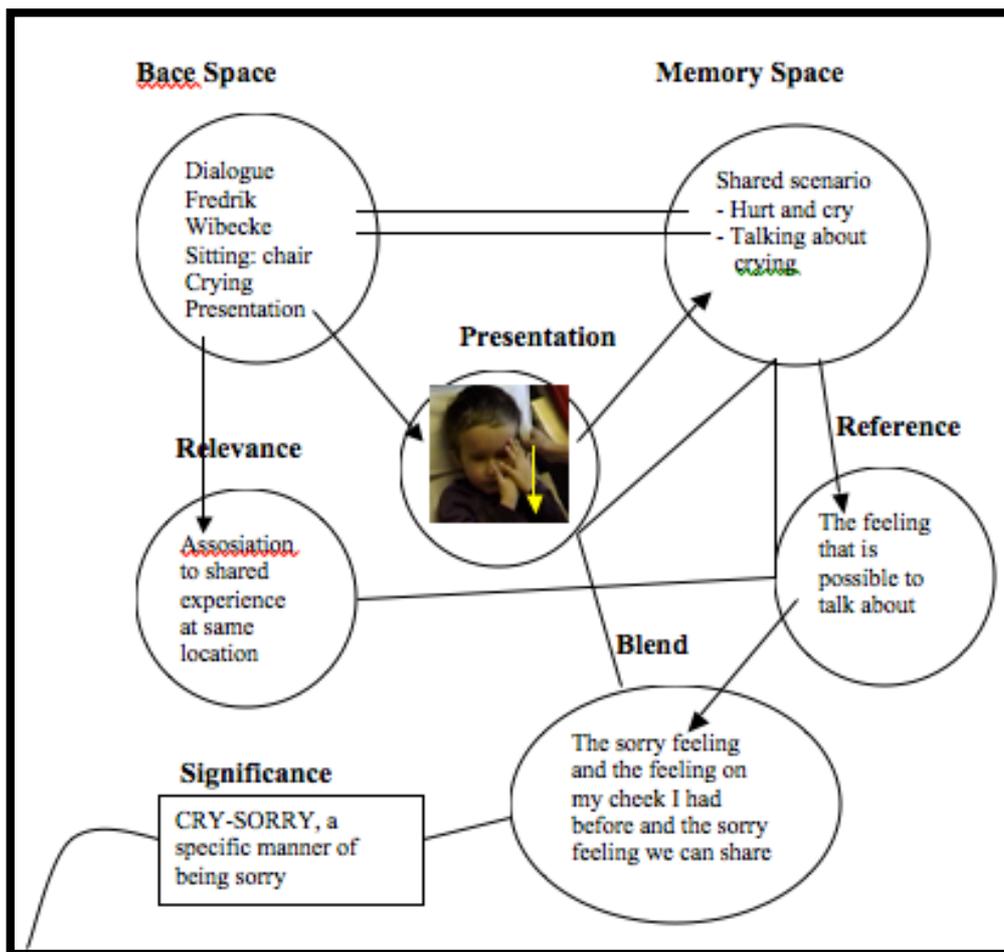
sign, the gesture needed to be seen and negotiated in a dialogue with a partner. If not, the gesture would probably be lost.

Figure 7: Modified gesture.



The first time the gesture was reacted to, was in a crying-scenario. The teacher saw the *presentation* of the new gesture, which contained distinctive features (Brede, 2005; Raanes, 2006) enough for her to link it to Fredrik's crying scenario. The presentation was probably not directed to an outside other. What the teacher saw, was probably Fredrik's inner speech. Fredrik did not know about the teacher's attention. The moment the teacher saw the gesture, and let Fredrik know she saw it, the here-and-now-situation, *base space* turned into a *dialogic* base space (Figure 8).

Figure 8: Dialogic base space.



They shared the memory about the hurt-and-cry-scenario, and they shared the experience of talking about it. The *presentation* was *relevant* in this here-and-now situation because of the association to the shared experience and location of previous cultural signing. The *reference* was the feelings that were possible to talk about. This blended with the experience of the traces from the cultural sign, the relevance of the here-and-now-situation. Out of this process emerged the *significance* of the new gesture, which became a proto-sign that was negotiated.

Step 7 / 8: Implicit joint Attention on the sign.

Both steps are observed the same month but we cannot be sure which came first: **Fredrik**, crying, grabbed the hand of the partner, led it to his cheek and supported the adult in performing the proto-sign CRY-SORRY. His attention to the adult and the tactile co-creation of the sign gave cues to claim that the proto-sign was other-directed and intentional. There was joint attention on the utterance. In the negotiation of the proto-sign; performing CRY-SORRY, extending and confirming, the proto-sign stabilized and might be called a sign. In this context the potential meaning might be "feel how cry-sorry I am".

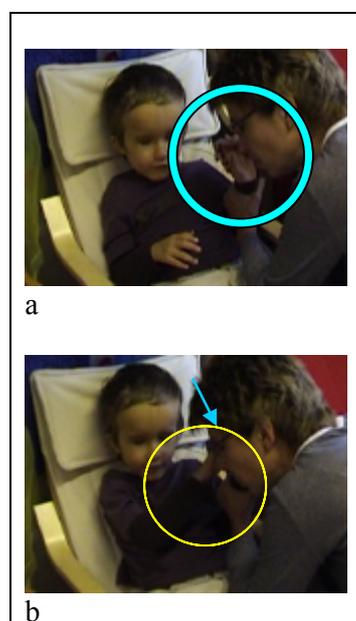
Later Fredrik had a serious facial expression, but he did not cry. He grabbed the hand of the partner, led her hand to his cheek, and supported the adult in performing the signs CRY-SORRY and MAMMY. The directedness was to the signs and the articulation place. There is joint attention on the utterances. The signs in this context had different meaning potential than in the previous stage, and they might still be negotiated. The potential meaning could be: “listen to me about cry-sorry”.

In both steps the two partners co-created the sign, and the communicative intention in Fredrik was visible, as he was the one that starts the signing in order to talk. The joint attention was implicit because the sign was still not moved “out in the open” (Elian 2006, Nafstad 2008). The sign was in the perspective of Fredrik on his articulation place.

Step 9: Dialogical understanding in the joint attention.

The next month the signing were more interesting activities to Fredrik. He took the initiatives to conversations. He did not have a large stock of signs, but the ones he had, were used for dialogical togetherness with all his partners. A new video was captured one month later. Fredrik had just signed CRY-SORRY, and the teacher imitated it on his cheek. She extended the situation by carefully taking Fredrik’s left hand, inviting it to *her* articulation place, signing *his* CRY-SORRY (Figure 9 a).

Figure 9: Dialogical understanding.



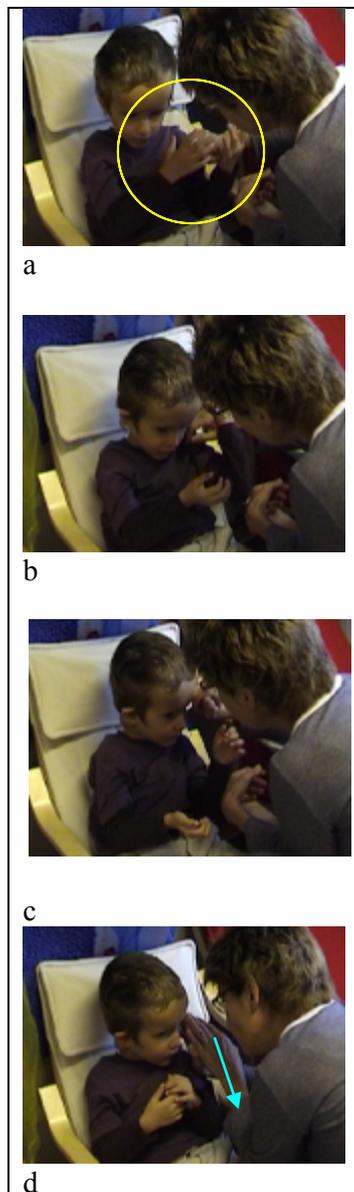
The theoretical perspective of proximal zone of development by Vygotsky: The teacher “lent him” her knowledge about communication. This encouraged Fredrik to listen to the co-creation of the sign (the right hand) on the teacher’s place (Figure 9 b). Fredrik caught the dialogical understanding of the sign: he followed her articulation of his own sign on her face. The sign became a sign from a dialogical point of view, in full joint attention. This

correspond with Eliau (2005) who studied the phenomenon of joint attention and wrote: *“Any analysis of joint attention, [...] begins with the observation that for there to be joint attention in play it is not sufficient that both subjects in fact attend to the same object. In joint attention everything about the fact that both are attending to the same object is out in the open, manifest to both subjects.”*

Step 10: Meta joint attention: talking about the language.

The previous episode must have given Fredrik a new perspective. It led to new acting: He invited the adult to sign at his articulation place. He carefully took her hand (Figure 10a) (her articulator (Raanes, 2006)), leading it to his cheek (Figure 10b) (articulation place). He initiated a co-articulation in which his contribution was offering the articulation place (Figure 10c,d).

Figure 10: Meta joint attention.



He took her perspective. It became a successful communication because they both knew what it meant: the feeling of the sign, the manner of being crying-sorry. Fredrik got a dialogical understanding of the sign, in a dialogical context. The perspective changed the sign. Fredrik *discovered* (Nafstad, 2008) important parts of the tactile language: a) The perspective of the other: b) The articulation place can change, c) There is one speaker and one listener in a dialogue d) He is an important part of the dialogue. This does not mean that all was understood and established. It has to be explored again, in new situations with different partners.

The language of children with cdb seemed in this perspective to be more complicated than to other children, in the way that the third element was the language itself. This gave a meta-view to the language, even if it was just in the very beginning of the language development.

Discussion and Conclusion

Fredrik, five-years-old, was on the threshold of the language. By following him for some months, he gave a key to how it might look like, when a child with cdb reach to the point of fully blown joint attention (Elian, 2005). In the material it was possible to detect elements in ten steps how his spontaneous gesture came into his consciousness in different levels. The gesture, in dialogues with his partners, became a proto-sign, blended with a cultural sign and ended as a negotiated, conventional sign: CRY-SORRY, in his limited community. He needed the ten stages. The emotions of being sorry came first. The thoughts were visible before the language was formed – through the gestures. The adults were able to see, imitate, confirm and extend his gestures, and supported his own development. The teacher grasped an emotional scenario and used it as an object of attention. Together they co-authorized the story, which Fredrik's mother later was invited into. The new gesture became inflicted by the culture: the sign presented by the teacher and the mother, CRY, came from the cultural Norwegian sign language. A blend between this cultural sign and the gesture, resulted in a new sign, interpreted as CRY-SORRY. The emotional, fundamental reference came from inside. To help a child create meaning, the communication partners must give sensory access to the whole package of experience and language. This route from a BET to language was one description of how it looks like in a real life example. It does not mean it necessarily has to be 10 steps for similar development, and the steps do not need to come in this order next time or in all children, and they probably occur in a "back-and-forth"-pattern. The signs were shared by a handful of persons in his life. This is how new signs may start a life: they develop in a dialogue and stabilize as a meaningful sign, according to Selvik (2006), in small communities, and might spread into a larger community. A word or a sign has its own

existence. The human language exists independently; it does not only belong to those who made it. Fredrik and his partners co-constructed a new sign.

Maybe it is a longer path into language for children with cdb than other children. There are so many skills that have to be acquired – and discovered – on the way in mastering a language. When the vision is not a part of the togetherness, there are so many other skills and consciousness about the interactions that has to be included. The patterns are more complicated and the brain needs more maturing and structure to reach the same aim (Nicholas, 2010) to gain the same pattern in language, the cognitive structures are more complex.

This study has shown that children with cdb might need additional skills to obtain the same as seeing hearing children: they need a meta-linguistic perspective. In the discovery of the sign, the sign is used to understand each other. In this view, each step in the ontogeny of joint attention is consequential for language development. Thus, it is important that the partners understand the developmental course of joint attention so that intervention may start at the earliest step possible.

The case study showed that you do not necessarily need to master a large number of signs to participate in complicated linguistic processes. Fredrik did yet not have much language, but the few signs he did know, he was able to share. The communication skills he learned became internalised and stabilized. It was obvious that Fredrik liked the dialogical manner of being in the world.

This study made it possible to understand part of the language development in a young boy with cdb. It will be interesting to see if patterns in joint attention can be observed in more cases in people with cdb. The study also opened up for many questions and details still not discovered. For instance while looking for the joint attention frames, the intention-reading skills appeared as essential (Tomasello, 2003). What does intention-reading look like in the tactile modality? In addition, when Fredrik signed, the teacher interpreted the utterances as the start of a narrative they could co-create in a dialogue. What are the cues to understand differences in indication a narrative or an imperative? Furthermore, this study observed Fredrik in communication with his mother and the teacher. Seeing and hearing children learn language skills by overhearing other people talking. How do we include children with cdb in multiparty contexts? Eija Lundqvist (2012) studied how three party context enriches the context for learning and development, compared with two-party contexts in tactile modality. This topic is new and need more practice and studies to extend the common knowledge.

References

- Ask Larsen, F. (2003). *The Washing-Smooth Hole-Fish and other findings of semantic potential and negotiation strategies in conversation with congenitally deafblind children*. M.A. thesis in Cognitive Semiotics Center for Semiotics, University of Aarhus.
- Brandt, P. A & Brandt, L (2004). *Making sense of a blend-a cognitive-semiotic approach to methaphor*. University of Aarhus.
- Brede, K. S. (2005). *Taktilisering av tegn lånt fra norsk tegnspråk. Tanker om tidlig taktil kommunikasjon med personer med medfødt døvblindhet*. Lecturer, parent association, Norway
- Brede, K. S. (2008). *Let me join your attention. A Sign Language Perspective on the Communicative Togetherness with a Child who is Congenitally Deafblind*. Master Thesis, University of Groningen.
- Daelman M., Janssen, M., Larsen, F.A., Nafstad, A., Rødbroe, I., Sourieau, J., & Visser, A. (2004). *Congenitally Deafblind Persons and the Emergence of Social and communicative interaction*. CNUS, Comunication Network Update Series, Number 2. Nordic Staff Training Centre of Deafblind Services (NUD) Dronninglund, Denmark.
- Ehrlich, H. (2007). *The developmental Profile as a baseline assessment of an adult who is deafblind*. University of Groningen, The Netherlands.
- Elian, N., Hoerl,C., McCormack, T., Roessler, J. (2005). *Joint Attention: Communication and Other Mind*. Oxford: Clarendon Press, UK.
- Larsen, F. A. (2003). *The Washing-Smooth Hole-Fish and other findings of semantic potential and negotiation strategies in conversation with congenitally deafblind children*. M.A. thesis in Cognitive Semiotics Center for Semiotics, University of Aarhus.
- Linell, P. (2001). *Approaching dialogue. Talk, interaction and contexts in dialogical perspectives*. Amsterdam: John Benjamins Publishing Company.
- Lundqvist, E. K. (2012). *Rethinking interactional practices in the tactile modality. A comparison between two-party and three-party interaction with persons with congenital deafblindness*. Unicersity of Groningen. The Netherlands.

- Marková , I. (2006). On 'the inner alter' in dialogue. *International Journal of Dialogical Science*, 1, (1), 125-147.
- Mesch, J. (1994). *"Dövblindas teckenspråk - en pilotstudie"*. University of Stockholm.
- Nafstad, A. (2008). *"Meaning in the making"*, Personal communication, Skådalen Center, Norway.
- Nafstad, A. (2008). Draft *Joint attention analysis*, Personal Communication, Skådalen Center, Norway.
- Nafstad, A. (2008). Draft *A dialogical perspective on communication and congenital Deafblindness*, Skådalen Center, Norway
- Nafstad, A. Rødbroe, I. (1999). *Co-creating Communication*. Dronninglund, Denmark. Forlaget Nord-Press.
- Nafstad, A. Rødbroe,I. (2015). *Communicative relations. Interventions that create communication with persons with congenital deafblindness*. Materialecenteret, Denmark.
- Nicholas, J. (2010). *From active touch to tactile communication - what's tactile cognition got to do with it?* Sosialstyrelsen, Danmark, ISBN: 978-87-90526-26-9
- Raanes, E. (2006). *Å gripe inntrykk og uttrykk*. Interaksjon og meningsdanning i dövblindes samtaler. PhD, Trondheim, Norway
- Rieber-Mohn, B. (2003). Meningsdanning i dialoger: Kommunikasjon med voksne dövblindfødte personer. *Regionsenter for døvblinde, Vestlandet kompetansesenter, Spesialpedagogikk 2003*, (1), Norway.
- Selvik, A. K. (2006). *"Spatial Paths Representing Time: A Cognitive Analysis of Temporal Expressions in Norwegian Sign Language"*. PhD , Norway.
- Souriau, J. and Brede, K.S. (2008). *Language and Congenital Deafblindness*, Communication Network Updates Series, No 10, NVC.
- Tomasello, M. (2003). *Constructing a language*. Harvard University Press. Cambridge, Massachusetts, and London, England.

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