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Blended Spaces and Deixis in Communicative Activities Involving Persons with Congenital Deafblindness

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Abstract

Persons with congenital deafblindness produce gestures and movements which do not seem to belong to a symbolic system although in many cases, they seem to convey elements of meaning. In order to see to what extent and in which manner they carry meaning, a relevant theoretical framework is necessary. The concept of Real Space Blend, which was worked out by Scott Liddell (2003) in the field of sign languages and describes how elements of the Real Space are used to refer to elements of the Narrative Space, could prove to be effective for that purpose. This article explains the concept of Real Space Blend and explores the possibility to extend it to contexts that do not involve sign language (like spoken productions of seeing-hearing people). Besides, its applicability is tried out on one example of video-analysis drawn from the field of congenital deafblindness using a descriptive method that could be used for further replication, criticism and improvement in the same field. It results from this investigation that the Real Space Blend model could be quite effective for describing how the body is communicatively used by people with congenital deafblindness and relevant for the description of human communication beyond the field of sign language.

Keywords

Communication, language, deixis, congenital deafblindness, Real Space Blend, mental space, gestures.

Introduction

Persons with congenital deafblindness produce gestures and movements which do not seem to belong to a symbolic system, although in many cases, they are felt to convey elements of meaning. In order to see to what extent and in which manner they carry meaning, a relevant theoretical framework is necessary. The concept of Real Space Blend that Liddell (2003) worked out in the field of sign languages provides a model which could prove to be effective for that purpose. This article will explain this concept and try out its applicability in other contexts than sign languages; first in expressions produced by seeing-hearing people and then in the field of deafblindness, through a descriptive method that could be used for further replication, criticism and improvement in the same field. This theoretical and descriptive approach is an attempt to make available an analytic (and maybe universal) tool that would help understanding better the expressions of the congenitally deafblind people.

The body has a central role in human communication and it clearly stands out when communicative intentions are observed in contexts involving people with congenital deafblindness, the main focus of the present article (Daelman & al, 1996). It is obvious when the amount of shared linguistic elements is limited, but also when the communicative partners share a significant amount of vocabulary. The body is involved both in producing standard signs whose form-content relationship is iconically based (the form of the sign looks like the content from a given perspective) and when partners perform body movements grounded in the shared space in order to collaboratively implement their communicative project (Nafstad & Rødbroe, 1999). In that case, they use parts of or their entire bodies to refer to elements of the topic they are trying to share through deictic movements (e.g. pointing at, gazing at, orientating the whole body) and imitations of the actions and dynamics that constitute the content of the world they are trying to share.

The movements observed during an exchange can be related to aspects of the immediate physical reality, but they usually refer to elements of a world that is only visible to the mind. In an example which will be discussed later, a child with deafblindness used parts of his body and locations in the space around him to show what he did several hours earlier while playing with his mother. Objects, characters, actions and emotions were made accessible to the partner's mind without using any standard vocabulary, although they were not at all present in the physical world.

Using one's own body to communicate with others is not specific to people with deafblindness; children do it before they master their mother tongue and continue doing it afterwards (Nadel & Camaioni,1992). The pervasive presence of gestures in language use has rarely been an object of interest in linguistic studies (one notable exception is Marcel Jousse, 1974). However, the role of the body in communication has received more attention in recent decades. In his description of human development, Merlin Donald (1991, 2001) promoted

the importance of the mimetic mind (i.e. all the body resources that are used to represent reality when communicating and thinking). David McNeill (2000) developed a strong current of research focused on categorising gestures and consequently promoted the idea that gestures should be recognised as part of the language production process.

The field of sign language studies is a good example of how gestures and body expressions are used in human communication. The first linguistic researchers focused more on describing the structure of sign languages and incidentally "proving" that these languages should have the same status as other languages. For instance, Klima and Bellugi (1979) explained that sign languages have double articulation (i.e. equivalents of phonemes, a morphology, a syntax and semantics) and fulfil the principle of arbitrariness of the sign. They mainly focused on "standard signs" and described how they fit in with the phonological and syntactical requirements of classical linguistics.

More recently, some sign language researchers (Cuxac, 2001; Liddell, 2003) have given priority to gestures and movements that are not governed by the standard rules of structural linguistics and that are frequently used by native sign language users. It is quite common to observe long signed conversations (several seconds or minutes) that only include a few standard signs. The rest of the utterances are made with gestures that look like mimicry. But the conversation partners do not feel that they have moved from a linguistic to a non-linguistic part of the conversation: free gestures and standard signs are intertwined to produce a coherent flow of utterances (Cuxac, 2001).

One major characteristic of these gestures is that they are produced in a coherent space where the elements of the discourse that do not belong to the present (e.g. the characters and actions of a narrative) are stably mapped onto the present communicative space (Liddell, 2000). Two spaces are mapped onto each other: the Real Space (that contains the speakers and the physical elements around them) and what we could call the Narrative Space (that contains the elements that are referred to but not physically present). Speakers react as if these characters, objects and actions were actually there and, through their gestures, they refer to them as if they were present. This communicative space includes not only the physical space within which the interlocutors are communicating, but also their bodies. The concept of Real Space Blend, proposed by Scott Liddell (2000), is a relevant way to grasp this phenomenon in sign languages. It is an analytical tool that describes how these two spaces are coherently organised.

Using the Real Space to bring the elements of the Narrative Space into the conversation is not specific to people with deafblindness or deafness. All people produce gestures and move around while they talk; they reorganise the space around them, pointing at absent entities and assigning elements of their discourse (including abstract ones) to various locations in the Real Space (McNeill, 1992; 2000; 2005). This process is universal and all core linguistic activities are embedded into this ongoing reorganisation of a space co-

reconstructed by the communication partners. Signers with deafness are conscious and expert users of this universal communicative strategy (which is why sign language grammar tends to be universal).

Conversely, people who can hear and speak transfer many aspects of this universal body/space grammar to the morphological and grammatical forms of spoken languages to such an extent that it is possible to communicate without seeing the person who is talking (e.g. on the phone). However, when young children talk on the phone, they do not understand that the person they talk to does not see what they see. Similarly, when adults speak naturally in a context where they can see each other, they make extensive use of gestures to incorporate elements of information that they do not have to display with words.

What the body does and shows seems to be a core element of human communicative and linguistic strategies (McNeill, 2000). The concept of Real Space Blend will be used to make this phenomenon more explicit, especially in relation to congenital deafblindness. First, it will be contrasted with conceptual systems that also tried to address this question and have similarities and differences with Liddell's approach. Then, the dynamics of the Real Space Blend will be described and used for analytic purposes in the context of congenital deafblindness. This will make it possible to examine whether it is compatible with other conceptual systems that are used in the field of congenital deafblindness. Finally, the question of whether communication and thinking can be described as a dynamic and shared process of general deixis will be discussed.

Other Conceptual Systems

The concept of Real Space Blend emerges and differentiates from several fields of research that address the question of gestures and iconicity in human communication in general or in relation with disabilities. It is therefore important to have an overview of these domains in order to connect them with the concept of Real Space Blend.

David McNeill's Perspective on Gestures

David McNeill and the McNeill Lab Center for Gestures and Speech Research at The University of Chicago have focused a great deal of research on the gestures people perform when they speak. This research mainly addresses two problems: how these gestures are categorised and how they are related to language. McNeill (2000) characterised the gestures produced along with oral speech as being idiosyncratic (there is no standard of good form), global (the meaning of the parts is determined by the meaning of the whole – no phonology) and synthetic (no analytic linearisation of actor–action–path direction).These characteristics contrast with the analytic-combinatory structure of linguistic systems.

With regards to categorisation, McNeill (1992, 2000) proposed his Iconic, Metaphoric, Deictic, Beat quartet: a) Iconic gestures: aimed at creating an image of an object or action

(e.g. throwing a ball). b) Metaphoric gestures: depicting abstract events using concrete images (e.g. a speaker pantomimes holding an object as if it were an idea). c)Deictic gestures: pointing at entities (abstract or concrete) referred to in the discourse. They can be performed with hands or other parts of the body. d) Beats: these gestures do not refer to the content of the discourse. The hands look like they are beating time. Beats often have a function in discourse production (e.g. to stress an element's importance).

McNeill described the operation that combines linguistic and gestural production as a psycholinguistic unit termed "Growth Point" or GP (McNeill, Duncan, Cole, Gallagher, & Bertenthal, 2008). This unit is initially formed at a psychological level and then unpacked in utterances where words and gestures constitute a package instead of two parallel lines of production.

In his research, McNeill (1992, 2000) clarifies that human beings are endowed with the possibility to channel their expressions through either the vocal path or the gestural path, or both together (which is most common). The voice and gestures are both able to encode linguistic properties (as shown by vocal and sign languages), but in natural language use, speakers integrate linguistic elements and gestural imagery, which makes it somehow irrelevant to exclude gestures from the study of language. It must also be mentioned that this field of research focuses mainly on gestures and much less on how space is used in relation to gestures. The Real Space Blend concept brings these two dimensions together.

Iconicity in Sign Languages

It could seem irrelevant to address the question of iconicity in sign languages in the same manner as gestures are studied in vocal languages, because iconicity and imagery are not just one aspect of sign language use; they constitute the core of it. Signers never stop relying on imagery and iconicity when they speak and this phenomenon covers much more than the production of standard signs.

For Christian Cuxac (2001), sign languages not only "say" but simultaneously "show": their linguistic "spread" is therefore greater than that of oral languages. Cuxac (2001) used the term "structures of large iconicity" to describe gestures and movements that do not belong to the lexicon of standard signs. These structures allow the speaker to transfer real or imaginary experiences to the three-dimensional signing space. Cuxac differentiated between three types of transfer: 1) Size and form transfers (Transferts de taille et/ou de forme: TF): an element of the reality is transferred to the hands that show, through their form, direction and movement, how this element is living in the evoked situation. 2) Situation transfers (Transferts situationnels: TS): the signer uses his hands and body to show the whole situation where the action is taking place. 3) Personal transfers (Transferts personnels: TP): in a narrative, the whole body is used to represent a character in action.

This kind of grammar is quite similar to the grammar of cinema and very close to Liddell's Real Space Blend (2000): it takes into account an active and permanent reframing of

the communicative space by the signer beyond the forms and rules of linguistic standards.

Iconicity in sign languages is not connected to physical and practical realities alone (e.g. objects, actions). Iconicity is at the heart of the processes of metaphorisation that belongs to all languages.

Let us look at a few examples of normal daily language used by Sarah Taub (2001): a) I could not *catch* what you said. b) I could not get my point *across*. c) I cannot get that idea *into my head*. These three sentences can be easily said or heard in various conversations, but they all rely on the same conceptual metaphor (Taub, 2001): ideas are objects, understanding is catching them and storing them in a container (the head), and trying to share an idea with somebody is sending it to him. This conceptual metaphor of "exchanging ideas is throwing and catching objects" is also used in sign languages as well as many other ones (such as "intimacy is proximity" or "intensity is quantity") that are common to oral and signed languages.

Visual Versus Haptic Iconicity

Vision is everywhere in research, paradigms and conceptualisations related to gestures, iconicity and social interaction. The strong metaphor that governs the whole domain is "UNDERSTANDING IS SEEING" ("you see what I mean"). Joint attention is understood to be joint visual attention (and the bulk of research in this domain relies on visual perception). Most studies on gestures in communication (McNeill, 2000, 2005; Taub 2001; Liddell 2000) focus almost entirely on situations where the conversation partners are both able to see (whether they can hear or not). Studies of people who are blind (Iverson & Goldin-Meadow, 1997; 2001) have found that they also make gestures, thus demonstrating further proof of the resilience of gesturing in human communication. Deafblindness challenges the connection between vision and gesturing even more because, in the deafblind world, gestures are at the heart of communicative and cognitive life in three ways:

Building concepts and shared symbols. The development of communication and language in children with congenital deafblindness draws on their capacities to use their tactile and motor experiences to build concepts and co-construct shared symbols (e.g. in the form of tactile signs). The formation of concepts and the construction of a representation of the world is not primarily based on learning form-meaning pairs drawn from a tactile sign language lexicon or co-constructed in a more idiosyncratic way with expert partners. It results, first and foremost, from an activity of projection into the body space (that includes the whole body, parts of the body and the proximate space where the body can expand through movements) of the lived experience. At this level, thinking and communicating consists essentially of replaying events that have been occasions for structuring and storing the coherent set of emotions, actions and sensations that constitute an event.

Tactile sign languages. They play a prominent role in the lives of people with congenital or acquired deafblindness. Tactile sign languages emerged from the contact

between the historically established visual sign languages and the tactile world of people with deafblindness. When people use tactile sign languages, they have to cope (consciously or not) with a tension between the social pressure of a visual sign language that was built on strong and historically entrenched visual images and metaphors, and the special tactile-kinaesthetic (haptic) channel through which people with deafblindness perceive and understand the world. If there existed a deafblind community similar to the deaf communities (i.e. with as many people and as many occasions to communicate independently from other linguistic communities), one could conjecture that tactile sign languages would be far more different from visual sign languages than it is now. However, the differences between visual and tactile sign languages should not be overemphasised because most of people with deafness who master a visual sign language easily move to a tactile one if they lose their vision. Actually, the core of the tension is more at the level of people with congenital deafblindness who are often offered visual signs whose iconicity they cannot rely on since their experience of the world is essentially tactile. In spite of these difficulties, iconicity is an essential asset for natural cognitive, semiotic and communicative development in people with congenital deafblindness.

Social-haptic communication. People with deafblindness who communicate by using tactile sign languages essentially have access to long sequences of words, but very little access to other elements that are integrated in or connected to the linguistic flow when people can use their vision: the visual emotional features that show how the speaker feels about what he says (e.g. humour); deictic movements (e.g. pointing at) that indicate things like whose turn it is to speak and elements of context that are not being named; and incidental utterances that are usually addressed through the peripheral visual field without breaking the conversational flow (e.g. offering a cup of coffee). In other words, a lot of the social flesh of communication is lost when people only have access to words.

To compensate for that loss, Russ Palmer, a music therapist with deafblindness, and Riitta Lahtinen used their own experience and contributions from other people with deafblindness to design a method that makes it possible for them to access the elements of information that are not coded in the normal linguistic flow (Lahtinen & Palmer, 1994; Lahtinen, 2008). This method is termed "social-haptic communication" and refers to touch messages between two or more people in a social context (person-to-person). Combined with linguistic information, social-haptic communication methods provide a better quality of information to the deafblind user through short cut methods that do not break the information flow.

Lahtinen (2008) called the elements of information that are transferred "haptices" and called the bodily elements (the grammar) that are used to produce the haptices "haptemes". For instance, to inform a person with deafblindness about who is sitting around a table and where, the interpreter would draw a rectangle on the person's back that stands for the table

and point tactilely on this rectangle at each of the places where the people are virtually sitting and name them. Then, in the flow of conversation, a quick tactile pointing on the person's back would suffice to indicate who is speaking. This method is the equivalent of a quick glance and is very effective for keeping the conversation fluent. In this example, the haptice is the information about who is sitting there and the haptemes are the skin surface of the back and the tactile pointings. In other words, social-haptic communication takes care of the analogic part of communication while the linguistic utterances take care of the digital part.

Iconicity and, more precisely, gestural iconicity, seem to play a central role in human communication regardless of the culture or disability conditions. Therefore, the universal nature of active iconicity calls for a model that encompasses the variety of conditions where human communication takes place. Although the Real Space Blend model (Liddell, 2000) was designed primarily to grasp the structural dynamics of sign languages, it seems to be a good candidate for such a task.

Scott Liddell's Real Space Blend

The point of departure of Liddell's research (2000, 2003) is that the pointing activities that are observable in sign languages cannot be accounted for only through ordinary articulatory movements (equivalent to the gestures of the tongue and mouth) originating in the speaker's capacity to strictly apply grammatical rules that would be independent of the physical context where the topic of the conversation is brought forth. Sign language grammar works on space parameters (if the signer has to refer to a person, he would virtually locate this person somewhere in front of him and point or look in that direction each time this person is mentioned in the signer's discourse). However, a close observation of the signer's gestures shows that the signer would point at parts of the virtual body (the shoes, the waist) as if the person were really there. This virtual presence is not an extension of the core sign language grammar, but rather a reorganisation of the physical space that maps the elements of the discourse onto the elements of the Real Space where the conversation takes place. In other words, in a signed conversation, speakers activate and coordinate various mental spaces (the space of the physical context and the space of the discourse). That is why Liddell used Fauconnier's mental space theory, which describes language as a 'superficial manifestation of hidden, highly abstract, cognitive constructions' (Liddell 2003, p 138) that involve an interaction between grammar and mental spaces (Fauconnier,1997; Fauconnier & Turner, 2002).

Sign language grammars cannot list all the ways in which signs are located and directed. Signs are not generated only by a discrete set of phonemic or morphemic elements; they are also controlled from another source, the mental space that results from a blend between the immediate physical environment as conceived by the speaker (the Real Space)

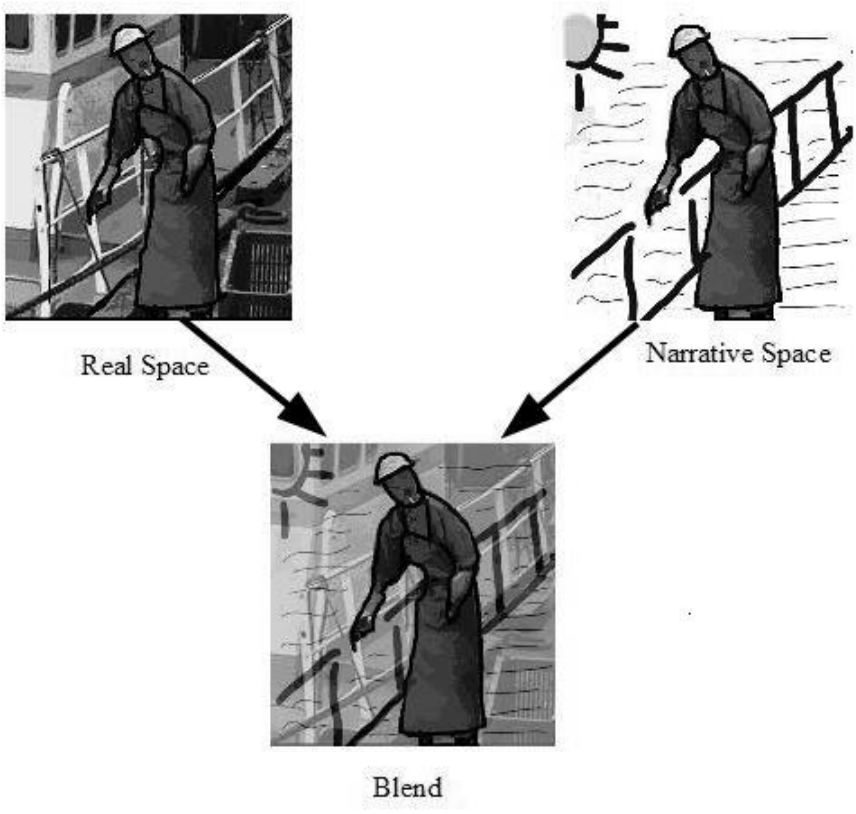
and the semantic content of the discourse (e.g. narrative, argumentation, explanation). In other words, the discourse space elements (that refers to elements that are not physically part of the local reality) are projected onto elements of the Real Space which forms a new space from the blend between the two input spaces.

Liddell (2000) describes this phenomenon using the following example: a signer, who is standing up, tells a story about Garfield the cat, a famous cartoon character, who is sitting in front of a TV set and looking at his owner, Jon, who is standing to his right. To express that scene, the signer acts as if he were Garfield and directs his gaze and body to his right side where Jon should be standing. This form of expression is typical of sign languages. It implies the activation of two coordinated mental spaces in the speaker's and listener's minds: 1) a Narrative Space (the story where Garfield is sitting in front of a TV set and looking at Jon); and 2) the Real Space (where the standing speaker is signing). These two mental spaces fuse into a blend where the elements of the Narrative Space are directly mapped onto visible elements of the Real Space (i.e. the signer impersonates Garfield by looking in Jon's direction) and other ones are mapped onto invisible settings connected to the visible ones (Jon, who is located on Garfield's right side in the cartoon, is also located on Garfield's/the signer's right side in the blend).

The Narrative Space is not initially grounded, since it is not physically present and exists only in an imaginary world. By contrast, the Real Space is grounded since its elements can be directly seen and touched. The blend which results from the two input spaces is also grounded since it includes the grounded Real Space around which other elements of the narrative are anchored in a stable way as if they were visible and touchable. In the blend, the elements of the Real Space (locations or physical elements) are given new values that are related to the cartoon narrative.

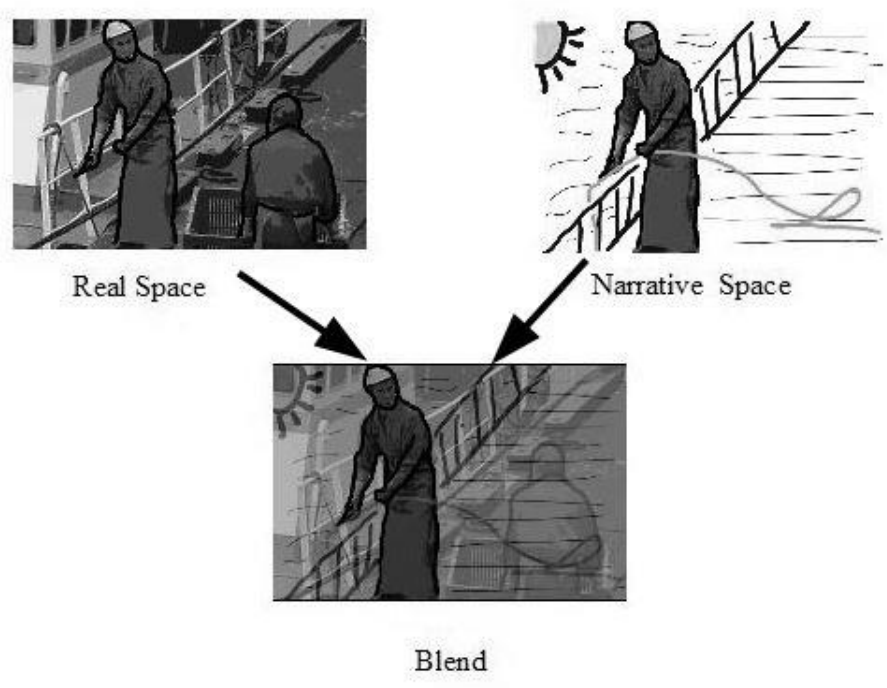
Conversations in sign language demonstrate quite clearly how the Narrative Space is nested in the Real Space, but the following example will show that this phenomenon does not seem to be specific to sign languages : two fishermen were filmed while having a conversation on a dock next to a boat from which they were busy unloading fish. One of the speakers makes many deictic and iconic gestures that describe either objects (e.g. types of fish) or actions (like e.g. throwing something away). But clearly, these gestures are not separate actions that would only be linked to the vocal words they are connected with, but interconnected elements within a system that covers more than separate words or sentences.

Figure 1: This Real Space Blend explains the meaning of the fisherman's pointing gesture. Two spaces are blended: 1) the Real Space, where the fisherman stands up and points somewhere at the edge of the dock, and 2) the Narrative Space, where the fisherman is on the boat pointing next to the ship's rail. In the blend, the edge of the dock is understood as the ship's rail in the narrative. There are two main mappings: 1) the fisherman in the Real Space stands for the fisherman in the Narrative Space, and 2) the edge of the dock stands for the ship's rail.



Let us look at two gestures extracted from this clip. The first one (Figure 1) is deictic: one fisherman, while looking at his partner, is pointing down at the edge of the dock he is standing on. Before making this gesture, he walked from the place he was working with his partner to the edge of the dock.

Figure 2: This Real Space Blend explains the meaning of the fisherman's pulling gesture. Two spaces are blended: 1) the Real Space, where the fisherman stands up and pulls out something at the edge of the dock, and 2) the Narrative Space, where the fisherman is on the boat, next to the ship's rail, pulling a rope out of the water. In the blend, the edge of the dock is understood as the ship's rail in the narrative. There are two main mappings: 1) the fisherman in the Real Space stands for the fisherman in the Narrative Space, and 2) the edge of the dock stands for the ship's rail. The activation of the blend makes it possible to imagine the rope, although it is not mapped onto any element of the Real Space.



The second gesture (Figure 2) is iconic: the fisherman, while looking at his partner, makes a movement like he was pulling a rope out of something. These gestures contribute to saying something like "when I was in the boat, I went to the side of the boat and I pulled up a rope". To understand these gestures, it is necessary to structure a blend between two spaces: a Real Space (i.e. the dock where the fishermen are actually working) and a Narrative Space (i.e. what happened in the boat in the fisherman's narrative). The blend between these two spaces is organised through various mappings: the dock in the Real Space stands for the floor of the boat in the Narrative Space and, in the same way, the edge of the dock stands for the ship's rail.

Therefore, when, the fisherman walks from his partner's side to the edge of the dock in the Real Space, he is walking toward the side of the boat in the Narrative. It is exactly the same when he is pointing and pulling up. This game with mental spaces involves a fast reorganisation of the conversation space that requires an agreement from the two (or more) conversation partners: as the speaker produces the blend, the listeners have to simultaneously

grasp it and join in if they want to understand. Therefore, people who use speech and sign language users use the space in the same way. The only difference could be that sign language users are more dependent on (and expert in) using these Real Space Blends. But the competency to activate them does not seem to be specific to people with deafness, since it is visible in all human beings.

The fast reorganisation of the conversation space produces a new mental space (the blend) that results from the coordination of two input mental spaces : the Real Space and the Narrative Space. At this point, it is important to underline the fact that the Real Space is also a mental space, although it is physically present and reachable. The production of the blend implies a selection, among the various elements of the physical space, of the ones that will be used for the mappings between the Real Space and the Narrative Space. In other words, the Real Space is not equivalent to the physical space; this point is especially important when two conversation partners do have not the same access to reality (for instance in the case of a disability).

Knowing that Real Space Blends are activated in conversations using sign or oral languages (in both cases, the Real Space Blend is connected to elements of language - words, standard signs, grammar - and based upon visual parameters), the question is now whether the activation of a Real Space Blend is also possible in a situation where the speaker does not use any formal language and cannot rely on visual parameters? We will try to answer that question using an example drawn from a conversation between a child with congenital deafblindness and his mother.

A Real Space Blend Analysis

The video clip used for this Real Space Blend analysis can be found in Souriau, Rødbroe & Janssen, 2008, Booklet N° III, Number 2D: Conversation about visiting the playground. The two interlocutors are Emil and his mother. Emil is a four-and-a-half-year-old Danish boy with Rosenberg Chutorian Syndrome. His visual acuity is 1/60 (he can see light and movements). He received a cochlear implant when he was four years old. Souriau, Rødbroe, and Janssen (2008, p. 78) describe their exchange as follows:

'Emil and his mum are sharing their trip to the playground earlier that day. In the playground event, they went up the stairs to slide down the switchback and they met another girl with a cochlear implant. The external processor that the girl wears, has been placed on her back and not on her breast, like that of Emil.'

In this example, there is no standard sign at all in Emil's production. Everything is expressed through his body in the physical space of the conversation. Emil shows what he thinks about through mimicry and deixis. He never shows something that is there in the present space; instead, he points at elements of the Real Space to show what he is thinking about in the Narrative Space.

Climbing up the Ladder of the Playground Slide and Sliding Down

When Emil tells his mother that he climbed up a playground slide, he expresses this memory with his hands by grabbing the rungs of the ladder one after the other and by moving his whole body to show the effort he had to make to get to the top (Figure 3).

Figure 3: Emil tells his mother he climbed up a playground slide.

Table 1

Mental spaces and mappings related to figure 3: Emil tells his mother that he climbed up a playground slide.

Narrative Space (Emil)	Real Space (Emil)
Elements Selected in the Narrative Space and in the Real Space	
Gloss : I climbed up the ladder with effort	Emil's hands Emil's body Haptic/visual space in between partners (left vs. right; top vs. down)
Mappings	
Emil's hand holding the rungs when climbing	Emil's hands now
Whole body making efforts when climbing	Emil's body
Climbing up	Hands moving bottom -> up

This process is summarised in Table 1, in which the Narrative Space says, in the form of a gloss, what Emil is trying to tell. In the Real Space part, we have the list of the Real Space elements that Emil used to show the content of his narrative. The mappings describe the connections between the contents of the Narrative Space and Real Space elements. It is important to note that the Real Space not only includes parts of the body but also includes spatial directions: all the gestures are produced in and structured by a deictic field.

Figure 4: Emil shows that he slid down.

Table 2

Mental spaces and mappings related to figure 4: Emil shows that he slid down.

Narrative Space (Emil)	Real Space (Emil)
Elements Selected in the Narrative Space and in the Real Space	
Gloss: I slid down	Emil's hands Haptic/visual space in between partners (left vs. right; top vs. down)
Mappings	
Top of the slide	Left hand
Emil	Right hand
sliding down	Movement top right to down left

After showing that he climbed up the ladder, Emil then showed that he slid down the slide. Figure 4 and Table 2 show how the haptic space is different from a visual space. When Emil finished the action of climbing the stairs, we see that his left hand kept still (up on the left side) to show the top of the slide. Therefore, the sliding movement should have started from the top left (where the hand/top stays) and moved down toward the right. But Emil did it the other way round. The two aspects of the sequence (climbing then sliding) are not connected visually, but through a haptic-temporal sequence. In the subsequent conversation, Emil repeated the sequence of events (climbing up and sliding down) several times, using the same kind of mappings but stressing different aspects each time.

The Little Girl's Cochlear Implant

During the conversation about the playground, a new topic came up: Emil met a little girl who also has a cochlear implant, but who wears the amplifier on her back instead of her chest, like Emil does. Emil pointed at his own amplifier and at his own back as if they belonged to the little girl. To understand Emil's statement, the conversation partner has to recognise the mappings between Emil's body (in the Real Space) and the little girl's body (in

the Narrative Space). It is also important to note that Emil and his mother seemed to perfectly understand each other for two reasons: they both participated in the event that is referred to and they managed to organise a shared Real Space Blend whose mappings are totally clear for both of them.

Figure 5: Emil points at his own amplifier to refer to the little girl's amplifier.

Table 3

Mental Spaces and Mappings Related to Figure 5: Emil Points at His Own Amplifier to Refer to the Little Girl's Amplifier.

Narrative Space (Emil)	**Real Space (Emil)**
Elements Selected in the Narrative Space and in the Real Space	
Gloss: The little girl's amplifier box was not there.	Emil's body – front vs. back Amplifier box
Mappings	
Little girl's amplifier box	Emil's amplifier box
Front of little girl's body (not there)	Front of Emil's body

Emil pointed at his own amplifier (by drawing his mother's hand to his chest) to refer to the little girl's amplifier, stating that it was not located there (Figure 5 and Table 3). Following this gesture, the mother spoke: 'There was nothing here. It was empty.' She understood that the gesture was about the little girl's cochlear implant not being there. That is only possible because she remembers the highlight of the event (i.e. Emil being surprised that the amplifier was not on the chest). In other words, when Emil pointed in the Real Space at his own amplifier, he did not point in the Narrative Space at the little girl's amplifier as such, but rather at the highlight of the event: his surprise when he discovered it was not there. It is very probable that the whole system would have failed if his conversation partner had not participated in or known a lot about the event.

Figure 6: Mother points (by touch) at Emil's back.

Table 4

Mental spaces and mappings related to figure 6: Mother points (by touch) at Emil's Back.

Narrative Space (Emil)	Real Space (Emil)
Elements Selected in the Narrative Space and in the Real Space	
Gloss: Yes, it was on the back.	Emil's body – front vs. back
Mappings	
Little girl's back	Emil's back

Then the mother answered the child: she pointed (by touch) at Emil's back to say that the amplifier was located on the little girl's back (Figure 6 and Table 4). Emil and his mother are running exactly the same blend. Both know that when the mother is touching Emil's back, it is to point at the little girl's back. Here, the focus is on the mother's utterance, but it seems that it was Emil who initiated the movement toward the back with his left arm. However, the movement was so quickly taken up by the mother that it was almost impossible to separate Emil's initiating movement from his mother's uptaking.

Concluding Remarks

As the previous examples and descriptions demonstrate, both in a normal case of visual communication and an extreme case of tactile communication, it would not be illogical to consider that activating coordinated mental spaces (in the form of a Real Space Blend) are a universal process when human beings try to communicate. The concept of Real Space Blend and the analytic tool that derives from it seem to be applicable to the experience of congenital deafblindness (other Real Space Blend analysis are being tried out with other children with congenital deafblindness in order to test its relevance and productivity). One of the main differences from other types of perception is that the kind of space that is activated is not a three-dimensional visual space but a tactile-kinaesthetic one. In Emil's example, we saw that

the sliding gesture was not articulated visually to the climbing gesture as a seeing person with deafness would have done. However, the purely three-dimensional space and the haptic one have a lot in common, which makes it easier for the visual partner to join in.

Activities of communication involving a person with congenital deafblindness support clearly the idea that a conversation is essentially a shared effort to establish and stabilise a space of understanding where both linguistic elements and gestures are used to try to show what happens in the minds. Both channels have their flaws and advantages. Expert speakers look for shortcuts that help them reach the shared landscape of mutual understanding: sometimes gestures are faster and sometimes words are. Conversations are full of clever, elegant and effective combinations of words and gestures that try to go straight to the point. A conversation is a theatre where two (or more) people set up and reorganise an invisible stage with a shared global deixis. This seems to be also the case when the conversation includes a person with congenital deafblindness.

References

Cuxac, C. (2001). Les langues des signes: analyseurs de la faculté de langage [Sign languages: analysts of language faculty]. *Aile – Acquisition et Interaction en Langue Étrangère, 15*, 11-36.

Daelman, M., Nafstad, A., Rødbroe, I., Visser, T. & Souriau, J. (1996*) The Emergence of Communication . Contact and lnteraction patterns. Persons with Congnenital Deafhlindness*. CNEFEI. IAEDB Working Group on Communication. Video. CNEFEl ; Suresnes, France.

Donald, M. (1991). Origins of the modern mind: three stages in the evolution of culture and cognition. Boston: Harvard University Press.

Donald, M. (2001). *A mind so rare.* W.W. NORTON and Company. NEW-YORK.

Fauconnier, G. (1997). *Mappings in thought and language*. Cambridge, UK: Cambridge University Press.

Fauconnier, G. & Turner, M. (2002). The way we think: conceptual blending and the mind's hidden complexities. New York: Basic Books.

Iverson, J. M., & Goldin-Meadow, S. (1997). What's communication got to do with it? Gesture in children blind from birth. *Developmental Psychology, 33*(3), 453–467.

Iverson, J. M., & Goldin-Meadow, S. (2001). The resilience of gesture in talk: gesture in blind speakers and listeners. *Developmental Science, 4*(4), 416–422.

Jousse, M. (1974). *L'anthropologie du Geste.* Paris: Gallimard.

Klima, E., & Bellugi, U. (1979). *The signs of language*. Cambridge, USA: Harvard University Press.

Lahtinen. R., & Palmer, R. (1994). *Holistic communication within the family.* Retrieved from http://www.kolumbus.fi/riitta.lahtinen/holistic.html

Lahtinen, R. (2008), Haptices and haptemes. A case study of developmental process in social-haptic communication of acquired deafblind people. Academic dissertation. University of Helsinki: Cityoffset.

Liddell, S. K. (2003). Grammar, Gesture, and Meaning in American Sign Language. Cambridge University Press.

Liddell, S. K. (2000) K. (2000). Blended spaces and deixis. In McNeill, D. (ed.) (2000), *Language and gesture,* Cambridge, UK: Cambridge University Press.

McNeill, D. (1992). Hand and mind: what gestures reveal about thought. Chicago: Chicago Press.

McNeill, D. (ed.) (2000)., *Language and gesture.*, UK: Cambridge University Press.

McNeill, D. (2005). *Gesture & thought*. Chicago: Chicago Press.

McNeill, D., Duncan, S., Cole, J. (2008). Growth points from the very beginning. *Interaction Studies,* Volume 9, Number 1, 2008 , pp. 117-132.

Nadel, J. et Camaioni, L. (1992). New Perspectives in Early Communicative Development. Routledge. London.

Nafstad, A. et Rødbroe, I. 1999. Co-creating communication. Perspectives on diagnostic education for individuals who are congenitally deafblind and individuals whose impairments may have similar effects. Dronninglund, Danemark: Forlaget Nord-Press.

Souriau, J., Rødbroe, I.,& Janssen, M. (Eds). (2008). *Communication and congenital deafblindness: meaning making*. St. Michielsgestel, The Netherlands: VCDBF / Viataal.

Taub, S. (2001). Language from the body: iconicity and metaphor in American Sign Language. Cambridge University Press.

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