



## ARTICLE RESPONSE

A Comparison Between the Plenary Speech by Gallagher and the  
International Master in Communication and Deafblindness

Response to Gallagher

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## **Introduction: What Gallagher and the Master in Communication and Deafblindness Have in Common.**

The topic of embodiment is of the utmost importance in the field of congenital deafblindness for several reasons: one is that the apparent scarcity of strictly speaking linguistic resources (words, sentences) makes it more necessary to pay attention to body expressions; another one is that, for people who can see and hear, the tactile sense (and more generally all the senses that imply a direct contact) is perceived as more bodily than vision and hearing (Nicholas, 2010). Besides, deafblindness is a condition that makes it impossible to avoid the body when attempting to give an account of how people with deafblindness perceive, conceive and communicate about the world. Therefore, Shaun's Gallagher contributions to understanding embodiment from a philosophical perspective (consistently informed by the latest discoveries in neurosciences) is more than welcome. In fact, the Master in Communication and Deafblindness has a lot in common with Shaun Gallagher's approach in terms of concerns, themes, methods and ethics:

- both draw on a variety of scientific fields (developmental psychology, neurosciences, cognitive linguistics, phenomenology, and philosophy of mind) - although, in Gallagher's work, neurosciences play a major role;
- embodiment is for both at the core of the studies focusing on communicative activities, language, knowledge of the world and spatio-temporal aspects of human experience. Merleau-Ponty (Merleau-Ponty & Smith, 1996) is frequently referred to in Gallagher's publications, and the Master field of research and teaching is totally in line with Merleau-Ponty's approach, (although it is rarely thematized as such). Topics like gestures (McNeill, 1992, 2000, 2008), intersubjectivity (Trevarthen, Hubley, & others, 1978, Trevarthen, 1979), neonate imitation (Meltzoff & Moore, 1989), provide frameworks in the two fields either for describing phenomena or designing intervention strategies.
- with regards to epistemological matters, in both fields, people with disabilities are recognized as providing an indispensable expertise for knowing their disabilities and designing intervention methods: the people with congenital deafblindness that we can see in numberless videos that are used for research or teaching, and, in Shaun Gallagher's articles, the ones that suffer from neurological damages like Ian Waterman whose lack of proprioception and sense of touch from the neck down, and his resulting profound problems with movement made him the "hero" and expert of many neurological studies (Gallagher, 2005, P 11). Besides, along with the embodiment of cognition, the second person perspective (Rommetveit, 2003) constitutes a shared epistemological stance: knowledge and meaning develops in relational dynamics.

## Some Comments on Concepts that are Shared by Shaun Gallagher and the Master

Comparing how concepts related to embodiment are used by Shaun Gallagher with how they are addressed in the context of the Master in Communication and Deafblindness could open new perspectives for the Master and put their relevance to test. This comparison will be based on two sources from Shaun Gallagher: his book “How the body shapes the mind” (2005) and his lecture at the Master in Communication and Deafblindness 10<sup>th</sup> anniversary conference in 2016.

### Concepts Used in “How the body shapes the mind” (2005)

**Body schema and body image.** In “How the body shapes the mind”, Gallagher (2005), differentiates the notions of body schema and body image: “body image consists of a system of perceptions, attitudes, and beliefs pertaining to one’s own body. By contrast, a body schema is a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring.” (p. 24). In other words, our body schema is what makes us able to grasp something without having to consciously monitor and coordinate the various parts of our body that are involved in this movement; by contrast, there is a body image counterpart for this movement if or when we have to think about it consciously, for instance if there is an obstacle that prevents us to accomplish it automatically. In this case, we may have a body image of the functions of our arm, fingers or tactile perceptions that are connected to this action. This dialectic relation between body schema and body image makes sense in the field of congenital deafblindness since the transition from idiosyncratic expressions to shared signs is, somehow, implying a transformation from a pre-symbolic movement, first produced at the body schema level, without conscious planning, to a shared symbolic movement (which does not necessarily differ from the first one with regards to its topology and form) which reaches the level of the body-image through the process of negotiation (where other-orientated and self-addressed thinking intentions are expressed). During these negotiating episodes, cognitive-emotional tensions lift the body-schema controlled movements up to the level of consciousness. In other words, the Body Emotional Traces (BETs) (Daelman & al., 2004), from which communicative signs emerge, undergo a transformation from the body-schema level (where the experience is stored) to the body-image consciousness.

**Imitation.** Studies on imitation are referred to in both contexts, but with a difference of perspective. Shaun Gallagher’s point is that the early imitative competencies (Meltzoff & Moore, 1989) prove that humans are born with an innate capacity to engage in intersubjective relationships. But he focuses on one side of imitation, the capacity to imitate, whereas in the Master studies, the focus is mainly on the other side of the process, the

reaction of the children to being imitated. The core principles for the development of communication as they are addressed in the Master and in other publications from the same group of lecturers<sup>1</sup> owe a lot to studies that show the powerful effect of being imitated on bootstrapping communicative sequences and enriching their content (Nadel, Guérini, Pezé, & Rivet, 1999). In situations where communication is challenged by a disability like Congenital deafblindness, imitating the child (a practice which became pervasive in the field in situations of first contact or of difficult communication) proved to be extremely effective for triggering and coordinating interactional and communicative intentions. In many of the video clips that illustrate the Booklets on Communication and Congenital Deafblindness (Rødbroe, Janssen, & Souriau, 2006), imitation is very commonly used by the children's partners as a way to sustain mutual attention and to adjust to what their bodies express of their thoughts. This positive effect was also very early documented in the field of autism (Nadel, Guérini, Pezé, & Rivet, 1999). Interestingly, the field of deafblind education historically moved from trying to make the children imitate (a typical way to learn) to imitating them (to boost communication).

**Gestures, space and language.** Another shared field of interest is the role of space in bodily thinking and communicating. Shaun Gallagher cites Merleau-Ponty's (1962) remark: 'far from my body's being for me no more than a fragment of space, there would be no space at all for me if I had no body' (p. 102). He also mentions Poincaré's (1913) statement, that the notion of space derives from 'a system of axes invariably bound to our body' (p. 257). These two statements consider that what we call space is somehow created by the body instead of simply being an external reality existing independently of bodily experience. In the field of congenital deafblindness, the focus on space did not derive from abstract mathematical perspectives but from studying how people in general (and congenitally deafblind people in particular) think and communicate. The visible part of thinking and communicating is a body making gestures (among them articulating words), but these gestures are spatially anchored in a space that includes the thinker/speaker's body and the space around; this space can be seen from three perspectives:

- 1 As a physical system of axes that determine the conditions for moving (taking into account that blindness or visual impairment imply a different manner to process spatial parameters (Thinus-Blanc & Gaunet, 1997)
- 2 As a semiotic network (objects, locations and pathways are laden with traces of individual, potentially shared, experience)
- 3 As an enunciative structure (the location of the other who is spoken to – or of the others that are spoken about- contribute to determining the trajectories of the gestures).

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<sup>1</sup> For instance: Rødbroe, Janssen, & Souriau, 2006; Daelman et al., 2004; Larsen & Souriau, 2006; Daelman, Nafstad, Rødbroe, Visser, & Souriau, 1996; Daelman, Nafstad, Rødbroe, Visser, & Souriau, 1996; Nafstad & Rødbroe, 1999; Nafstad, 2009; Nafstad, 2015

Therefore, when it happens that a gesture (produced by a deafblind person or any other person) is difficult to make sense of, one has to look at the shape of the gesture but also at its spatial components. The latter should be systematically considered as having potentially semantic or enunciative values. Gallagher (2005, p. 113-114) refers to these two components of gestures (shape and space) as morphokinetic vs topokinetic: picking up a glass or catching a ball requires both to calibrate the shape of the hand (the morphokinetic aspect of the movement) and to control its spatial trajectory to reach the target (the topokinetic aspect).

But gestures in space do not obey the same rules when they are produced for instrumental reasons (e.g. reaching a glass) and for verbal purposes. McNeill (1992, 2000) has demonstrated that all people produce gestures when they speak and that these gestures are not just accompanying language but are intrinsically part of it: gestures and vocal productions are planned together for speaking and thinking. McNeill (McNeill, Duncan, Cole, Gallagher, & Bertenthal, 2008) uses the term “Growth point” to point at the neurological mechanism through which gestures and linguistic elements (phonology, syntax) are prepared as a single whole unit whose components collaborate to produce a meaning. Gestures and linguistic elements are therefore very tightly bound and brain damages or disabilities can affect the neurological networks that govern gestures in a different way according to whether they are connected or not to language. This is strikingly illustrated by two examples: 1- Ian Waterman (whose lack of proprioception and sense of touch from the neck down was mentioned before) could not produce effective movements in blind conditions; he had to see his limbs to control them consciously (activating his body image because of the deficit of his body schema). However, he would produce naturally movements related to his speaking even when he was in blind conditions, although topokinetic gestures were not as easy to produce as the morphokinetic ones (Gallagher, 2005, p. 114). 2- deaf people afflicted with hemispatial neglect in the right hemisphere (and thus unable to control and process gestures on their left sides) are still perfectly able to process and produce linguistic gestures on their left side [(Gallagher, 2005, p. 108). These two examples show that when “languaging” (Swain, 2006) takes control of the body, gestures are controlled by language processing. Communicative gestures do not follow the same rules as the instrumental ones.

In the case of congenital deafblindness, the sensory impairments do not exclude toospace from the parameters that determine the form of the expressions. The above-mentioned statement from Merleau-Ponty (1962), “there would be no space at all for me if I had no body’ (p. 102), is particularly relevant for congenitally deafblind people: for them there is no clear boundary between their own body and the space around. They construe the space in relation to their body moving in it (parents of congenitally deafblind children are

always surprised by the fact that their children, when sitting in their cars, can recognize, without seeing and hearing, the moment and the “place” when they are getting close to home). This means that they have stored in their memory a pattern of motor sensations generated by the sequential and usual adjustments of the driving to the sequence of the road characteristics (curves, stops, slowing downs, etc.)<sup>2</sup>. This example shows that it is not the visual sense, but the haptic sense<sup>3</sup> that generates their memory of space. Besides, when forming expressions, congenitally deafblind people can organize space components in unusual ways, for instance with regards to the signing space: canonical tactile signing consists (Mesch, 2001), for the two speakers, in being face to face and to having their hands in contact (the listener putting his hands on top of the speaker’s) and alternating hand positions according to who is taking the floor; however, one can observe conversations with congenitally deafblind children where interaction is not face to face and where the signing space is located in other places than the hands: they would receive the signs on their face, leg or other parts of the body in order to keep their hands free for exploring the aspect of the world (an object, a part of the body or an activity) which is the shared focus of attention<sup>4</sup>.

The various ways for congenitally deafblind people to process gestures in space is just one of the possibilities in the whole gamut of spatial coordinates of gestures in human beings. Among them is the use of space parameters by deaf signers. This problem is very well documented (Cuxac, 2001; Liddell & McNeill, 2000) and many attempts have been made to identify stable rules governing the semiotics of space parameters. A typical example of this “space grammar” is the manner in which spatial parameters express aspects of time: future is ahead and past is behind<sup>5</sup>. This future/ahead vs past/behind is a conceptual metaphor (Lakoff & Johnson, 1980) that seems universal (not only in sign languages, but also in vocal languages), therefore, it could be a good candidate for demonstrating that it is possible to identify stable connections between space parameters and time aspects. But it is not the case. Kari-Anne Selvik (2006) demonstrated that in sign language, there are many ways to use space for representing time aspects: past can be on the left side and future in the right side, or past is bottom and future up. The range of possibilities is open and for each utterance, the space parameters are merged and designed in relation to the other aspects of the content. Liddell (2000) suggests a very convincing model to describe these mechanisms: The Real Space Blend. Based on Fauconnier’s mental space theory (Fauconnier & Turner,

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<sup>2</sup> As a headmaster of a school for deafblind children, I have very often heard parents reporting this precise experience.

<sup>3</sup> Gibson (1966) defined the haptic system as "the sensibility of the individual to the world adjacent to his body by use of his body"

<sup>4</sup> A very good illustration of this phenomenon can be found in various video-clips of Santeri, a Finnish congenitally deaf blind boy, that can be found in Rødbrøe, Janssen, & Souriau, 2006.

<sup>5</sup> For instance, in French Sign Language, yesterday and to-morrow use the same handshape but with a movement toward behind for the former and ahead for the latter.

2002), the Real Space Blend model allows a description of how gestures and space parameters are integrated in sign languages: the elements of the discourse (characters, actions, thoughts) are mapped onto the elements of the real space (directions, locations and objects that are available at the moment of speaking) which provides the spatial structure of the gestures. Is this model specific to sign languages? Souriau (2015) tries to answer this question by demonstrating that the Real Space Blend model is applicable for describing the spatial semantics of gestures (related to language) in sighted-hearing people and in congenitally deafblind people as well. Therefore, Deafblindness, though an extreme condition, demonstrates that the use of the body in space conveys meaning and that the semantic connections between spatial parameters and meanings are not governed by strict readymade rules but by contextualized online mappings. Nonlinguistic gestures can therefore be considered as belonging to the activity of languaging (Swain, 2006) whatever the type of language in use.

### **Response to the Lecture**

In his lecture given at the Royal University of Groningen on the occasion of the celebration of the 10th anniversary of the Master in Communication and Deafblindness, Shaun Gallagher addressed various aspects of embodiment, using congenital deafblindness as a condition against which they could be tested or further explored. Some of them are particularly worth of comments and expansions from the researchers and practitioners of the field.

#### **Observation Based on Tests versus Natural Interaction**

When exposed to the elicited false belief tasks, children below 4 years of age do not grasp what happens in the other person's mind; they fail the ToM test. By contrast, 3-year-old ones pass the test if they are interacting with the targeted agent (Gallagher, 2015). This example shows that the measure of a child competency depends a lot on the presence or absence of interaction. This problem is even more complicated in the context of congenital deafblindness since the partners' communicative competencies are hugely challenged by the sensory (and possibly cognitive) limitations. Therefore, to display their competencies at their best, it is not enough for congenitally deafblind children to be engaged in an interaction, they also need a very competent partner, i.e. a partner familiar with their communicative habits and individual culture. Otherwise, their competencies are neither perceived (and therefore not reported) nor reacted upon (and therefore not explored further). The lack of competent partners hinders the development of these competencies and can lead to their extinction.

### **The Problem of Unobservability**

Mental states of other people are not directly observable. However, they are not totally inaccessible since daily life experience shows that it is possible to attune with other people's mental states and to perceive when this attunement fails. Gallagher (2016), reviewing the theories that aim at explaining this phenomenon of social cognition, categorizes them into three competing models: Theory-Theory (TT), Simulation Theory (ST) and Interaction Theory (IT). According to TT, unobservable mental states are inferred through calculating the consequences of observational clues using the principles of folk psychology. For ST, the observer relies on his own experience and attributes his own mental states to the other. IT, which is supported by Gallagher, does not need an unobservable mind since in interactions, intersubjective minds are bodily engaged with each other and co-produce states of minds and actions.

The Master in Communication and Deafblindness is very much in line with this last view and the lectures, articles and Master thesis it generates are mainly based on analyzing interactions from the point of view of communicative dynamics and sense sharing. However, professionals and family members who are in contact with congenitally deafblind people very often experience that they fail in understanding each other. The natural activation of IT principles very often does not work, which creates a consciousness of intersubjective difficulties, tensions and failures<sup>6</sup>. The history of deafblind education is made of attempts to overcome this difficulty through activating TT principles, i.e. relying on conscious strategies and calculations. For instance, using behavioristic principles made it possible to bypass the problem of intersubjectivity through establishing a system of mechanistic rules that would allow some kind of communication without caring about accessing others' minds. The Master approaches the TT/IT tensions from another angle: when IT fails, it should be restored. And to restore it, it is necessary to rely temporarily on TT strategies, i.e. conscious calculations and inferences based on an analysis of the clues that are available (actions, gestures, movements, faces expressions, linguistic utterances). Hence, the development of hermeneutic tools whose texts are video clips of interactions.

Progressively, several theoretical frameworks have been selected aiming at understanding how meanings are expressed and shared during interactions. Video analysis focused on accessing the semiotic content of the expressions (e.g. using the 6-space model) or their bodily construction (e.g. using the RSB model) and a lot of attention has been given to the dynamics of joint attention. These analytic tools rest on conscious processes that entail both computation and insight and require solid theoretical backgrounds. However, this production of inferences based on a conscious use of analytic tools is only a temporary TT strategy because this knowledge spreads in the field, both in its theoretical and practical aspects. Progressively, partners of communication become more competent partners that

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<sup>6</sup> Nafstad & Robroe (2015) refer to this problem using the word « low readability » (p. 21).

can attune with the dynamics of interaction and reciprocate and co-construct easily the expressions in the making that co-create shared meanings. This back and forth movement between IT and TT strategies is not exceptional since, even though in daily life we rely mainly on IT, there are some cases when it is necessary to engage in conscious, computational inferences. This happens when one has to face the impossibility to understand the other in the usual way. This conscious problem solving strategy can also be temporary and lead to a new intersubjective competency that will not require any longer a TT strategy.

However, one statement of Gallagher (2016) related to IT in his presentation needs more comment: “When we know a particular person well, we learn what to expect from them, what actions are consistent with her character or personality, and therefore what to expect from her. This familiarity gives us a more intensive understanding of specific others, and in those particular cases less of a reliance on general folk psychology or simulation routines”<sup>7</sup>. Of course, familiarity is an essential requirement for making easy the dynamics of intersubjectivity and it is also a core aspect of the process of attachment, especially because it affords a lot of predictability. However, there is a danger that familiarity leads to freezing the dynamics of intersubjectivity at the level where partners are used to understand each other and do not challenge each other anymore, because they limit their communicative initiatives to what the other is known as able to expect and understand. Therefore, challenging situations can be very productive to identify competencies that would not appear in very familiar situations. Novelty in partners and experience is (and this is not specific to the deafblind) also a necessary context for competencies and intentions to appear in the deafblind person’s mind and expressions. The partner competency rests both on a high familiarity and at the same time a capacity to engage in novel, unexpected and less secure interactions where possible obstacles to sharing mental states can lead to creative tensions that will lift up the level of competencies and expand the gamut of possible and real worlds in both partners’ minds. This requires security and trust on both sides (Nafstad, 2015).

One aspect of activating temporarily a TT strategy is also to avoid the automatic and possibly irrelevant activation of ST. Understanding the expression of the other using one’s own experience (ST) can be very misleading when the partner is a congenitally deafblind person because what one knows of his own experiences is based on the activation of affordances (Gibson, 1977) whose origin is either the genetic inheritance or cultural transmission. What we see in the body of a deafblind person needs quite often strange and counterintuitive modes of interpretation; for instance, a person whose vision is totally obliterated in the central part of the central visual field will look sideways at her

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<sup>7</sup> notes from the text prepared for the lecture and communicated by Gallagher to the author.

conversation partner, which could be easily interpreted as expressing negative feelings like scorn or lack of interest, i.e. exactly the opposite of what it probably is, an indication of attention. Being a competent partner requires therefore a lot of practice in recalibrating the social or genetic affordances to adjust to the deafblind experience. This is particularly the case of the tactile sense whose social parameters must be intellectually and bodily reconsidered, especially with regards to how intimacy and psychological proximity are understood. A variety of TT strategies are available to avoid this ST bias : analytic tools like the 6-spacer, a careful medical and functional analysis of the effects of the sensory (or other) disabilities on how expressions can be formed, group work (preferably based on video analysis) aiming at exploring the meaning of the expressions, the use of forms of interaction that sustain the continuity and widen the scope of bodily interactions through channeling the partner engagement into a direct body contact (e.g. the Feldenkraï's method (Minvielle, 2016)).

Practical and theoretical research on deafblind education is a permanent strive to develop methods that would avoid falling in the pitfall of irrelevant meaning constructions. Gallagher (2016) addresses the question of the ST bias from another perspective: the diversity problem, i.e. the problem of "attempting to understand others solely on the basis of one's own experience"<sup>8</sup>. This difficulty is usually overcome by exposing children to narratives that take them beyond the limits of their own experience and introduce them to other possible worlds. This exposure to narratives is usually massive and multifaceted; it can take the form of local small talk narratives, bedtime stories or big cultural narratives aiming at giving a coherent image of the society.

This is quite a challenge in the context of congenital deafblindness and there may be several interconnected reasons for this. 1- the vocabulary available can be quite limited (Dammeyer & Ask Larsen, 2016) 2- the capacity of congenitally deafblind people of being receptive to declarative and narrative utterances is easily underestimated 3- narratives draw on direct experience to describe alternative worlds, and this personal experience of life can be limited in congenitally deafblind people. But this problem could be looked at from a slightly different perspective: the number of possible narratives is infinite, but each human being is limited to what he is exposed to or able to create in his own context. This is not different for congenitally deafblind people and it is interesting to look at the life of two of the most famous icons of deafblind education, Helen Keller (Keller, 1954) and Marie Heurtin (Arnoult, 1948). Both of them developed linguistic skills that allowed them to access all kinds of narratives<sup>9</sup>, but they lived in different contexts: Helen Keller, in United States, was educated in a circle of friends and educators where she developed secular values like fighting for women rights or supporting the republican side during the Spanish civil war; by

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<sup>8</sup> Ibidem

<sup>9</sup> And their linguistic skills also developed through the exposure to narratives

contrast, Marie Heurtin's teachers, in France, were nuns whose long term aim was to introduce her to the knowledge of God and to a vision of life totally construed in religious terms. In both cases, it was a success, although Helen Keller and Marie Heurtin would probably have been in the two opposite sides of the Spanish civil war if Marie Heurtin had lived long<sup>10</sup> enough to witness this moment of history. They lived in the same historical times<sup>11</sup>, but they were not exposed to the same type of narratives. Marie Heurtin lived in a pre-Enlightenment conservative local culture, with a transcendent vision of life where God is the source and the purpose of knowledge and ethics, whereas Helen Keller was in contact with a social network where immanent Reason and Humanity were the references for life understanding and guidance.

Both Helen Keller and Marie Heurtin found teachers and friends that opened them to a wealth of narratives, but at the same time channeled them into a specific vision of the world. The power of adult narrators is to free the children from being stuck in the immediate practical world they live in but at the same time it is difficult for them to avoid channeling them into the system of narratives they believe in. This dialectic between the expansion of practical and imaginary knowledge of the world through narratives and the selection operated by the culture on the possible visions of the world is what makes a culture<sup>12</sup>. Congenitally deafblind children can access it and should not be deprived from it. The difficulty is that they depend a lot on the people they live with, because their lack of vision and hearing does not allow them to detect, in the distance, possible sources of interest and exploration. They have access only to objects and events that are within the reach of their arms and mobility potential.

The frequent and sometimes massive stereotyped behaviors that were described and observable in the Rubella children of the 1960s are a typical example of the consequences of an extreme scarcity of exploration opportunities (due to the sensory impairment and the lack of social interaction), that can lead to an overdevelopment of their bodily relations to the very few targets of exploration available to them, like chasing and playing with light beams strong enough to reach the retina or performing again and again bodily movements. Therefore, the diversity problem is not related only to a lack of access to narratives, there is also a big risk of lack of experience. As the video clips of the Booklets on Communication and Congenital Deafblindness (Rødbroe et al., 2006) demonstrate it, there is a wealth of possible activities that are accessible to congenitally deafblind people as long as they are guided and followed by competent and interested partners of communication. The first remedy for the

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<sup>10</sup> She died at the age of 36.

<sup>11</sup> Marie Heurtin : 1885-1921. Helen Keller: 1880-1968

<sup>12</sup> This process is somehow similar to the Darwinian mechanism that controls the species evolution or the nervous system development where the selective growth of some neural networks is balanced by a pruning of other potentially emerging other networks.

diversity problem is thus having access to a diversity of experiences because it creates possibilities for exploring and comparing, relevant and active contexts for acquiring language skills (Larsen, 2013) and backgrounds for narrative interactions focusing on these activities. One could hypothesize a continuity between being exposed to a variety of experiences and developing narrative competencies since inside any experience there is a space for thinking and imagining possible worlds. Even in simple events like nursery rhymes, children anticipate what is coming next and are exposed to carefully targeted novelties (Ninio & Bruner, 1978; Ratner & Bruner, 1978) that lift them beyond the immediate experience and nourish their thinking potential.

In the film “Traces” (Vege, Bjartvik, & Nafstad, 2007), we can see how an activity (discovering what a crab is) is used to introduce a deafblind person to narratives, both during the event itself through intercurrent comments and replays related to salient aspects of the event, and after the event, in a physical context where the only elements that are kept of the event are the body parts, the movements and the linguistic utterances. Through practicing this back and forth movement between activity and narrative, the narrative muscle (so to speak) can develop through mimetic gestures, words, or other symbolic devices that are securely anchored in a sound knowledge of the real world. On that basis, it is possible to offer narrative experiences that are not connected to the direct experience of life, as long as the necessary symbolic devices are soundly connected to solid life experiences; the meaning of the words must be sufficiently secured for them to be employed in a new and beyond immediate reach context. This is challenge for the children who are born blind who, although mastering perfectly the language, use sometimes words whose meaning is fuzzy and unstable because of their lack of access to the visual experience they take their meanings from<sup>13</sup>. To conclude, for congenitally deafblind people, diversity is the problem but it is also the solution as long as they are in contact with people that introduce them to a variety of experiences and narratives directly or indirectly anchored on these experiences.

### **Intersubjectivity**

The development of communication and language is addressed, in the context of the Master, as depending on the dynamics of intersubjectivity (which is at the very core of the Interaction Theory). For Gallagher (2016), Intersubjectivity follows three steps: 1- At the Primary Intersubjectivity level, interactions are based on “embodied sensory-motor capacities to perceive and to respond to others’ bodily postures, movements, gestures, facial expressions, expressive movements, vocal intonations, etc.”<sup>14</sup>. This is perfectly exemplified

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<sup>13</sup> This “verbalism” is not pathological; it only reflects the challenge these children must meet in a visual society (Rosel, Caballer, Jara, & Oliver, 2005).

<sup>14</sup> notes from the text prepared for the lecture and communicated by Gallagher to the author.

in neonate imitation (Meltzoff and Moore 1977). 2- At the Secondary Intersubjectivity level (9 months of age) elements of the surrounding world are integrated into a joint attention mechanism which allows the child to learn about the world through attending to other peoples' actions. 3- At a third level (starting 2-3 years of age), "competency in communicative and narrative practices provides further resources for understanding others"<sup>15</sup>.

This three-step developmental framework takes up the initial description by Trevarthen (1979) and Trevarthen and Hubley (1978) of Primary and Secondary Intersubjectivity and adds a third level where symbolic competencies make it possible not to depend only on the direct experience of the world. Nafstad & Rødbroe (2015, p. 86), taking as a reference the development of congenitally deafblind children, propose a quite similar framework, with a focus on emotional evaluations that are connected to the levels of complexity : 1- At the Primary Intersubjectivity level, in the I-YOU relationship, the attunement of self to the other and of the other to self is sustained, which results in the feeling that the self is being "worth being seen" while the other feels also "worth being seen by me". 2- At the Secondary Intersubjectivity level, interest expands to a third element (a shared physical object). In this I-YOU-IT framework, one feels that there is something in the world that is "interesting to the Other and vice-versa" (p. 87). 3- At the Tertiary Intersubjectivity level, the third element is a symbol which results in feeling that utterances are interesting to the other and vice-versa. Besides, for the Secondary Intersubjectivity level, Nafstad & Rødbroe (2015) identify a structural tension where the child balances between trying to understand his own "impression of the world here and now" and "striving towards a shared understanding" (p. 85).

This oscillating movement or tension is also addressed from another perspective in the field of social sciences by Marková (2016) who describes how the interplay in the triad EGO-ALTER-OBJECT can lead to tensions that can be extreme. She uses science as an example of OBJECT et describes how scientists (EGO) may have to face a dilemma obliging them to give priority either to the EGO-OBJECT relation (scientist-science), or to the EGO-ALTER relation (scientist -political or religious authorities)<sup>16</sup>. There seems to be a long way between Nafstad & Rodbroe's secondary intersubjectivity tensions between attention to the world and to the relationship about the world and Marková's EGO-ALTER-OBJECT dilemmas, but one can see there a continuity. In these tensions, there is an ethical strive for co-constructing a coherence between "my" vision of the world and "your" vision of the world<sup>17</sup>. Trust and

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<sup>15</sup> *ibidem*

<sup>16</sup> A famous example of the former case is Giordano Bruno who was burnt to death for sticking to his scientific conviction against the Catholic Church; an illustration of the latter case is how scientists in former Soviet Union gave up standing up for their scientific discoveries and methods when they were contradictory with the political power.

<sup>17</sup> Maybe "my vision of "your" vision of the world" would be a better way to phrase it.

self-confidence are put to test and negotiated in this triangle I-YOU-IT (or EGO-ALTER-OBJECT) where cognitive competencies evolve into ethical values (Nafstad, 2015).

In the same line of thought, Rochat, Passos-Ferreira, & Salem (2009), propose a model of Intersubjectivity development that goes beyond the abstract cognitive parameters. They claim: "Not interested in the grammatical second person, an abstract object, expressed by the words such as "you", "thy", "tu", "voce", we focus here on the "real" person the child is concretely interacting with and with whom he or she will negotiate values, meanings, status, and reputation" (p. 176). At the Primary Intersubjectivity level, they differentiate two steps: 1- From birth to 2 months of age, intersubjectivity is based on innate mechanisms like mirroring (mirror neurons) and neonate imitation. Exchanges function in a "tit for tat" loop where the partner is felt as "like me". 2- From 2 to 9 months of age, open-ended imitation and negotiation take over the automatic innate mechanisms. Then, during the Secondary Intersubjectivity stage (starting around 9 months), triadic intentional communication with others about objects develops. At the Tertiary Intersubjectivity level (as of 20 months of age), negotiations are about the value of things, including the self, as shared representations. Communication is possible through symbolic references to actual or fictional worlds and at the same time, the strive to be recognized as being worth communicating with takes on a more complex form which organizes and structures a system of social and ethical values.

This change is observable in various kinds of expressions and actions : children would show embarrassment or guilt, pay attention to their public self-image - for instance removing a mark surreptitiously put on their faces and displaying coyness (Amsterdam, 1972; Rochat, 2003) -, pretend and conceal their emotions (Lewis, 1992), use systematically possessives and claim ownership, using imperative expressions like "mine" (Bates, 1990; Tomasello, 1998), and show benevolence towards distressed others (Zahn-Waxler, 1992). This co-construction of social and ethical references reaches a more conscious and rationale form at 4 years of age when children are able to make statements about what is right or wrong and solve ToM problems using TT strategies. In this last model, we see how the strive of the child for being recognized as having a voice and being worth being listened to (Nafstad, 2015) is recycled through open-ended negotiations that results in more and more complex forms of social and ethical engagement and identity.

The origin of this line of development is both the activation of innate releasing mechanisms like face recognition (Nelson, 2001) or neonate imitation (Meltzoff & Moore, 1989) and the incessant search for regularities in what happen in the world (Bullinger, 2007; Tomasello & Tomasello, 2009) and most particularly in communicative interactions. A system of affordances (Gibson, 1977) develops which combines innate ready-made systems of perception-action and learnt rules of life that emerge from an exploration of the world as

it is for the body and as it is for other people that are also part of this world<sup>18</sup>. As intersubjectivity develops, children discover the rules of life and identify who they are in the world in relation with others. Among these rules of life, language is a paramount element and in the models of intersubjective development that are presented here, words and symbolic representations appear after the Secondary Intersubjectivity level as a target for joint attention. Following these models, symbolic competencies in the child could be construed as resulting only from their exposure to symbols as they are presented by the partners and promoted as conscious topics of negotiation: children single out the regularities (they are exposed to) that connect symbols to things or events and also the rules that govern the connections between symbols.

This model works well for language development in general, since it accounts for both the grammatical rules of a specific language (which are regularities inside the linguistic system) and for the exceptions (which are regularities in the social use of language) (Tomasello & Tomasello, 2009). However, although the role of exposure to symbols in sense making is clearly established, there is another side in the process: of course, the symbolic systems that are present in all human cultures would not exist without mechanisms of social transmission, but would it be possible for them to exist at all if human beings were not equipped with a capacity to produce symbols? In the context of deafblindness, a lot of attention and many pedagogical experiments are related to this dialectic between exposure to symbolic tools and attention to bodily emerging forms of symbols. The Master in Communication and Deafblindness and previous research activities by the group of lecturers have mainly focused on the latter. Because of historically observed shortcomings or failures of mere exposure to symbolic tools, they developed analytic tools and supported practices aiming at creating harmonious conditions for communicating (Janssen, Riksen-Walraven, & Van Dijk, 2003) and grasping emerging bodily semiotic expressions, for instance from BETs to idiosyncratic and then negotiated signs. The underlying idea is that congenitally deafblind children produce expressions with their bodies, and that these expressions, when they are not transparent to the partners of communication, could be however, through using proper analytic tools, singled out and semiotically understood. Several questions still remain that need to be addressed more deeply: how these expressions are coming to the fore in the body? Do these expressions undergo internal processes that could be seen as semiotic schematization? To what extent these processes are conscious? In one of the video-clips of the booklets on Communication and Congenital Deafblindness (Rødbroe, et al., 2006), it is possible to observe a sequence of bodily

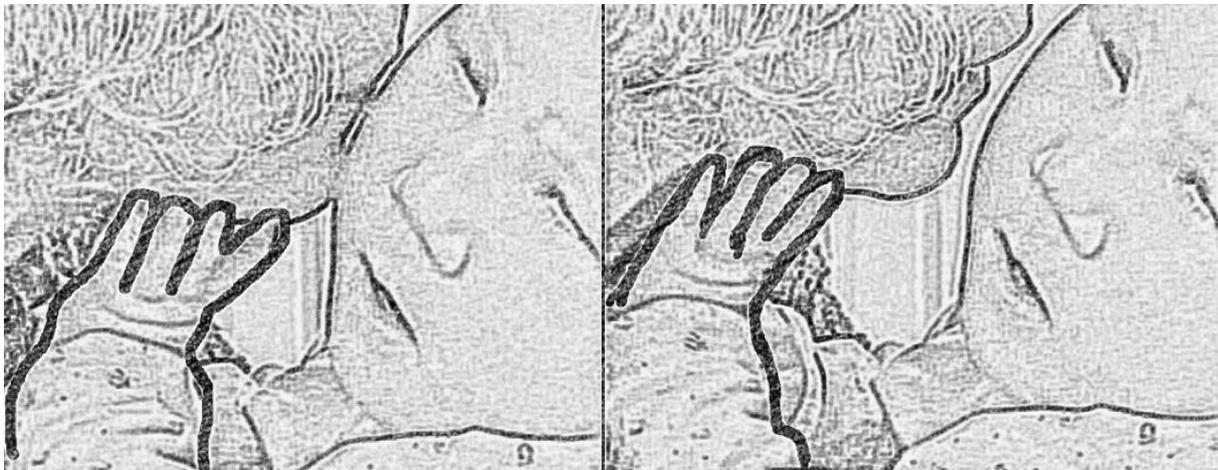
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<sup>18</sup> Rochat & al (2009, P 182): "From birth, infants would be attuned to perceptual regularities and perceptual consequences of their own actions, wired to prefer faces, human voices, and contingent events as opposed to any other objects, any other noises, or any other random events".

expressions that could shed light on these questions and open up to hypothesis that could be put to test using other video-clips in the same book or using other research designs: Hannah<sup>19</sup>, a 2-year old Trisomy 13 deafblind child (totally blind with little residual hearing on one side) is sitting on Astrid's (her carer) knees. They are both engaged in a rocking game where their bodies move away from each other and then back until the faces touch each other. This game slows down progressively until they stop moving (time: 0'51''), in a close face to face contact. Then Hannah produces a series of movements (that a viewer of the clip would naturally understand as aiming at restoring the game) whose sequence is quite surprising:

1. Her left hand, in contact with Astrid's face, produces a back and forth movement whose amplitude is small (time: 1'0'' to 1'07'').

*Figure 1:* Left: Starting point of the small amplitude back and forth repeated movement. Right: ending point of the movement.

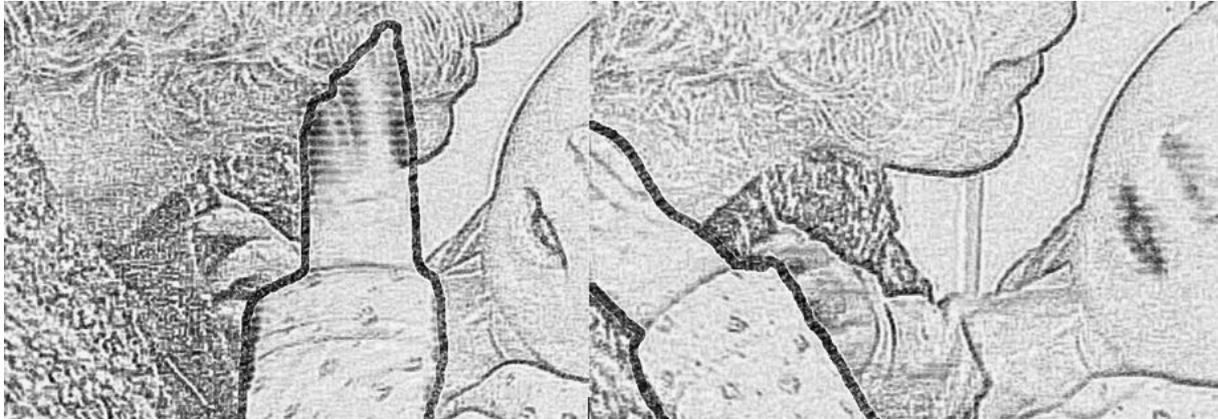


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<sup>19</sup> Janssen, M., & Rødbroe, I. (2007). Communication and congenital deafblindness II: Contact and social interaction. Aalborg, Denmark: Materialecentret. Video 1 A1

- 2- Then, the left arm produces a back and forth movement whose amplitude is larger (time: 1'07" to 1'13").

*Figure 2:* Left: starting point of the repeated back and forth movement with a larger amplitude. Right: ending point of the movement.



- 3- Hannah resumes with her whole body the rocking game, exerting a strong bodily pressure on Astrid who then engage again in the rocking game (time: 1'13")

In this sequence, the counterintuitive aspect is that the first movement of Hannah is not to reactivate the rocking game with her whole body. Instead, she produces first a small movement involving the hand only and then a larger movement involving hand and arm. And only after these two steps, she engages her whole body. Pushing directly her partner into the game would have been, maybe, more effective, and, at this stage of development, it would be logical to expect that the same neuronal connections and motor patterns (BETs) that are active in the game itself would be elicited to restore the game. What can be observed is quite different. When looking at the sequence of movements as an observable phenomenon, it is possible to describe it as a move along a continuum starting with a symbolic expression and ending with a a-symbolic direct action. In the first short movement of the hand, it is possible to see a Real Space Blend (RSB) (Liddell, 2000) where the hand stands for the body and the movement of the hand for the movement of the whole body.

This phenomenon appears as a semiotic schematization of the traces that the game left in the whole body, this schematization consisting in projecting the whole body onto a smaller body part (the hand) that appears as the vector that “symbolizes” the back and forth movement. In the second part of the sequence, the structure is the same, but the mappings of the RSB are different since the arm is now standing for the body. This change from a first RSB to a second one and then to direct a-symbolic action needs to be explained. The following hypothesis could be suggested: After the rocking game has stopped, the energy of

the child is mainly channeled into what looks a process of “thinking” about the game and not much into the willing to play the game again. For a while, the cognitive activity is mainly reflective and the motor components of the rocking episode are kept at a subliminal level (Jeannerod, 2001). But this reflective processing activity has two components: one is orientated towards what happened before and the other towards what should happen next.

In Gallagher’s terms (2005), two models govern motor action: “1. an ecological, sensory-feedback model that delivers a sense of ownership for action; 2. an anticipatory pre-action or forward model that delivers a sense of agency for action” (p. 190)<sup>20</sup>. Therefore, in the timeline of the child expressions, we can observe a first phase where the child’s attention is reflecting on what happened before, thus securing his ownership of the action. But, during this phase, there is a process of schematization that progressively requires more motor involvement (Dijkstra, Kaschak, & Zwaan, 2007; Leisman, Moustafa, & Shafir, 2016), hence the movement of the hand which is not the action itself, but a bodily production of the thinking in progress. Then, in a second phase, the agentic anticipatory component of the reflection takes over, which leads to the second gesture (the arm rocking) which is orientated towards getting back to the game. This intermediary movement contains the projections of both the schematics of the game (previously constructed in the hand movement) and of the emerging intention (the size and intensity of the arm action express the “I want to be in the game again” component). The progressive change of focus from thinking backward to acting forward results in a catastrophic turn (Thom 1990), i.e. a stark change from hand to arm. Then, as these expressions are not grasped by the partner, energy goes on building up to no avail, which triggers another catastrophic turn to direct action (which proves to be effective in engaging the partner in the game).

This example of interaction which should be categorized as belonging to the Primary Intersubjectivity level raises questions about how the various components of intersubjectivity develop. The two partners are engaged in a game that requires a permanent mutual adjustment and regulation of actions and emotions but without joint attention to a third element. There is no external object or event involved. However, the game itself could be construed in two ways: 1- it is the format that shapes the dynamics of the interaction: when the game is on, both partners are “in” it. The mutual adjustments are part of the rocking game, not “about” it. 2- However, when the game stops, there seems to be, on the child side, a reflective attention to the game as an experience that was there. The child is no longer “in” it, he is now thinking “about” it. This thought is not the object of a joint focus since the communication partner of the deafblind child neither detect nor reciprocate this emerging thought. But in the child’s mind, there is a “it” which is not the handling of an

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<sup>20</sup> Gallagher (2005) refers here to the retentional-protentional structure of consciousness proposed by Husserl (1991) : “My conscious experience includes a pre-reflective sense of what I have just been thinking (or perceiving, or remembering, etc.) and a pre-reflective sense that this thinking (perceiving, remembering, etc.) will continue in either a determinate or indeterminate way” (Gallagher 2005, P 190).

object (performed without attentional coordination with the partner) but a thought about an event that could be defined as the Primary Intersubjective experience of the relation to the other as it was shaped by the rocking game. The 'it' is therefore the mental internalization of the Primary Intersubjective event. This internalization implies a cognitive effort that permeates the body of the child. This effort results in the formation of stabilized motor patterns that are performed by other parts of the body than the ones involved in the game itself. In our example, these body parts are first the hand, and then the arm. Which means that the process of internalization is also a process of semiotization where the components of the activity are metaphorically mapped onto semiotic vectors (the hands and then the arms). This process is given time to fully develop because the partner does not grasp the emerging expression of the child. If the emerging expression had been detected at the very beginning, the process would not have developed until the child manages to master the form and the changes of her symbolic gestures. At this point several remarks can nourish future theoretical and empirical investigations:

The fact that the thinking process, in this example, concerns first and foremost the hands and arms (without adult model) would support the idea that these parts of the body have been selected through the species development as primary vectors for symbolization. Hands and arms would provide human beings with semiotic affordances that facilitate social exposure to symbolic and linguistic communication (Alpenfels, 1955).

- 1- The 'it' (the third element) should not be construed as a something external, but rather as an experienced relationship. In the present case, the relationship is with a partner as it is framed by a game, in other cases, it can be a relationship to an object of exploration; in other words, there is no object, or "it" or event that would be an object of thinking or shared attention without integration in a form of relationship in it or to it.
- 2- The process of semiotization or symbolization does not depend only on the exposure to a communicative partner since, in this example, a cognitive semiotic work is accomplished without (even against) the input of the partner. Of course, in order for these emerging semiotic forms to stabilize socially and individually, a partner is absolutely necessary for their detection, use and eventual negotiated transformation.
- 3- Another question is about the role and dynamics of consciousness in this process of semiotization. Consciousness is not directly readable in this example since there is no verbal utterance of the child that would undoubtedly show that something conscious happens in her mind. However, the various transformations that are above described (from stillness to hand movement, and then to arm movement, and finally to direct action) prove at least that several neuromotor patterns have been sequentially activated without losing track of a stable content (the thought of the game). The duration and modification of these patterns would therefore testify to a

move from prenoetic<sup>21</sup> unconscious (body-schema governed) emergences of attention to noetic conscious (body-image governed) processes aiming at grasping and cognitively mastering the semiotic schematics of the game and at resuming it practically. This noetic-conscious- body-schema to body-image turn would be, in this case, supported by an obstacle: the partner not grasping and not reciprocating the child's expression.

## Conclusion

No core disagreement was identified in this comparison between Gallagher's approach and the Master in Communication and Deafblindness. Differences can be identified with regards to which aspects of the questions are addressed and with the consequent variations in the details of the conceptual framework in use. There is a consensus on several aspects : the role of the body in cognition and communication, the recognition of people with disabilities as experts of their condition, the central role of neonate imitation in establishing primary intersubjectivity, the idea that the dynamics that operate transformations from unconscious prenoetic bodily processes to conscious noetic cognition are crucial to symbolic development, the inseparability of gestures, space and linguistic forms in symbolic communication and language, the dependence on the context of the emergence and readability of children's competencies, the adoption of an Interactionist stance to secure the cognitive and communicative development (although Theory Theory approaches can be locally necessary and relevant), the necessity to find strategies to overcome the unobservability or low readability problems and the need for approaches that allow an expansion of knowledge beyond the direct bodily experience, which is a big challenge in the case of deafblindness where there is a risk of lack of exposure to narratives, but also to the variety of bodily experiences of the world that prepare the understanding of narratives.

Besides, the analysis of the video clip of an interaction with a congenitally deafblind child suggests that some aspects of intersubjectivity development could be investigated further, for instance the hypothesis that processes of semiotization could prenoetically take place at the Primary Intersubjectivity level, and that the nature of the third element, at the Secondary Intersubjectivity level, could be more the internalization of a bodily relationship to a person or to an object than an external object or event.

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<sup>21</sup> Gallagher (2005): "The second set of questions focuses on aspects of the structure of consciousness that are more hidden, those that may be more difficult to get at because they happen before we know it. They do not normally enter into the phenomenal content of experience in an explicit way, and are often inaccessible to reflective consciousness. I use the term prenoetic to signify these hidden aspects. The basic question can be phrased in this general way: To what extent, and in what ways, are consciousness and cognitive (noetic or mental) processes, which include experiences related to perception, memory, imagination, belief, judgment, and so forth, shaped or structured prenoetically by the fact that they are embodied?" (p. 2).

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