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On Autism and Interaction Theories of the Self

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Abstract: *Persons with Autistic Spectrum Disorder show various difficulties in social skills, cognitive processing and other co-occurring behavioral and physical problems.*

Taking into account that people with autism demonstrate a lack of ability in dealing with others, the study of autism, with its specific constellation of behavioral and cognitive deficiencies may highlight the structure, development and nature of social cognition in general and learning by interaction, in particular. In this article, I will challenge the Theory of Mind view that characterizes social cognition as an individual achievement that happens within a particular person's brain and treats social phenomena as external events that require interpretation, namely, mindreading. Alternatively, I will support Shawn Gallagher's "Interaction Theory" which proposes that the ability to "read" others is primarily a form of body reading rather than mind reading.

I will emphasize that in autism, a first-person perspective based on pre-reflexive, essentially non-conceptual bodily attunement (affective framing) often is replaced with the third-person perspective involving the application of algorithms, general principles and abstract rules of pure logic, and I will claim that learning by interaction is an impairment of Autism not due to an intellectual or cognitive impairment but rather ensue from an embodied cognitive impairment.

1. Clinical Properties of Autistic Spectrum Disorder

The word "Autism" derives from the Greek word "auto" meaning "I", "same", "directed from within". Kanner's early work includes several references to the *extreme self-focus* exhibited by the children he examined. He writes that one child "behaved as if people as such did not matter or even exist", and another gave "the impression of being self-absorbed". Another child is described as following:

“he got happiest when left alone, almost never cried to go to his mother, did not seem to notice his father’s homecomings, and was indifferent to visiting relatives (...) he seems to be self-satisfied to get his attention almost requires one to break down a mental barrier between his inner consciousness and the outside world” (Kanner 1943).

Frith and colleagues refer to this self-absorption as naïve egocentrism, and describe how it can be a source of difficulty in social interchange for individuals with autism (Frith & de Vignemont 2005).

As pervasive developmental disorder, autism is characterized by deficits in more than one functional domain. According to Wing and Gould (1979) it has been common practice to base the diagnosis on a triad of impairments: (1) Socialization, (2) Imagination, (3) Communication.

(1) Socialization includes indifference to others, disability in play with other children experiencing an interaction based on need (needs-only basis) and often nonverbal; inability to measure the thoughts and emotions of others (failure of a meeting of minds, Kanner's notion of "Autistic loneliness"). (2) Imagination: evident disability during games activities. While autistic children do not quickly build some drama of its creation through the toys autistic children simply organize the toys, for example, online (straight lines), build them in towers. Outside of games, problems occur when imagination offer resistance to change and reluctance to routine activities vary. (3) Communication: is a severe disability of autism. The speech (spoken language) is virtually absent in 50% of cases (Yale Child Study Center). In general the development of language is considerably delayed and markedly deviant.¹

Persons with autism show severely diminished or abnormal social interaction and communication, as well as a restricted repertoire of activities and interests (DSM-IV, 66). These symptoms can be mild, seen in a lack of certain nonverbal behaviors such as eye-to-eye gaze and gestures or any type of social interaction, or a more serious lack of all reciprocal social interaction and other large impairments in language development and language use.

Autists seem to acquire only a portion of self and yet, many children with autism have some concept of self and self-reflection. In fact, their concepts of self and their magnitude of self-directed attitudes is limited due to their inability to few dissociative lines of development that contribute to the typical self-development. Nonetheless, children with autism demonstrate abilities to recognize intentions and actions directed to an objective; however, they have a relative lack of propensity to respond to the attitudes of the other. Indeed, they can copy actions with

intentionality directed (goal-directed actions), but do not tend to identify with the subject of the action.

For Vygotsky, as in "The Genesis of Higher Mental Functions", these "higher mental functions" of cognition such as thinking, planning, memory, are socially founded relations, and their relationships as mental functions reflect social processes.

According to Bakhtin (1981), *reasons, self* and *other* are jointly involved in the determination of meaning: "consciousness is never self-sufficient; it always finds itself in the intense relationship with other consciousness".

Recent evidence from neuroscience and more specifically from functional MRI Scanning Mirror Neurons or other insights of self-other correspondence in psychological connectedness and interaction, showed us how something like empathy and identification can operate at the neuronal (Decety and Chaminade 2003, Gallese 2001) and physiological functional level. Behavioral impairments in autism are theorized to result from abnormal neuronal organization in brain development generating 4 systemically related neurofunctional impairments: (a) canalesthesia, wherein abnormal hippocampal system function "canalizes" sensory records, disrupting integration of information; (b) impaired assignment of the affective significance of stimuli, wherein abnormal amygdaloid system function disrupts affect association; (c) asociality, wherein impaired oxytocin system function flattens social bonding and affiliativeness; and (d) extended selective attention, wherein abnormal organization of temporal and parietal polysensory regions yields aberrant overprocessing of primary representations. This model proposes that complex human behaviors may be guided by multiple overlapping neural mechanisms (Waterhouse et al 1996).

The theory of cognitive development argues that the concepts of self are necessary as the child feels and expresses social emotions since these involve an elaborated cognitive process. It is not possible to consider an emotion as "social" without the individual experience of the other person's awareness. At a minimum, this awareness has to be constituted by having an emotion of the kind that sets a personal relatedness, that is: the emotion can establish social cognition.

The typical human development as a development of interpersonal relationships and social understanding depends on the structure of a self-other very early on in life. The self can be seen as an "atom" in the world of relational processes. Thus, there are selves that come together to form relationships, but it is rather a relational process from which the idea of a psychological self can emerge.

2. Learning by Interaction: an impairment in Autism Spectrum Disorder?

One of the most widely discussed approaches to explain the cognitive and behavioral aspects of Autism is Theory of Mind (ToM), it characterizes social cognition as an individual achievement that happens within a particular person's brain and body and treats social phenomena as external events that require interpretation (Maiese 2013). Through this perspective, we first remark the other person's behavior and expressions, and then we use mind reading to understand him. The theory theory (TT), a version of ToM, supports that the pervasive way in which we understand other persons depends on our implicit or explicit practice of mentalizing or mind-reading, in which we use a common sense or folk-psychological theory about how mental states (beliefs, desires, intentions) inform the behaviors of others.

Shaun Gallagher has challenged the Cartesian idea that other's mental states are hidden away and inaccessible and rejects the notion that we ordinarily act as spectators of other's behavior. According to him, TT fails to grasp the primary way in which we relate to and interact with others and, as an account of intersubjectivity or social cognition more generally, can be challenged at the level of its basic suppositions:

“Supposition 1 (the mentalistic supposition): The problem of intersubjectivity is precisely the problem of other minds. That is, the problem is to explain how we can access the minds of others. This is a problem of access because other minds are hidden away, closed in, behind the overt behavior that we can see. This is a mentalistic and clearly Cartesian supposition about the very nature of what we call the mind. The mind is conceived as an inner realm, in contrast to behavior, which is external and observable, and which borrows its intentionality from the mental states that control it. Both theory theory and simulation theory set the problem as one of gaining access to other minds, and their explanations of social cognition are framed in precisely these terms.

Supposition 2 (the supposition of universality): Our reliance on theory (or our reliance on simulation or some combination of theory and simulation) is close to universal. That is, this folk-psychological way of understanding and interacting with others is pervasive in our everyday life”. (Gallagher, 2004)

Supposition 1 is to be found, explicitly or implicitly, in almost every description of intersubjective interaction that proponents of theory of mind propose. A typical example is Happé's characterization:

“to have a theory of mind is to be able to attribute independent mental states to self and others in order to explain and predict behavior.” Autism, then, is “an impairment of the fundamental human ability to ‘mind-read’” (Happé 1995, 38).

Supposition 2 is easily documented in the many strong claims made for universality by proponents of theory of mind. According with Gallagher (2004), “our normal procedure is to treat them [others] as bearers of mental states hidden behind their embodied, behavioral manifestations, and that our primary form of interacting with them is predicated on our attempts to explain or to predict their next move through a process of mentalizing”.

Proponents of theory of mind do appeal to developmental psychology, and especially to false-belief tests, for support. In false-belief task, a subject is asked about the thoughts and actions of another person (or sometimes a puppet or character in a story) who lacks certain information that the subject has. Importantly, these are the same tests that many autistic subjects fail to pass, and it is primarily on this basis that the theory of mind account of autism is developed.

In this context, we shall raise the question: does the false belief paradigm capture everything there is to say about children’s abilities to understand others, or does it even capture the most important things? According to Gallagher (2004), false-belief tasks are thus extremely limited in terms of trying to capture the nature of intersubjective understanding. One reason for this is that subjects are asked to predict the behavior of others with whom they are not interacting. The subject is installed in the role of third-person observer, and in this role the child is asked to predict what the other person will do. The fact that what is tested is ability for third-person observation suggests that the results of these experiments may not be applicable to second-person (I–you) interaction, which is arguably the primary and ordinary way of encountering the other person.

Alternatively, Gallagher proposes “Interaction Theory”, which emphasizes how our capability to comprehend other persons ultimately rests in a form of embodied practice that is emotional, sensory-motor, perceptual and non-conceptual. Whatever theory of mind we have, depend on these embodied practices that we carry out during interpersonal interaction, and these are the basic ways of understanding each other.

Interaction Theory comprehends Primary Intersubjectivity and Secondary Intersubjectivity. Primary Intersubjectivity is the innate or early developing capacity to interact with others manifested at the level of perceptual experience—we see or more generally perceive in the other person’s bodily movements, facial gestures, eye direction, and so on, what they intend and what they feel. On this view, in second-person interactions, the mind of the other is not entirely hidden or private, but is given and manifest in the other person’s embodied behavior. Interaction theory contends that these embodied practices constitute our primary

access for understanding others, and continue to do so even after we attain theory of mind abilities.

“What we might reflectively or abstractly call their belief or desire or mental state is expressed directly in their behavior” In brief, the developmental evidence for primary intersubjectivity suggests that pretheoretical (nonconceptual) sensory-motor capabilities for understanding others already exist in very young children. Infants already have a sense from their own proprioception and movement of what it means to be an experiencing subject-agent. They can sense that certain kinds of entities (but not others) in the environment are indeed subject-agents like themselves; and that in some way these entities are similar to and in other ways different from themselves”. (Gallagher 2004)

As contemporary research on mirror neurons (Rizzolatti & Craighero 2004; Gallese & Sinigaglia 2010; 2011) endorses, our perception of the other person induces a sensory motor process that reverberates kinetically and kinesthetically with their intentions² (see: Gallagher 1986; Petit 1999).

The perception of others’ intentional actions engages our motor and affective process in a way that TT fails to acknowledge. In neonate imitation, the newborn demonstrates proprioceptive awareness of her own body, the acknowledgment of a distinction between self and no self, and also the recognition that the other is, in fact the same kind of entity as herself.

“This interaction depends not only on a distinction between self and non-self, and a proprioceptive sense of one’s own body, but on the recognition that the other is in fact of the same sort as oneself” (Bermúdez 1996, cit. in: Gallagher 2004 see as well: Gallagher and Meltzoff 1996).

The newborn infant not only can pick out a human face from the crowd of objects in its surroundings, but also can imitate the gesture it sees on that face and use facial gesture to provoke response from others (Maiese 2013). This is an imitation that cannot be mediated by theorizing or even strictly cognitive simulation, rather occurs in a direct, unmediated and fully embodied manner. In fact, the infant is capable of perceiving other persons as intentional agents. This perceptual ability is, as Scholl and Tremoulet suggest, “fast, automatic, irresistible and highly stimulus-driven” (2000, 299). By the innate body schema appeal, infants can map other’s facial expressions and bodily movements into their proprioceptive bodily experiences.

Infants as young as 6 months perceive grasping as goal directed; at 9 months they follow the other person’s eyes and start to perceive various body movements as

goal-directed movements; and at 10 to 11 months they are able to construe some kinds of continuous action according to intentional boundaries. In other words, infants are capable of non-mentalistic, perceptually based understanding of the dispositions of other persons and they look to other's bodies and expressive movements to make sense of their behavior.

According to Gallagher, the ability to "read" others is primarily a form of body reading rather than mind reading. Indeed, the basic bodily capacities that make humans naturally attuned to the expressions of others are largely pre-reflective, emotional, sensory-motor, perceptual and not intellectual governed. All face-to-face interactions are based in embodied intersubjectivity. Social understanding should be, thus, understood as a product of the embodied social interactions of primary intersubjectivity, which are both enactive and essentially emotive.

There are good reasons to believe that our appreciation of others as a person involves a disposition to affect them, and to be affected by them. It is during this process of mutual affection that joint meanings are generated and individuals' distinct perspectives are intersubjectively merged and modified. Interpersonal engagement is enactive in the sense that individuals "do not passively receive information from their environments, which they are translate into internal representations whose significant value is to be added later", but instead actively participate in the generation of meaning.

Even in the early stages of interpersonal engagement, the infant's body serves as sense-giving orientation through which all experience is structured, and surroundings take on meaning and significance on the basis of the infant's basic needs and preferences. This is not only because the infant must depend on others to satisfy her basic needs, but also because the infant spontaneously cares about other persons.

People use expressions, gestures and other body movements to invite the infant into some sort of communication. In early interactions between child and caregiver that require joint attention, the body plays a key role in allowing the infant to gain familiarity with her caregiver's intentions and attune her behavior accordingly. This is a result of infant's directly perception of other's desiderative feelings in their actions, gestures and expressions, while, simultaneously, becomes directly aware of the mutual influence that exists between her and her caregiver. Very young children have some basic awareness of their own ability to modulate and impact the behavior of others. Moreover, the infant's experiences inform her that others can elicit gestures, actions and expresions from her. She implicit sense that where adults point their fingers or direct eyes often shapes her own patters of attentions. As a

social agent, involved in a social interaction, the infant is “at once prodder and prodded” (Maiese 2013).

Some of the bodily processes that help to give rise to this sense of relatedness and cooperation include the key elements of primary intersubjectivity identified by Gallagher (see: Maiese 2013):

- a) A perpetual “intentionality detector”
- b) An “eye direction detector”, and
- c) A “shared attention mechanism”

This suggests that there is a link between the perception of others and the goal-oriented potentialities of one’s own body, and that the direct perception of others as persons involves bodily responsiveness. In this regard, too, primary intersubjectivity is based on something that is cognitively closer to the perception of embodied comportment, rather than to a theoretical inference about emotional states. It is, of course, impossible to ask the infant to provide phenomenological descriptions of primary intersubjectivity. Yet phenomenologists have described something that seems to correspond to what is indicated by the behavioral measures of developmental psychology.

Contemporary theorists have called attention to this sort of bodily responsiveness or “motor resonance”. Daniel Hutto observes that imitation and motor mimicry can be characterized as “instinctual responses to situations or other people, for which our innate systems naturally are calibrated” (Hutto 2004). This information is bound up with intentional directedness informed by our biological needs; perception of one’s social environment often is quick and reliable. To engage in acts of imitation and mimicry, infants or adults need not rely on psychological principles or make inferences about people’s beliefs and desires, since in many cases subjects simply read another person’s basic desires straight from her reactions and expressions.

According to Hobson (2002)

“(t)he defining feature of secondary intersubjectivity is that an object or event can become a focus between people. Objects and events can be communicated about (...) the infant’s interactions with another person begin to have reference to the things that surround them. The child, seeing an adult who tries to manipulate a toy in the right way and who appears frustrated about being unable to do so, quite readily picks up the toy and shows the adult how to do it” (see: Meltzoff 1995; Meltzoff and Brooks 2001).

Quite obviously this understanding depends on shared attention and the pragmatic context, just as we understand our own actions on the highest pragmatic level

possible. So again, the evidence indicates that well before the development of a theory of mind mechanism, the child looks to the body and the expressive movement of the other to discern the intention of the person or to find the meaning of some object. In this kind of second-person interaction two-year-olds are even capable of recognizing pretend behavior, for example, the mother pretending the banana is a telephone (Leslie 1994). Our understanding of the others' expressive movements depends on their involvement in meaningful instrumental/pragmatic contexts. Therefore, according to Gurwitsch, the meaningful encounter with others is not only embodied, but contextually embedded and pragmatic. "Prior to all specific cognition, and independent of it, we are concerned with other people in our 'natural living' of daily life" (1978, 35)— in the pragmatic contexts of life.

From the "Interaction Theory" perspective, social interaction, intersubjectivity, and the perception of others are not explainable in terms of socially contextualized behavior is irreducible to either pragmatically contextualized or abstractly noncontextualized behavior.

The interaction theory of intersubjectivity, then, includes two important and related, but nonetheless distinct, elements:

- Primary intersubjectivity: embodied, sensory-motor (emotion-informed) capabilities that enable us to perceive the intentions of others (from birth onward);
- Secondary intersubjectivity: embodied, perceptual, and action capabilities that enable us to understand others in the pragmatically contextualized situations of everyday life (from twelve to eighteen months of age onward).

According to Gallagher (2004), "on this view, the theory of mind is, at best, a set of specialized cognitive abilities that allow us to *mentalize* on rare Cartesian occasions (from four years onward)".

There are good reasons to believe that, in addition to their impaired ability to understand other people's mental states, autistic subjects exhibit wide ranging sensory abnormalities that make bodily engagement with physical world dramatically different that of ordinary. Because autistics lack a clear sense of the meaning and significance of their own bodily feelings, they will find it difficult to engage in social referencing behaviors or shared attention. The sensory disturbances commonly associated with autism, which are symptomatic of a disruption is embodied emotion consciousness, lead directly to an inability to become attuned to other people.

For this reasons, the distinction that Baron-Cohen (1999) sorts between understanding the physical world and understanding the mental world is

misguided because it fails to acknowledge the sense in which understanding other minds is largely a matter of becoming attuned to other's living. As Baron-Cohen himself highlights, pointing gestures, gaze monitoring, showing gestures, and other aspects of joint attention often are absent in children with autism.

Autistics are incapable to monitor or direct another person's focus of attention, use gestures to engage in social communication, and coordinate their own behavior and attention to others. It seems unlikely that autism results essentially from a disturbance in meta-cognitive or higher-level mechanisms of mentalizing or theorizing. Social cognition rests largely on the capacity for body attunement rather than theorizing and it is disrupted or etiolated patterns of essentially embodied experience and bodily attunement that make it difficult for autistic subjects to connect with and understand others.

Because autistic subjects cannot perceive the intentions or emotions of others in their bodily comportment or participate fully in reciprocal bodily modulation, high-functioning autistics may employ theorizing strategies or mentalizing as a way to compensate. Nevertheless, it is indeed because of the lack of ordinary way of understanding others, and so must try to make algorithmic and explicit what for most of us is second in nature (Maiese 2013). In autism, a first-person perspective based on pre-reflexive, essentially nonconceptual bodily attunement (affective framing) often is replaced with the third-person perspective involving the application of algorithms, general principles and abstract rules of pure logic..

Uta Frith and Frederique de Vignemont (2005) depict social cognition among autistic subjects as relying primarily on "abstract allocentrism". Autistic subjects take up the allocentric stance in direct social interaction. They rely heavily on rules and predict other people's behavior on the basis of regularities between inputs and outputs. Therefore, while autistics are able to understand social structures and interpersonal relationships in a detached way, their sense of how the social world should work often is very logical, formal and far removed from the reality of most everyday social encounters. They are capable only of an abstract allocentric stance that is disconnected from embodied, face-to-face interactions, so they tend to rely on normative rules rather than the desiderative bodily feelings of affective framing when empathizing with others. One might say that people with autism operate in the way one might expect all humans to operate if TT were true, by appealing to a set of generalizations and approaching social cognition from a detached, third person perspective. However, it is important to keep in mind that this sort of rule following is not the way the ordinary subjects understand other people, but instead a way that high-functioning autistics attempt to compensate for their social cognition deficits. The application of rules helps to make sense of what autistic subjects appear to be sensitive to moral considerations in certain respects, and yet

lack moral competence in other. The data listed above, lead us to affirm that there is not an impairment on the intellectual or cognitive level, but rather, an impairment on the level of perception, this is, on embodied cognition which precludes learning by interaction, in other terms, it precludes we-experiences.

Conclusions

If the account of bodily attunement that I have presented is correct, then Autism should not be understood as “mindblindness” or impairment in the ability to theorize about what is going on in others’ minds, infer their mental states, and predict their behavior. The available evidence (Frith & Vignemont 2005) does not indicate that children with autism are impaired with respect to emotion recognition, rather they suffer from emotion processing abnormalities and find it more difficult to regulate and reflect on their emotions – this may indicate that although they have an autonomic affective response, they are unable to decipher fully the meaning of what they are feeling, and, as a result, their emotions do not come to the interaction scenario during information processing. In Autism the cognitive and the affective elements come apart, so that the desiderative bodily feelings or affective framing no longer effectively focus attention or guide the subject in making sense of others’ behavior (Maiese 2013). It doesn’t seem reliable that they are insensitive to others or that they simply do not care, rather their caring is more detached from cognitive processing than it is from ordinary subjects. Maiese argues that this apparent detachment can be explained as a deficiency in bodily attunement and an impairment capacity for affective framing. Although autistics do exhibit a weakened sense of emotional connectedness, they still are able to participate in moral life to some extent and are capable of some mode of empathy. Apathetic the development of moral rules and principles of conduct, they can fashion long-term stable values and concerns for themselves and care about the interests of others. While many of us are empathically engaged spontaneously and become immediately attuned to the concerns of others, autistics rely more on rules of conduct and general principles in order to navigate the social landscape. This might be described as a “cold” methodology that engages the interest to a great extent in order to bring about the sort of affective, bodily attunement that for ordinary subjects is already there and occurs spontaneously and pre-reflectively via affective framing.

Since autistics’ mode of empathy is more rule-driven, their participation in social and moral scene differs from ordinary subjects. As autistics are unable to grasp human emotions intuitively and pre-reflectively through bodily attunement, they, instead, rely on pure logic.

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Endnotes

¹ Autism diagnose is guided by checklists such as is found in DSM. Items are used to assess socialization and imagination, that include "pervasive lack of responsiveness to other people" and bizarre responses to various aspects of the environment. Regarding communication, there are items such as "gross deficits in language development", "if preach is present, peculiar speech patterns, such as immediate and delayed echolalia and pronoun reversal" and "abnormalities of speech, such as question-like melody or monotone robotic-like voice".

² This insight was much developed by Merleau-Ponty who wrote that "between this phenomenal body of mine and that of another as I see it from the outside, there exists an internal relation which causes the other to appear as the completion of the system" (1962, 315). Gallese has been developing the implications of the mirror neuron research for these kinds of questions, although he takes the simulationist position.

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