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### **Pragmatic disorders in autism – similar symptoms, different explanations**

#### **Abstract**

Having analysed personal accounts of people with autism spectrum disorder, we should say that there are main differences in the use of natural language depending on the communicator's intentions (Sperber & Wilson 1995). People with autism spectrum disorder have detail-focused processing style; they have typical cognitive disorders caused by their weak central coherence capacities (Frith 1989; Happé & Frith 2006; Györi 2006). According to Tomasello (2001) and Frith (2007) neurodevelopmental pragmatic disorders in autism are caused also by their non-typical social competences (Györi 2003, 2014). These could be the reasons why special forms of communicative and non-communicative language use differ. In this paper we would like to focus on the hypothesized lack of communicative and/or informative intention in autism spectrum disorder.

*Keywords:* autism spectrum disorder, relevance theory, intention, ostensive behaviour, central coherence, personal accounts

#### **1 Introduction**

“There is a partial symmetry between the autistic and the non-autistic.  
Neither can see what the other is doing.” (Hacking 2009: 1471)

Pragmatic competence is responsible for the appropriateness of our utterances in any particular communicative situation. Thus, Sperber – Wilson's relevance theory (1995 [1986]) forms the theoretical basis of our study. This theory is grounded in the principle (general cognitive principle) that human cognition always attempts to maximize relevance during utterance interpretation – it is seen as a universal tendency. According to this framework, the human cognitive system evolved in such a way that our perceptual mechanisms automatically choose potentially relevant stimuli, and our memory retrieval mechanisms automatically activate potentially relevant assumptions, and our inferential mechanisms spontaneously process them in the most productive/cost-effective way.

Relevance theory uses the term of ostensive-inferential communication. By this term it refers to the use of an ostensive stimulus, designed to attract an audience's attention and focus it on the communicator's meaning. Relevance theory claims that the use of this stimulus may create exact and predictable expectations of relevance not raised by other stimuli, so it encourages the addressee to interpret what was intended. Sperber and Wilson argue that utterances come with presumptions of their optimal relevance.

During the comprehension of non-literal meaning in the relevance-theoretical framework, the addressee should take the linguistically encoded meaning of the sentence; and following a path of least effort, he should supplement it at both the explicit level and at the implicit level until the final interpretation meets his expectation of relevance.

Applying relevance theory makes it possible to identify the processes of a special communicative act that occurs when normally developing people try to interpret autobiographical narratives that are written by people living with autism spectrum disorder.

In the focus of this paper, there are different explanations from the writer's perspective to make manifest their informative intentions.

## **2 Aims and scope**

Analysing monological use of natural language, especially autobiographical writings we should claim that there are cases where people use their natural language without their communicative (Sperber & Wilson 1995) intention. However, in case of the narratives we will discuss later in this paper it can be seen that these were written with the intention of showing. In most of these writings, the authors explicitly declare their intention to share information with others. For this reason, these accounts are appropriate subjects for analysis from a relevance-theoretic point of view, as the writers show ostensive behaviour, which is clear in Edgar Schneider's quote: "It has been said, more than once, that the best source of information about autism is autistic people who are able to communicate, one way or another. It was my intention, in my autobiography, to give to the non-autistic, certain insights into this type of personality" (Schneider 2003: 10).

According to Tomasello (2001) and Frith (2007) neurodevelopmental pragmatic disorders in autism spectrum disorder are partly caused by their non-typical social competences (Györi 2003, 2014). Nevertheless, the writing of accounts do not require real-life interaction (where they show characteristic differences) so we should claim that the distracting social circumstances are eliminated because of the different features between the two situations. That is a main reason why special forms of communicative and non-communicative language use differ. In case of successful communication, the communicator's informative and communicative intentions have to be mutually manifested. Creating a personal account can be seen as a communicative act if the person who writes it has no other chance to make manifest or more manifest his/her intentions to socially non-impaired human beings. It is obvious that these forms of language use are inherently different from those where the partners of a communicative situation are present in the same place at the same time. In this paper we would like to focus on the hypothesized lack of communicative and/or informative intention in autism spectrum disorder.

Based on analysing autobiographical writings and personal accounts of people with autism spectrum disorder (e.g. Grandin 2006; Joliffe et al. 2001) our current research questions are the following:

1. What types of pragmatic difficulties are found as a result of the problems of generalization? What could be the role of central coherence while one creates or interprets stimuli of communicative language use?
2. How could we describe the relation between verbal communication and other types of natural language use in this disorder?

## **2.1 Corpus**

The used quotations originate from eight personal accounts and autobiographical writings from seven people with autism spectrum disorder. Among these writers are four women (Temple Grandin, Therese Jolliffe, Seth F. Henriett and Donna Williams) and three men (Naoki Higashida, Tito Rajarshi Mukhopadhyay and Edgar Schneider), two of them are non-speaking persons (Naoki Higashida and Tito Rajarshi Mukhopadhyay).

## **3 Theoretical background**

Relevance theory (Sperber & Wilson (1995 [1986])) claims the general cognitive principle of relevance that human cognition always attempts to maximize relevance during utterance interpretation in verbal communication. Relevance to a phenomenon depends on its manifestness. Presumption of relevance is described as a universal tendency. Human perceptual mechanisms automatically choose potentially relevant stimuli, and human memory retrieval mechanisms automatically activate potentially relevant assumptions, and human inferential mechanisms spontaneously process them in the most productive/cost-effective way. Relevance theory defines the term of ostensive-inferential communication. This definition refers to the use of an ostensive stimulus, formed to draw a partner's attention and focus it on the communicator's intentions. Relevance theory claims that the use of this stimulus may create exact and predictable expectations of relevance not raised by other stimuli, so it encourages the addressee to interpret what is communicated. Sperber and Wilson argue that ostensively created forms of stimuli convey the presumptions of their optimal relevance (Sperber & Wilson 1995 [1986]).

### **3.1 Ostensive behaviour**

Ostensive signals are responsible for making manifest an intention or a set of information to an individual. To make something (an intention or information) manifest is a type of human behaviour that is called ostensive behaviour or ostension. The need for paying attention to realizing and comprehending the intended information in ostensive behaviour facilitates the use of ostensive signals. These signals have to be relevant enough to be perceived from several physical stimuli around the (communicative) partners and to be relevant enough to change the interlocutor's cognitive environment (Sperber & Wilson 1995 [1986]). These stimuli are intentionally motivated by a rational human agent. Because of these mutually existing expectations of the partners these stimuli seem to be non-accidental physical entities, they are motivated by an intentional rational human agent to make manifest or mutually manifest a set of information.

“Ostensive signals need to indicate only two things:

1. that the source is making manifest of having an informative intention and
2. who is targeted by this intention (who is the addressee)” (Csibra 2010: 144).

Csibra (2010: 144) says “The ostensive nature of stimuli can also be inferred from contextual factors.” as it comes from Sperber and Wilson (1995 [1986]) relevance-theoretical point of view.

If an ostensive behaviour ends with a response from the partner, theoretically that is enough to learn a new ostensive form by way of operant conditioning.

If there is no response for stimuli used by a baby, she/he can realize that it was not understood, but a newborn child needs several interactions to generate these processes. In dyadic interactions, where the baby and the mother are focusing on each other, we can see the first turn-taking types of communicative behaviour. 3 months old babies can “speak” to their mother with vocalizing linguistic elements (proto-phonemes), and this prototype of human conversation will help them in synchronizing their behaviour on many levels.

9–10 months old children can already identify some causal relationships, and they can attribute intentions to other human beings, so they are able to be a partner of a communicative act or a joint action in the sense of Tomasello’s term (Tomasello 1999, 2008). From this age they are able to recognize informatively intended physical stimuli as ostensive ones (see Csibra & Gergely 2009).

Direct gaze that generates eye contact, special intonation pattern used with infants, so called “motherese”, and contingent reactivity are the three types of innately specified ostensive signals.

We are very sensitive to congruent and incongruent stimuli around us, which means that we are able to have expectations of the next period of physical stimuli based on our heuristics. Although these mathematically created rules enable us to enforce the previous forms as typical ones (Dodge & Lakoff 2005), if any discrepancies arise we reinterpret these forms. Special contextual conditions have special priming effects on creating the most relevant interpretation of the stimuli in pattern recognition (Winkler 2003).

In the sense of Sperber & Wilson’s (1995 [1986]) definition of ostensive behaviour and successful ostensive inferential communication humans’ informative and communicative intentions have to be mutually manifested.

### **3.2 Epistemic vigilance**

Pragmatic competence of humans is a multifaceted ability being based on an array of components that enables us to express and understand intentions. The notion of “epistemic vigilance” (Sperber et al. 2010) refers to the set of cognitive mechanisms in human beings that is basically responsible for minimizing misunderstandings and maximizing cooperation and comprehension while communicating with others. We need to be vigilant to avoid being misinformed; however, we are not equally vigilant in every phase of our lives. Sperber and his fellow researchers claim that although trustfulness is a fundamental human characteristic, which notion is also supported by evolutionary anthropologists (Tomasello 2009), it must be based on epistemic vigilance in order to work properly to gain benefits when we communicate with others. This is explained by the concept highlighting that humans, while communicating, always attempt to be understood or to make the hearer act or think in a particular way (Sperber et al. 2010) by means of exploiting the other person’s efforts to search for relevance.

### **3.3 Communication loop**

According to Frith (2007), communication is not a one-way process. The way we respond to others alters others’ behaviour. He defines this as a *communication loop*. When we pretend to do something, our partner has a belief what would happen if she/he has a pattern of our behaviour in his/her mind (Frith 2007). In the case of the comprehension and interpretation of non-literal meanings in communication, it is essential to have a set of mental and social mechanisms that help us understand the perspectives of other people (Sperber et al. 2010).

When we share our models of the physical world with others, we are constructing their models in our brain as well as we understand their perspective, but we also see the differences between the two. Two brain areas are consistently activated by mind reading: the posterior superior sulcus and medial prefrontal cortex.

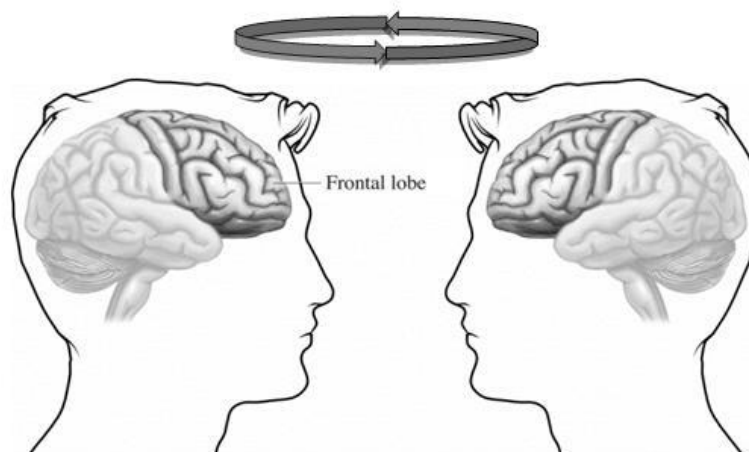


Figure 1. Communication loop (according to Frith 2007)

Sperber and his colleagues also agree with the idea that without our human-specific cognitive abilities, i.e. the use of language and sophisticated mind reading we would not be able to comprehend neither what is communicated, nor all the subtle meanings that we normally decode in everyday situations. Additionally, they underline the importance of other fundamental cognitive skills and of prior knowledge humans gain in a wide array of interactions with others (Sperber et al. 2010).

#### 4 Autism spectrum disorder

Autism spectrum disorder (ASD) is a neurodevelopmental disorder firstly described by Leo Kanner (1943). ASD is affecting 1% of the population, four times more frequently males than females. Beside the substantial role of genetic risk there is also evidence for environmental factors (e.g. advanced parental age, preterm birth, low birth weight) contributing risk of ASD (APA 2013; Sandin et al. 2013).

From the remarkable work of Lorna Wing and Judith Gould (1979) ASD is strongly associated with three major fields of impairments: social, communicative and behavioural. These features are used as diagnostic criteria in DSM-5 too (albeit social and communicative impairments are merged): “Persistent deficits in social communication and social interaction across multiple contexts ... Restricted, repetitive patterns of behavior, interests, or activities” (APA 2013: 50).

Next to the three major characteristics, there are other features closely related to autism spectrum disorder, which served as cognitive explanations for this disorder. First, the impairment of theory of mind (ToM) – the ability to attribute emotions, thoughts and intentions to others – was specified as the cause of ASD in the middle of ‘80’s (Baron-Cohen et al. 1985) (see Section 3.3). This hypothesis was followed by Frith’s work (1989), in which

the role of central coherence was emphasized (see Section 3.1). The third and main specialty is the disorder of executive functions – the system responsible for the control of cognitive functions (Ozonoff 1995) (see Section 3.2). Although these features have important roles in the development of symptoms, they should be integrated to a coherent causal model (Györi 2003, 2006).

#### **4.1 Atypical processing of physical stimuli**

“Of course I remember silly details. ... I’m increasingly immersing myself in details and simply I can’t see anything in full.” (Seth 2005: 111)

While neurotypicals are processing information into a coherent meaning or form because of their need for coherence, people with autism spectrum disorder pay more attention to the constituent parts, instead of the relevant coherent whole. They have deficits in extracting prototypes; they remember each and every example (Happé & Frith 2006). People with autism spectrum disorder have detail-focused processing style; they have typical cognitive disorders caused by their weak central coherence capacities (Frith 1989; Happé & Frith 2006; Györi 2006). According to the above-mentioned theories, a hyper-specific representation can be assumed, which could cause a general categorization problem (Church et al. 2010).

Because of the atypical information processing and weak central coherence we can state that people with autism spectrum disorder literally cannot see the wood for the trees. These features influence the recognition of everyday objects, for example a door, as can be seen in Tito Mukhopadhyay’s quote.

When I enter a new room, which I am entering for the first time, and look at a door, I recognize it as a door, only after a few stages. The first thing I see is its color. If I do not get into a deeper cogitation of its color by defining it as ‘yellow’, and mentally lining up all the yellow things I know of, including one of my yellow tennis balls when I was seven years old, I move to the shape of the door. And if at all I lay my eyes on the door hinge, I might get distracted by the functions of levers. However, I pull my attention from there and wonder about the function of that yellow, large rectangular object, with levers of the first order, called a hinge (Mukhopadhyay 2013 [2008]).

The selection and organization of stimuli (see Section 3.2) to meaningful units are inhibited in the case of human sounds as well. Moreover children with ASD have no preference toward human voices and they often disregard adults’ “child-directed speech” (Watson and Flippin 2008). Summing up these two phenomena people with ASD have difficulties in filtering out the relevant stimuli from the rest (see Temple Grandin’s and Naoki Higashida’s quotes) and in several cases the issue can be the lack of knowledge of the fact that human voices are relevant stimuli (see Therese Jolliffe’s quotation).

When two people are talking at once, it is difficult for me to screen out one voice and listen to the other. My ears are like microphones picking up all sounds with equal intensity. Most people’s ears are like highly directional microphones, which only pick up sounds from the person they are pointed at. In a noisy place I can’t understand speech, because I cannot screen out the background noise (Grandin 2006: 64).

A person who’s looking at a mountain far away doesn’t notice the prettiness of a dandelion in front of them. A person who’s looking at a dandelion in front of them doesn’t see the beauty of a mountain far away. To us, people’s voices are a bit like that. It’s very difficult for us to know someone’s there and that they’re talking to us, just by his or her voice (Higashida 2013).

When I was very young I can remember that speech seemed to be of no more significance than any other sound (Jolliffe et al. 2001: 45).

The next quotation is an illustrative example of general categorization problem. When Temple Grandin thinks of a certain dog breed, she recalls each and every dog she has ever seen, therefore she is not capable of generalization and prototype extraction.

Unlike those of most people, my thoughts move from video-like, specific images to generalization and concepts. For example, my concept of dogs is inextricably linked to every dog I've ever known. It's as if I have a card catalogue of dogs I have seen, complete with pictures, which continually grows as I add more examples to my video library. If I think about Great Danes, the first memory that pops into my head is Dansk, the Great Dane owned by the headmaster at my high school. The next Great Dane I visualize is Helga, who was Dansk's replacement. The next is my aunt's dog in Arizona, and my final image comes from an advertisement for Fitwell seat covers that featured that kind of dog. My memories usually appear in my imagination in strict chronological order, and the images I visualize are always specific. There is no generic, generalized Great Dane (Grandin 2006: 12).

Summarizing the role of atypical information processing it can be seen that weak central coherence and general categorization difficulties have a great effect on language as well as on other areas of cognition (Happé & Frith 2006; Jolliffe & Baron-Cohen 1999). They influence, inter alia, social and non-social learning, language acquisition and some basic components of consciousness.

It is also important that there are several sources of physical stimuli around people. In those interactions where communicators have their own intentions to be communicated, stimuli could differ depending on its functions. Although ostensive signals are holding their own guarantee of relevance (Sperber & Wilson 1995 [1986]), there are people living with autism spectrum disorder who need a special ostensive signal to realize the beginning of communication or communicative behaviour.

#### ***4.2 The role of consciousness and autism spectrum disorder***

“The reason people with autism repeat actions isn't simply because they enjoy what they're doing... But the repetition doesn't come from our own free will. It's more like our brains keep sending out the same order, time and time again.” (Higashida 2013)

The acquisition of the ability to intentionally plan and coordinate actions presupposes a certain developmental level of mind including the maturity of self-representation. This development is in a close connection with the emergence of theory of mind. The ability to treat others as intentional beings and to engage in joint attentional scenes appears initially at around nine months of age, as well as the actions requiring intentional organization (Balconi 2010; Tomasello 1999).

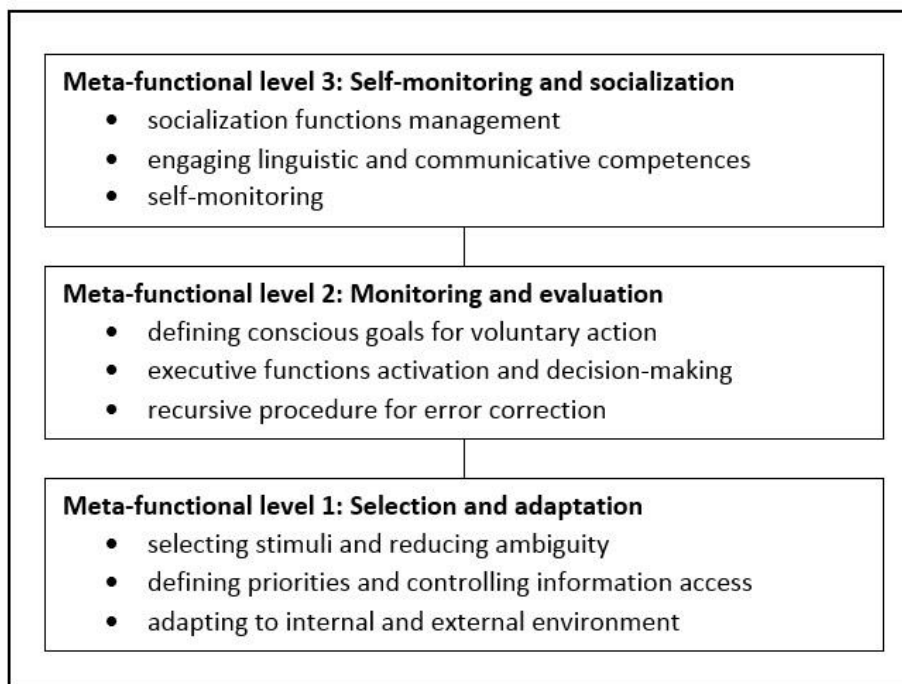


Figure 2. Representation of the functions and levels of consciousness (according to Balconi 2010: 163)

Based on the above-described correlation if any population have difficulties with social cognition (see Section 3.3), it is presumable that they have difficulties with consciousness as well. This implies that the same connection can be assumed in autism spectrum disorder. Moreover, it is clear that executive functions are important components of consciousness (see Figure 2) and there is also a functional link between theory of mind and executive functions (Joseph & Tager-Flusberg 2004; Pellicano 2007).

Balconi's first meta-functional level describes the elements of information selection and the adaptation to environment (see Figure 2). Typically, people can judge what the relevant information is with the help of these subsystems. However, in case of autism spectrum disorder there are multiple difficulties at this level already, from which the atypical stimuli selection was presented in the previous section (see Section 3.1) and in Higashida's quote. In this quotation it is clear, that perceptual salient details grab Higashida's attention whether they are relevant stimuli or not.

What part of the whole image captures our eyes first depends on a number of things. When a colour is vivid or a shape is eye-catching, then that's the detail that claims our attention, and then our hearts kind of drown in it, and we can't concentrate on anything else (Higashida 2013).

The adaptation to environment is an important part of consciousness, but what happens if somebody cannot differentiate the internal and external aspects of it? Several people with autism spectrum disorder reported that they have problems defining their body boundaries (Grandin 1995, 2006). The following quotes reflect on this particular feature; in the first quote, Donna Williams relates her experience in the difficulties in separating herself from the physical environment.

These problems took me on a journey where I learned to act as though I had a sense of 'us' and 'we' even if my systems integration problems made it very difficult to consistently process internal 'self' and



external ‘other’ at the same time; an experience that is essential to grasping what social is, how to be it and why you might want to be (Williams 1996: 5).

The problem was seen. He was unable to copy and mother was throwing up a tantrum. She was not ready to give up. ‘Let me hold your shoulder like I used to when you started pointing and communicating’, she said, trying to find a way. This time it was easy for the boy to write, as he could feel the presence of the hand, his own hand linked to his body, at the shoulder point, where his mother was holding him (Mukhopadhyay 2003: 48).

The quote from Mukhopadhyay is an expressive illustration of problems not only with body boundaries but also with executive functions activation. To be specific, Tito’s mother Soma had to use physical prompt to facilitate her son’s physical actions. The disorder of executive functions is one of the most known feature of autism (Ozonoff 1995), being partly separated from defining conscious goals. The next quotes show that in case of autism spectrum disorder there can be a block between purpose and action. The writers give an account of problems with the execution of desired actions, be they the most ordinary things e.g. drinking.

People with autism are sometimes unable to move on to their next action without a verbal prompt. For example, even after we ask for a glass of juice and are given it, we won’t actually start drinking until someone’s said, ‘Enjoy’ or ‘Go ahead and drink, then.’ Or even after the person with autism has announced, ‘Right, I’ll hang the laundry now,’ he won’t get started until someone has said back, ‘Okay, that’s great.’ I don’t really know why people with autism need these cues, but I do know that I’m one of them. Since we already know what we’ll be doing next, surely we should just be able to get on with it, unprompted, right? Yes, I think so too! But the fact is, doing the action without the cue can be really, really tough. In the same way as you don’t walk over the crossing until the light turns green, I can’t ‘switch on’ the next action until my brain receives the right prompt (Higashida 2013).

One day, he found that when her lips moved the song was heard, the voices related to people and lips. That looked easy. For a few days after that, he was in front of a mirror finding out a way to move his lips – pleading them to move in a silent way. But it did not flutter or move like mother’s (Mukhopadhyay 2003: 3).

I would like to communicate normally but I can’t... I would like to interest toward people but I can’t... (Seth 2005: 135).

Balconi’s third meta-functional level (see Figure 2) demonstrates higher-order cognitive functions of consciousness. While socialization functions management (see Section 3.3) and the use of linguistic and communicative competences strongly relate to two of the major fields of impairments in autism spectrum disorder – and therefore they are impaired too –, self-monitoring can be relatively untouched. Autobiographical writings of people with autism spectrum disorder have numerous examples of self-reflections.

The quote from Donna Williams reflects to the particular phenomenon of monological language use in autism spectrum disorder. While communicating in real-life situations is quite difficult, writing to the addressees when they are not present works better. Mukhopadhyay writes about his difficulties with self-regulation: although he knows that he is obsessed, he cannot do anything about it.

People with difficulties like mine are not meant to be capable of being so intentionally self-expressive, so insightful, so aware and certainly, throughout large chunks of my life, I too appeared to be none of these things. Yet, when I write I am all of these things. This is because my writing, unlike speaking, is (both fortunately and unfortunately) a largely automatic skill so I don’t have to be aware of what I am unknowingly aware of. If it is in there, it just comes out (Williams 1996: vii).

My extreme obsession with train rides was beyond my reason and control, although I understood that was being irrational about it. It is the same process that goes on in the mind of perhaps a chain-smoker, who, although he knows and understands completely well that he is not supposed to smoke, is still compelled to (Mukhopadyay 2013).

In summary, as social and communicative impairments closely connect to consciousness, the third main characteristic of autism spectrum disorder, known as behavioural impairment, is explicable in Balconi's (Balconi 2010) theoretical framework. Restricted and rigid behaviours and adherence to the usual routines indicate a non-flexible response structure of knowledge organization. Consequently, in with autism spectrum disorder the rigid thinking system causes non-adequate responses in unexpected situations. In most of these accounts the writers relate anxiety in social interactions – almost every social situation can be unpredictable for people with autism spectrum disorder, because the understanding of social patterns is quite difficult as it is clear in Therese Jolliffe's quote.

Normal people, finding themselves on a planet with alien creatures on it, would probably feel frightened, would not know how to fit in and would certainly have difficulty in understanding what the aliens were thinking, feeling and wanting, and how to respond correctly to these things. That's what autism is like. If anything were suddenly to change on this planet a normal person would be worried about if they did not properly understand what this change meant. That's what autistic people feel like when things change. ... Life is bewildering, a confusing, interacting mass of people, events, places and things with no boundaries. Social life is hard because it does not seem to follow a set pattern. When I begin to think that I have just started to understand an idea, it suddenly does not seem to follow the same pattern when the circumstances alter slightly (Jolliffe et al. 2001: 49–50).

I still have problems with rapid responses to unexpected social situations. In my business dealings I can handle new situations, but every once in a while I panic when things go wrong. I've learned to deal with the fear of traveling, so that I have a backup plan if, for example, my plane is late. I have no problems if I mentally rehearse every scenario, but I still panic if I'm not prepared for a new situation, especially when I travel to a foreign country where I am unable to communicate (Grandin 2006: 49).

### ***4.3 Communicating differences. Atypical communication loop between neurotypicals and people with autism spectrum disorder***

The first step to understand the world full of intentions is to treat ourselves as intentional agents. Although infants interact with others and behave highly socially very early, they do not start to behave intentionally earlier than eight months of age. The maturing of self-representation is followed immediately by the development of social cognition, importantly the abilities for joint attention and treating others as intentional beings (Balconi 2010; Tomasello 1999).

Joint attention is one of the most important components of language acquisition existing because of human collaboration and common goal in a scene (Tomasello 2009). Infants at around nine to twelve months of age begin engaging in joint attentional behaviours. They interact with people and objects, the former dyadic interactions evolve into triadic. This behaviour begins when they begin to treat others as intentional agents. Younger infants are dyadic, so they ignore people or objects, if they are interacting one of them. Like younger infants, children with autism spectrum disorder do not work well in joint attentional scenes (Tomasello 1999). They do not use protodeclarative pointing (Frith 1989), have difficulties in following another person's gaze and in perspective-taking (Tomasello 1999).

According to Tomasello (1999) in case of children with autism spectrum disorder the source of social impairments can be the difficulty with recognition of others as it is apparent from Therese Jolliffe's quotation.

As it was a long time before I realised that people might actually be speaking to me, so it was a long time before I realised that I too was a person – if somewhat different from most others. I never thought about how I might fit in with other people when I was very young because I was not able to pick people out as being different from objects. Then when I did realise that people were supposed to be more important than objects and became more generally aware, things began to take on a new and more difficult light (Jolliffe et al. 2001: 50).

The above-mentioned perspective-taking is an important process of social cognition and communication. Tomasello (1999) uses the word perspective as an opportunity to treat an entity as a member of several conceptual categories for different purposes. Since for children with autism spectrum disorder it is hard to understand that there are multiple perspectives, using certain expressions and knowing that there are other existing perspectives can also be difficult. Therefore, the expressions like personal pronouns (e.g. *I* and *you*) or adverbs of place (e.g. *here* and *there*) are confusing for people with autism spectrum disorder. The same way, understanding that others have perspectives different from their own can be a source of numerous problems.

Neurotypicals in most cases easily interpret others' behaviour, because they are able to infer what perspectives can be used in a given situation. Based on previous experience they can predict what will happen, while people with autism spectrum disorder have difficulties in understanding a conversation or certain behaviours. The following quotes reflect three people's perception of neurotypicals and the acceptable social behaviour demanded by neurotypicals.

Human beings are the hardest of all to understand because not only do you have to cope with the problem of just seeing them, they move about when you are not expecting them to, they make varying noises and along with this, they place all different kind of demands on which are just impossible to understand (Jolliffe et al. 2001: 51).

During the last couple of years, I have become more aware of a kind of electricity that goes on between people which is much subtle than over anger, happiness, or fear. I have observed that when several people are together and having a good time, their speech and laughter follow a rhythm. They will all laugh together and then talk quietly until the next laughing cycle. I have always had a hard time fitting in with this rhythm, and I usually interrupt conversations without realizing my mistake. The problem is that I can't follow the rhythm (Grandin 2006: 93).

Opportunities for social gaffes are endless. The NT<sup>1</sup> person, because of intuitive emotions and the 'ability to read signals' has no such difficulties (unless he or she is in denial). How can the autistic compensate for this? One simple way is to simply guess (mentally 'toss a coin'). The problem here goes to a corollary of mine to Murphy's Law (if something can go wrong, it will). This reads: if your chances of being right are 50–50, then nine times out of ten you'll be wrong. Something more dependable is required. To use a computer jargon analogy: for the NT, social skills are hard-wired; the autistic have to develop software. How can this be done? (Schneider 2003: 113–114)

On the basis of autobiographical writings and other accounts from people with autism spectrum disorder another problem is also seen, namely that the misunderstanding is reciprocal, as it is in the motto: "There is a partial symmetry between the autistic and the non-

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<sup>1</sup> neurologically typical

autistic. Neither can see what the other is doing” (Hacking 2009: 1471). Summing up, the creation of a communication loop between people with autism spectrum disorder and neurotypicals is problematic from both sides. In the next quotations we can see different explanations for the same phenomenon, namely the miscomprehension of the behaviour of people with autism spectrum disorder by neurotypicals.

Because NT people look at the mannerisms of the autistic with their own world-view and according to their own values, they often tend to misinterpret what they see (Schneider 2003: 22).

You perceive yourself differently than the rest of the world. Well, it can be the source of several misunderstandings. Even the psychologist also told me several times, that ‘You are never afraid of anything’; ‘I haven’t experienced any sign of excitement on you’. They mainly said that things when I was truly frightened of something, or when I was nervously excited (Seth 2005: 135).

My consultant psychiatrist said something like this as well because I was always pulling him and touching him in a way that his other patients would not dared to. He said that most people would not realise that I was in fact actually communicating with him, even if it was in an unorthodox way (Jolliffe et al. 2001: 49).

## 5 Conclusion

According to Tomasello (2001) and Frith (2007) neurodevelopmental pragmatic disorders in autism spectrum disorder result from the non-typical social competences of people with the disorder (Györi 2003, 2014). They have typical cognitive disorders caused by their weak central coherence capacities (Frith 1989; Happé & Frith 2006), they have problems with selecting stimuli, and they pay more attention to the constituent parts, instead of the relevant coherent whole. That is why their special forms of communicative and non-communicative language use differs from neurotypical ones.

We should say that we have different problems and different explanations for the same situations depending on our capacities. Neurotypicals have their own perspective and try to describe atypical forms of communication of people with autism spectrum disorder while people with autism spectrum disorder have their own theories about neurotypicals’ behaviour. In a successful communication, the partners’ informative and communicative intentions should be mutually manifested. Do we have enough reasons to conclude that with analysing personal accounts we are closer to interpreting informative and/or communicative intentions of people with autism spectrum disorder?

They boy wondered about the different thoughts that the people had and behaved accordingly. For them, who trusted him, he was eager to communicate, but for those who were sceptics, he refused to co-operate (Mukhopadhyay 2003: 32).

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