POETOGENESIS

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DIE BIOLOGISCH-KOGNITIVEN GRUNDLAGEN NARRATIVER MOTIVIERUNG

mentis

POETOGENESIS

Studien und Texte zur empirischen Anthropologie der Literatur

herausgegeben von
Katja Mellmann · Ralf Schneider · Rüdiger Zymner

begründet 2003 von
Karl Eibl† · Manfred Engel · Rüdiger Zymner

Band 10

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MÜNSTER

Der Band wurde gedruckt mit Fördermitteln der Alexander von Humboldt-Stiftung.

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese
Publikation in der Deutschen Nationalbibliografie;
detaillierte bibliografische Daten sind im Internet über
http://dnb.dnb.de abrufbar.

Gedruckt auf umweltfreundlichem, chlorfrei gebleichtem
und alterungsbeständigem Papier ♾ ISO 9706

Eisenbahnstraße 11, 48143 Münster, Germany
www.mentis.de

Printed in Germany
Einbandabbildung und -gestaltung: Anna Braungart, Tübingen
Wissenschaftlicher Satz: satz&sonders GmbH, Münster (www.satzundsonders.de)
Druck: AZ Druck und Datentechnik GmbH, Kempten
ISBN 978-3-89785-463-5 (Print)
ISBN 978-3-89785-464-2 (E-Book)

INHALTSVERZEICHNIS

Lívia Ivaskó

ABOUT THE ROLE OF OSTENSIVE COMMUNICATIVE CONTEXT OF STORYTELLING

I. Introduction

Our aim is to shed light on how ostensive cues function as useful tools for exploring the world and sharing the information gathered during these attempts by individuals at the same time. We approach this question within a theoretical framework which considers the use of symbols and language to be a species-specific mode of cultural transmission (Sperber 1996).[1]

Ostensive signals are responsible for making manifest an intention or a set of information to another individual different from the one they are performed by. To make something (an intention or information) manifest is a type of human behaviour, called ostensive behaviour or ostension. The need for paying attention to realize and comprehend the intended information of ostensive behaviour facilitates the use of ostensive signals. These signals have to be relevant enough to perceive from several physical stimuli around the (communicative) partners and to be relevant enough to change the interlocutor's cognitive environment. (Sperber/Wilson 1996: 46–50) These stimuli are intentionally motivated by a rational human agent. Because of this mutually existing expectations of the partners these stimuli seem to be non-accidental physical entities, rather they are motivated by an intentional rational human agent to make manifest or mutually manifest a set of information.

This paper has three main parts. At the beginning I would like to share an overview of the theoretical framework of our work. The second part focuses

[1] This paper focusing on human children's innate capacity to recognize and produce the pragmatic patterns of storytelling was prepared in collaboration by the members of the Developmental and Neuropragmatic Research Group of the University of Szeged, Hungary. The first version of this paper was delivered under the title »Now I'll be the storyteller« – Children's innate capacity to recognize and produce the pragmatic patterns of storytelling at the 13th International Pragmatics Conference (Narrative Pragmatics: Culture, cognition, context) in New Delhi in 2013. The current paper is a further elaboration of the research topic with a pilot study of vigilance for ostensive cues of storytelling. http://ipra.ua.ac.be/main.aspx?c=.CONFERENCE13&n=1447

on the specificity of a communicative situation and ostensive communicative signals of storytelling. I will introduce and specify our pilot study on the role of ostensive communicative context of storytelling in the third part of the paper.

»Cognitive efficiency consists in improving one's knowledge of the world as much as possible given the available resources.« (Sperber/Wilson 1996: 47) Our hypothesis is that ostensive signals of communicative storytelling are the guarantee not to waste the mental processing effort humans need to get cognitive effect of relevant information of a story. We also would like to emphasize the importance of our abilities to make us to be sensitive to those stimuli which can be holders of causal relations of information of stories or narratives.

II. Theoretical framework

II.1 The role of attention and joint attention in the interpretation of narratives

Based on the theory of Michael Tomasello, we could argue that the telling and understanding of stories (and narratives) are facilitated by our human-specific abilities such as high level of identification with conspecifics, human intentionality, shared intentionality, humans' intentional stance, cooperative motives, and a new type of learning (Tomasello 1999, 2008). These socio-cognitive abilities and motivations already existed in pre-linguistic gestural communication. We can see a similar proposition in Donald's model (see Donald 1991). According to Tomasello (2008), the species-specific characteristics of human communication are based on the act of collaborative problem-solving and the way humans engage with others collaboratively. The cognitive basis of these abilities is the ability to identify with others as well as the human capacity to attribute intentions and mental states to others, i. e. we treat others as intentional agents. This makes it possible to read their minds. It can lead to the ability to solve problems together. The communicative use of language is based on the assumption that signals are produced intentionally and on the existence of humans' intentional stance; humans generally rely on these assumptions when interpreting the actions of conspecifics. Shared intentionality is seen as a cornerstone in the evolution of human signalling, compared to individual intentionality. Children are able to take part in this cognitive collectivity from about nine months of age when they start making attempts to share attention with others (Tomasello 1999: 15).

Tomasello identifies only one key adaptation throughout human evolution being responsible for the emergence of symbolic language. He puts great

emphasis on a novel type of learning which paves the way for collaborative learning. The members of a group produce something together which would never be created by any of them on his own. Moreover, he does not see vocalization as the basis of the evolution of human communication but draws attention to the fact that the use of gestures might have been what human language evolved from. Those gestures that emerge a lot earlier than language in infants (see Tomasello 2008, Donald 1991). The emergence of conventional communication occurs after the emergence of shared intentionality and the ability to use gestures in a cooperative way, which is facilitated by a new type of cultural transmission. Therefore, it is not the creativity component which is considered to be new in the use of language (symbols) by humans; it is stabilization which is required for newly and cooperatively invented symbols to become conventional ones.

II.2 Pedagogical stance

Gergely and Csibra (2005) claim that the selective and interpretive nature of imitation specialized for cultural transmission and its role in pedagogy must be human-specific. Cultural transmissions normally happen in pedagogical contexts, and infants have a set of special cognitive mechanisms/resources by means of which they recognize and identify these events. Infants' »pedagogical stance« (»intentional stance«) ensures that they learn the new and relevant cultural information. Ostensive and referential cues/stimuli draw their attention to the fact that they are being taught. According to Gergely and Csibra, in a communicative context (pedagogical demonstration context) early imitative learning is much faster and more successful.

Pedagogical communication is defined by Gergely and Csibra as follows:

> ... the selective interpretive nature of early imitative learning can be explained as a result of the implicit assumptions built into the infant's »pedagogical stance« that constrain and guide imitative learning, and that is activated by the ostensive-communicative cues of knowledgeable others who manifest new and relevant cultural information for the infant to learn (Gergely/Csibra 2005: 1347)

III. Brief overview of skills and abilities underlying the interpretation of stories, narratives, and actions (Some results of developmental studies on the development of human communication)

III.1 Human-specific abilities underlying the understanding of others

The philosopher Daniel Dennett (1987) gives an account of the intentional stance or strategy that humans rely on while interpreting the actions of other human agents or any living organisms, and even the workings of inanimate objects. This general capacity helps us understand, generalize, and predict what the agent intends to do or how the agent attempts to reach its goals. In order to be capable of predicting behaviour, it is also important for us to treat the object as a rational agent. This powerful tool never ceases to work in humans, and attributing mental states, beliefs, desires etc. to others might have been a huge evolutionary advantage for humankind as we are able to consider the goals of other rational agents in the light of their beliefs.

Gergely and Watson (1996) underlie the importance of parental bio-feedback in early socio-emotional development. Mothers mirror their babies' affective facial behaviour to mark them in order to differentiate between theirs own real feeling and these mirrored ones. Mothers give contingent responses to enable their children to interpret social interactions. That is the how Gergely and Watson imagine children learning to differentiate between certain feelings.

They claim (Gergely/Watson 1996: 1181–1212) that as result of parental social bio-feedback:

1. The infant will come to detect and group together the sets of internal state cues that are indicative of his or her categorically distinct dispositional emotion states.
2. The infant will establish secondary representations associated with his or her primary level procedural affect states providing the cognitive means for accessing and attributing emotion states to the self.
3. The infant will acquire a generalized communicative code of ›marked‹ expressions characterized by the representational functions of referential decoupling, anchoring, and suspension of realistic consequences.

We will discuss the role of other cognitive abilities that are essential to understand complex communicative situations in detail in the subsection focusing on neuropsychological factors.

Are infants able to interpret and draw inferences about the goals of others?

Normally developing children over the age of 4 (Baron-Cohen/Leslie/Frith 1985; Baron-Cohen 1995; Baron-Cohen 2000) are considered to have

the »mentalistic or intentional stance« described by Dennett (1987). However, the interpretation of goal-directed actions seems to emerge earlier, between the age of 7 and 12 months. This early competence of children has been tested by means of several paradigms, including imitation, joint attention or violation-of-expectation looking time studies. Results of the latter type of tests show that children are surprised if the most efficient way of carrying out an action is avoided by the agent, which means that they have strong expectations concerning the process and the most efficient (rational) alternative of carrying out goal-directed actions. They always suppose that agents act reasonably (Gergely/Csibra 2003; 2005, Csibra/Gergely 2011).

Gergely and Csibra (2003) have demonstrated in their experiments with infants that even one-year-olds are able to interpret and draw inferences about other people's goal-directed actions. Infants rely on a non-mentalistic interpretational system, which later develops into a representational system controlling the inferences of adults about the mental states (beliefs, desires, intentions) of others. Children are led by the principle of rational action; they focus on goal-states and pick out the most efficient way available. Gergely and Csibra (2003, 2005) argue that children's teleological stance creates an explanatory relation between the action, the goal state and the situational constraints. This »rationality principle« is considered by many to be a key component of the ability to read others' mind.

III.2 The role of cultural learning in human ontogeny

Early cognitive competencies and other human-specific abilities of infants seem to form the basis of receiving useful and relevant knowledge from others, mainly from older and knowledgeable conspecifics. Csibra (2010) argue that young children are sensitive to several ostensive stimuli (human face, eye-contact, child-directed speech (motherese), and contingent reactivity) and they also tend to imitate the actions of others. These capabilities are traditionally explained by several researchers. However, Csibra and Gergely (2011) assume that these abilities of babies should rather be interpreted as reflecting certain adaptations required to gain knowledge from others in pedagogical situations, where both teachers and students rely on the assumption of relevance (Sperber/Wilson 1996) in order to find novel information. Furthermore, they claim that »natural pedagogy«, as they call it, (Csibra/Gergely 2011) is likely to be human-specific (Gergely/Csibra 2003; 2005, Csibra/Gergely 2011), while Tomasello (1999, 2009) and his colleagues claim that it is mainly the so-called »shared intentionality« which differentiates humankind from other living organisms. The underlying skills in human children required to participate in activities that involve joint attention or intentions develop gradually during the first 14 months of their lives.

By means of these developmental features children are able to learn from their older conspecifics. They acquire language, other different symbols, social norms etc. This learning is based on children's a) abilities to understand others as intentional agents, and b) their early collaborative activities, i. e. their human-specific attempts to share feelings, activities or experience with others. Contingent reactivity of these natural pedagogical situations helps them to differentiate between the forms and related meanings or functions of behaviour via operant conditioning.

The following table summarizes how we can imagine the development of cultural thinking and learning on the basis of the works of the above mentioned authors.

Birth	Sensitivity to ostensive stimuli (human face, eye-contact, motherese, contigent reactivity) via operant conditioning	Interactions of human infants with others: Dyadic engagement = sharing behaviour and emotions
6 months	Understanding others acting animately + sensitivity to ostensive stimuli (human face, eye-contact, motherese, contigent reactivity) via operant conditioning	»parental social biofeedback«
9 months	Understanding others pursuing goals; can differentiate between intentional and accidental actions	Triadic engagement = sharing goals and perception
New form of cognitive representation – dialogic cognitive representation		
10 months	Understanding when others choose plans Understanding intentions	Collaborative activities, engagement with others = joint intentions and attention
12 months	Understanding intentions	From 1 to 2 years: creation and use of linguistic symbols; social norms; social institutions
4 years	Understanding beliefs, mental states of others	Social norms, social institutions

Table 1: Ontogenesis of capacities and competencies in typically-developing human children (Tomasello 1999; 2009; Gergely/Csibra 2003; 2005, Csibra/Gergely 2011; Gergely/Watson 1996; Ivaskó/Lengyel/Komlósi 2014)

III.3 Mentalization processes

Researchers focusing on the mentalization processes underlying the understanding of stories and narratives from neuropsychological and neurological points of view all emphasize the importance of our abilities to discover and understand causal relations, the consequences of others' actions as well as the motives of intentional agents (see Happé/Frith 1996; Frith 2007). Furthermore, most studies emphasize the human-specific nature of these mental processes (Tooby/Cosmides 1992; Cosmides/Tooby 2000; Frith/Frith 1999; Frith/Wolpert 2003; Frith 2007). These mentally processed causal relations could be relevant not only for the one itself, but they could be especially relevant for the community the one belongs to. What is more, researchers put special emphasis on studying individual stories, being important for conspecifics and the members of a group, and they also focus on understanding the cognitive processes individuals rely on while interpreting stories (László/Rogers 2002; László 2005; Bruner 2001), stories of others.

Sharing information can be seen as an intentionally motivated human behaviour.

Universal forms of human behaviour such as the so-called ostensive behaviour (Sperber/Wilson 1995) enable humans to recognize and make their partners recognize mirrored emotional reactions, motoric reactions (Rizzolatti/Fabbri-Destro 2008; Decety/Chaminade 2003; Bauer 2010) as well as different stimuli which are used to express various communicative intents. These ostensive stimuli are intentionally ordered. Moreover, they make it easier for communicative partners to decide whether the information provided by someone was produced intentionally or accidentally (Sperber et al. 2010), or whether it is relevant enough to be worth interpreting. Sequencing of these stimuli can be seen as causally related information to solve the problem of the intended content of the story.

According to Bauer (2010: 56), who investigates the development of interactions in infants, children over the age of one year do not only mirror the emotions of others but they also rely on others' actions and emotions in order to construct the picture of the world around them. The development of social identity commences in children after their first year of life, and it is triggered by emergence of their ability to differentiate between their self and others. After this phase, all the games children play pave the way for language development, and their games also make it possible for them to acquire the appropriate use of communicative symbols. The recognition of these symbols is facilitated by universal ostensive cues (Csibra 2010; Csibra/Gergely 2011).

IV. Telling an ordinary/everyday story or a folk tale

As we have seen studies in the field of developmental pragmatics focus on the abilities of children underlying the interpretation of stories for numerous reasons: On the one hand, these cases enable researchers to study the abilities underlying causal relationships triggered by the maturation in the frontal lobe. On the other hand, research is being conducted in order to discover how children interpret different literal and non-literal elements.

The following tables summarize why telling a tale in the form of social interactions is undoubtedly the same, or inherently differs from telling an ordinary, everyday story.

	Telling an ordinary/ everyday story	*Telling a tale*
Maturation in the frontal lobe	✓	✓
Causal relations	✓	✓
Interpreting different literal and non-literal elements	✓	✓
Degree of symbolicity	low	high
The emphasis is on the symbolic nature of the whole story instead of the figurative meaning of individual words.		Children interpret tales according to their abilities and past experiences.

Table 2

The telling of stories and tales is a typical example of ostensive communication during which children acquire the cultural knowledge shared by others. Children's pedagogical stance (Gergely/Csibra 2003, 2005) and their sensitivity to ostensive stimuli enable them to acquire this shared knowledge much faster and more efficiently. By means of this cognitive adaptation, the so-called natural pedagogy, infants expect to receive generalizable, culturally relevant knowledge (Csibra/Gergely 2009).

There are several ostensive signals that are typically present in verbal communicative situations when stories and tales are told to children. The study I present in this paper examines what kind of ostensive stimuli the tellers of tales/stories use in order to enable children to follow and understand their storytelling, a special way of verbal communication. Moreover, the study puts special emphasis on the way how the listeners (re-

ceivers) of tales manage to acquire the embedded pragmatic signals not only in order to understand them, but also to make use of them adequately as creative language users (similarly to the way they use grammatical structures).

	Telling an ordinary/ everyday story	*Telling a tale*
Ostensive stimuli	Starting an utterance with: a) »Imagine ...« b) No special stimuli	Starting an utterance with: »once upon a time« »a long, long time ago«
Recognizing informative intention	According to Csibra (2010), children understand stimuli expressing special communicative intentions earlier than the information included in the narrative.	Children start using ostensive (eye-contact, intonation, posture etc.) stimuli earlier than their ability to provide information emerges.

Table 3

In the pragmatics of tales and the telling of tales, there are ostensive stimuli that are generally used to make it mutually understood that the speaker wants the listener to realize that she talks about a place and time different from those of the communicative situation, and that she gives account of events that are not connected to the reality of the communicative event (Boldizsár 2010). That is why elements occurring in tales such as »once upon a time« or »a long, long time ago« function as special verbal phrases drawing the joint attention of the partners to the aforementioned fact. Other similarly distinct physical features/signals are the rise in the storyteller's pitch, his expressive and more intensive speech, the melody typical of storytelling and the modulation and elongation of vowels.

	Telling an ordinary/everyday story	*Telling a tale*
The sequence of stories following ostensive starting utterances	a) Individual stories focusing on everyday events b) Fictional narratives relying on concrete events and/or solving a problem	›Be aware, I'll share some culturally relevant knowledge with you‹
Communicative situation	Depending on the degrees of relevance of the informative content of the story for the comunity or the individual there are different distinct physical features/signals: the rise in the storyteller's pitch, his/her expressive and more intensive speech, the melody typical of storytelling and the modulation and elongation of vowels. Talks about a place and time different from those of the communicative situation that are not connected to the reality of the communicative event (Boldizsár 2010).	
	low degree of symbolicity: ›yesterday‹, ›in my garden‹, ›last week‹	high degree of symbolicity: ›Far beyond the edge of the world there lived ...‹ ›In a place where no birds fly ...‹

Table 4

In our pilot study for testing features of storytelling (Papp 2014; Papp/Ivaskó 2014), we used a so-called chain-type story. All causal relations were formed like »if, then« sentences.

Participants of this study were 13 typically developing three years old Hungarian children.

The hypothesis of the study was that the pragmatic pattern of telling tales to small children is similar to that of the universal features of infant-directed speech (motherese) (Clark/Clark 1977; Snow 1976, Snow/Ferguson 1977). A short story of a squirrel who lost it's drum was told to children. It was a so called »chain« story, the squirrel had to ask help from others to find the drum.

Variables:

- First group heard the story with the universal vocal features of motherese. (5 children)
- The second group heard the story with non-conventional stress on irrelevant expressions of the text. (3 children)

- The third group heard the story without any stress, it was quite monotonous. The narrator had no eyecontact with the children. (2 children)
- The fourth group heard the story with universal vocal features of motherese, but there were some pseudo-words in the text. (3 children) For example ›mutyika‹ instead of drum, ›tákis‹ at the place of angry, ›kóringyál‹ like feed someone.

Method:

Children had to listen to the stories watching a storyteller on a monitor of a computer. All types of the stories were videotaped, and children's responses had been monitored by another camera. That is why we had a chance to follow their behaviour depending on the different variables.

Results and discussion:

After the children had heard the story they had to recall it. There were several other tests to measure how they understood and/or memorized the story. Those who heard the story with universal vocal features, but with some pseudo-words in the text, realized an acceptable, plausible meaning of pseudo-words with the persumption based on contextual elements. Those children who had heard the story with non-conventional stress on irrelevant expressions of the text and those who had heard the story without any stress lost their interest after 40–45 seconds and didn't waste their processing effort to the expectedly minimal cognitive effort.

We found that

- Typically developing children loose their interest after 40 seconds if the narrative is told them with a monotonous voice,
- or if it is stressed incorrectly. It takes a great processing effort to find the relevance of the item (even if it has any).
- Communicative features of motherese could be useful for creating (and/or inferring in a verbal context) new meanings in the case of interpreting pseudo-words.

Boldizsár (2010) argues that these features are essentially necessary for humans to pay very focused attention to the story. She says it is being the cause of a kind of »being in a trans«, humans are in when interpreting stories as relevant information. To put it with Sperber (1996), these ostensive signals are the guarantee for the relevance of a stimulus which is holding not only the information of the story but the expectation of its relevance to an individual. That is why culturally relevant information is told in oral literature in the same way for hundreds of years.

While the pragmatic pattern of everyday storytelling characterizing children is similar to that of adults following the emergence of children's proto-discourse in several instances (Tomasello 2008; Csibra 2010; Karmiloff/Karmiloff-Smith 2002), the pragmatic pattern of telling tales adressing children is similar to that of the universal features of infant-directed speech (motherese) (Clark/Clark 1977; Snow 1976, Snow/Ferguson 1977). The telling of tales and stories reflecting real-life events starts to differ significantly when children's epistemic vigilance enables them to distinguish real and confabulated elements in their own and their partners' stories. From this developmental stage children are able to make these differences manifest. Social bio-feedback (Gergely/Watson 1996) based on contingent reactivity balances this procedure by means of their communicative partner's behavioural reactions marking (exaggerating), mirroring, and/or punishing, and/or rewarding them.

According to Ildikó Boldizsár (2010), we can agree with the conception that the main difference between the telling and interpreting of everyday stories and those of the so-called folk tales, which can considered to be the sources of cultural knowledge, is how their symbolic levels can be reached by children in different ages. In elder children, the emphasis is on the symbolic nature of the whole story instead of the figurative meaning of individual words.

> What is it about these narratives that makes them so memorable?
>
> In an oral tradition, all cultural representations are easily remembered ones, hard-to-remember representations are forgotten, or transformed into more easily remembered ones, before reaching a cultural level of distribution. (Sperber 1996: 74).

V. References

Baron-Cohen, Simon (1995): *Mindblindness*, Cambridge, MA: MIT Press.

Baron-Cohen, Simon (2000): Theory of Mind in Autism. A Fifteen-Year Overview, in: Simon Baron-Cohen/Helen Tager-Flusberg/Donald J. Cohen (eds.): *Understanding Other Minds. Perspectives from Developmental Cognitive Neuroscience*, Oxford: Oxford University Press, 3–20.

Baron-Cohen, Simon/Leslie, Alan/Frith, Uta (1985): Does the Autistic Child Have a »Theory of mind«?, in: *Cognition* 21, no. 1, 37–46.

Bauer, Joachim (2010): *Miért érzem azt, amit te? Az ösztönös kommunikáció és a tükörneuronok titka*, übers. von Túróczi Attila, Budapest: Ursus Libris.

Boldizsár Ildikó (2010): *Meseterápia. Mesék a gyógyításban és a mindennapokban*, Budapest: Magvető.

Bruner, Jerome (2001): A gondolkodás két formája, transl. by Ülkei Zoltán, in: László János/Thomka Beáta (eds.): *Narratívák 5. Narratív pszichológia*, Budapest: Kijárat Kiadó, 27–59.

Clark, Eve V. (2003): *First language acquisition*, Cambridge: University Press.
Clark, Herbert H./Clark, Eve V. (1977): *Psychology and Language*, New York: Harcourt.
Cosmides, Leda/Tooby, John (2000): The Cognitive Neuroscience of Social Reasoning, in: Michael S. Gazzaniga (ed.): *The New Cognitive Neuroscience,* Cambridge, MA: MIT Press, 1259–1270.
Csibra, Gergely (2010): Recognizing Communicative Intentions in Infancy, in: *Mind and Language.* 25, no. 2, 141–168.
Csibra, Gergely/Gergely György (2009): Natural Pedagogy, in: *Trends in Cognitive Sciences* 13, no. 4, 148–153.
Csibra, Gergely/Gergely, György (2011): Natural Pedagogy as Evolutionary Adaptation, in: *Philosophical Transactions of the Royal Society B* 366, 1149–1157.
Decety, Jean/Chaminade, Thierry (2003): Neural Correlates of Feeling Symapthy, in: *Neuropsychologia* 41, no. 2, 127–138.
Dennett, Daniel C. (1987): *The Intentional Stance*, Cambridge, MA: The MIT Press.
Donald, Merlin (1991): *Origins of the Modern Mind. Three Stages in the Evolution of Culture and Cognition*, Cambridge, MA: Harvard University Press.
Frith, Chris D./Wolpert, Daniel M. (2003): *The Neuroscience of Social Interaction. Decoding, Imitating, and Influencing the Actions of Others*, Oxford: Oxford University Press.
Frith, Chris/Frith, Uta (1999): Interacting Minds. A Biological Basis, in: *Science* 26, no. 286, 1692–1695.
Frith, Chris (2007): *Making up the Mind. How the Brain Creates Our Mental World*, Hoboken/New Jersey: Blackwell Publishing.
Gergely, György/Csibra, Gergely (2003): Teleological Reasoning in Infancy. The Naive Theory of Rational Action, in: *Trends in Cognitive Sciences* 7, no. 7, 287–292.
Gergely, György/Csibra, Gergely (2005): Teleologikus gondolkodás csecsemőkorban. Az egyévesek naiv racionális cselekvéselmélete, in: *Magyar Tudomány* 11, 1347–1354.
Gergely, György/Csibra, Gergely (2005): A kulturális elme társadalmi konstruálása: az utánzásos tanulás mint humánpedagógiai mechanizmus, in: Gervain Judit et al. (eds.): *Az ezerarcú elme. Tanulmányok Pléh Csaba 60. születésnapjára*, Budapest: Akadémiai Kiadó, 371–377.
Gergely, György/Watson, Jeremy (1996): The Social Biofeedback Theory of Parental Affect-Mirroring, in: *International Journal of Psychoanalysis* 77, no. 6, 1181–1212.
Happé, Francesca/Frith, Uta (1996): The Neuropsychology of Autism, in: *Brain* 119, no. 4, 1377–1400.
Ivaskó, Lívia/Lengyel, Zsuzsanna/Komlósi, Boglárka (2014): Humanspezifische Fähigkeiten beim Erzählen and Verstehen von Geschichten, in: Hárs Endre/Horváth Márta/Szabó Erzsébet (eds.): *Universalien? Über die Natur der Literatur*, Trier: Wissenschaftlicher Verlag Trier, 63–81.

Karmiloff, Kyra/Karmiloff-Smith, Annette (2002): *Pathways to Language. From Fetus to Adolescent*, Cambridge: Harvard University Press.

László, János/Rogers, Wendy Stainton (2002): *Narrative Approaches in Social Psychology*, Salt Lake City: New Mandate.

László, János (2005): *A történetek tudománya. Bevezetés a narratív pszichológiába*, Budapest: Új Mandátum Kiadó.

Papp, Melinda (2014): *A mágikus gondolkodás kora [The Age of Magic Thinking]*, MA thesis, Manuscript, Supervisor: Lívia Ivaskó, Szeged.

Papp, Melinda/Ivaskó, Lívia (2014): *Ostensive Signals of Storytelling for Young Children. A Pilot Study*, Manuscript, Szeged.

Rizzolatti, Giacomo/Fabbri-Destro, Maddalena (2008): The Mirror System and Its Role in Social Cognition, in: *Current Opinion in Neurobiology* 18, no. 2, 179–184.

Snow, Catherine E. (1976): Mothers' Speech, in: Walburga von Raffler-Engel/Yvan LeBrun (eds.): *Baby Talk and Infant Speech*, Amsterdam: Swets and Zeitlinger, 263–264.

Snow, Catherine E./Ferguson, Charles A. (Hg.) (1977): *Talking to Children. Language Input and Acquisition*, Cambridge: Cambridge University Press, 31–50.

Sperber, Dan (1996): *Explaining Culture. A Naturalistic Approach*, Hoboken/New Jersey: Blackwell Publishing, 61–98.

Sperber, Dan et al. (2010): Epistemic Vigilance, in: *Mind and Language* 25, no. 4, 359–393.

Sperber, Dan/Wilson, Deirdre (1995): *Relevance. Communication and Cognition*, Oxford: Blackwell.

Tomasello, Michael (1999): *The Cultural Origins of Human Cognition*, Cambridge: Harvard University Press.

Tomasello, Michael (2008): *Origins of Human Communication*, Cambridge, MA/London: The MIT Press.

Tooby, John/Cosmides, Leda (1992): The Psychological Foundations of Culture, in: Jerome Barkow/Leda Cosmides/John Tooby (eds.): *The Adapted Mind. Evolutionary Psychology and the Generation of Culture*, New York/Oxford: Oxford University Press, 19–136.