IACS-2014

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The First Conference of the International Association for Cognitive Semiotics

25-27 September 2014 · CCS · Lund University

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BOOK OF ABSTRACTS

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The First Conference of the International Association for Cognitive Semiotics (IACS-2014)

September 25-27, 2014
Lund University

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1.   Welcome to IACS-2014

Dear conference participant,

As president of the *International Association for Cognitive Semiotics* (IACS), founded in Aarhus on May 29, 2013, and as one of the local organizers of the association's first biannual conference let me welcome you to an event that we are proud of and enthusiastic about!

For about two decades researchers from cognitive science, semiotics and linguistics – and a few other related disciplines – have been collaborating in the creation of a new field that is "more than the sum of the parts". This field sees human consciousness as continuous with that of animals, but also possessing novel properties, both biological and cultural, derived from the specifics of human cognitive-semiotic evolution. It sees "deep continuities" between life and mind, and between nature and culture, but without attempting to reduce one to the other. It investigates human language as a complex, multidimensional and "multimodal" phenomenon, intimately tied with other semiotic resources, but also possessing unique characteristics. In its pursuit of the multifaceted concept of *meaning*, it does not shy away from combining first-person phenomenological methods with third-person scientific ones.

In *establishing* this field, we have been guided by the conviction that the social, environmental, and even existential challenges that we face today require an approach that "mends the gap between science and the humanities", and thus contributes to a unified worldview. We do not need to fool ourselves that the present conference, or the near future, will provide any definite answers to such global issues. But we can feel satisfied that we have contributed to the creation of a community where we can combine our strengths and interests in the service of a deeper and more humane understanding of our world and of ourselves, with fewer "misrepresentations".

Jordan Zlatev
Lund, September 25, 2014

2.   Conference program

Wednesday, September 24, evening

16:00 – 19:00	Registration

Thursday, September 25, morning

8:00 – 9:00	Registration			
9:00 – 10:00	Opening plenary: **Merlin Donald**			
10:00 – 10:30	Coffee break			
10:30 - 12.30	<u>Hörsal</u> **Language and experience**	<u>H135a</u> **Semiotic evolution**	<u>H135b</u> **Visual perception and iconicity**	<u>H140</u> **General session**
	Eggleston: Spatial strategy preference and language variety	**Sonesson**: Some issues in evolutionary cultural semiotics	**Frattura**: What the mind's digital eyes can see	**Vehkavaara**: Normativity and cognitive control in Peirce
	Jensen: Gradient meaning constructions in everyday social interaction	**Sulik**: What are symbols in language evolution?	**Abramova**: Beyond the mirror, into the world	**Susac**: Commutation of cognitive source domains as semiotic tool
	Widoff: Perceptual meaning in nouns and noun phrases	**García**: Cooperation as a major drive for development of cognitive abilities	**Airey, Eriksson**: What do you see here?	**Igl**: Narrating perception
	Perez: Phenomenological modalization and the mutual enlightenment	**Iliopoulos**: Ornamental shell beads as semiotic scaffolds	**Morgagni, Chevalier**: Iconicity through hypoiconicity	**Torre**: A system of replicable constraints in the age of semiotic binge
12:30 – 13:30	Lunch			

Thursday, September 25, afternoon

	<u>Hörsal</u> Poetics	<u>H135a</u> External representations	<u>H135b</u> Gesture and multimodality	<u>H140</u> Cognition and brain	<u>A121</u> Applied cognitive semiotics
13:30 – 15:00	**Daraselia:** Metaphor creation in "A Tale of Two Cities"	**Bjørndahl et al:** The role of material representations in joint epistemic actions	**Tversky:** Some ways gestures and diagrams communicate	**Farina:** Sterelny's apprentice model meets brain plasiticity	**Engström:** Applying cognitive linguistics to political text and image
	Lilja: Universals of poetic rhythm in a poem by Seamus Heaney	**Sandin:** The coming into being of architecture	**Oostendorp:** From verbal statement to gesture	**Christensen, Tylén:** Factors motivating structure in gestural communication systems	**Oakley:** The "deonstemic" modality in legal and political discourse
	El-Arbaoui, Guerra: Light as temporal construction in Tarifitoral oral poetry	**Østergaard et al:** Diagrams in problem solving	**Hougaard:** Blended joint attention	**McCarroll:** The observer perspective	**Mendoza Collazos:** Agentive Semiotics in product design
15:00 - 15:30	Coffee break				
15:30 – 17:30	Poster session				
17:45 – 18:45	Plenary lecture: **Søren Brier**				
19:00 – 21:00	Reception: at LUX				

Friday, September 26, morning

8:00 – 9:00	Registration				
9:00 – 10:00	Plenary lecture: **Raymond Tallis**				
10:00 – 10:30	Coffee break				
	<u>Hörsal</u> **Consciousness and subjectivity**	<u>H135a</u> **Linguistic meaning**	<u>H135b</u> **Metaphor**	<u>H140</u> **General session**	<u>A121</u> **Body and the senses**
10:30 – 12:30	**Konderak**: The conscious semiotic mind	**Ursini**: Objects and nouns	**Bagli**: The IN IS LIGHT metaphor in context	**Little, Silvey**: Interpreting emerging structures	**Semenenko**: Homo Polyglottus
	Matthews: Cognitive semiotics and the problem of "brain as machine"	**Brandt, P.Aa.**: Linguistic theory in the framework of cognitive semiotics	**Faur**: On the metaphoric process	**Airey, Berge**: That's funny! Misappropriating semiotic resources	**Faria**: A search through cognitive semiotics for enhanced understanding
	Marienberg: Imagery as experience	**Hallonsten Halling**: The adverb prototype	**Teranishi**: Metaphorical understanding, bodily experience, and cultural context	**Flores**: Non-Western historiography and the experience of history	**Smith**: The semiotic cocktail of food labeling
	Brandt, L.: Bodily and non-bodily forms of subjectivity	**Bączkowska**: Temporality encoded by English prepositions	**Madsen**: Back in time is not back in space	**Niño**: Meaning construction and assessment: The agentive semi-otics proposal	
12:30 – 13:30	Lunch				

Friday, September 26, afternoon

	Hörsal **Semiotics in Science, Technology, and Mathematics**	H135a **The Origins and Evolution of Language: A Close Link to Action**	H135b **Situatedness and relevance**	H140 **Learning and development**
13:30 15:00	**Johansen, Misfeldt:** Material tools and meaning formation in mathematics	**Johansson:** Past actions, past language	**Tylén, Fusaroli:** Individual and joint epistemic exploration in a Scrabble task	**Fredlund et al:** Learning in terms of the semiotic enactment of patterns
	May: Image schematic inter- pretations as a source of confusion	**Orzechowski et al:** Orofacial gestures and the problem of mo-dality transition'	**De Luca,Bondi:** Situated action and semiotic forms	**Westlund:** Ten drawer positions expressed in multimodal student texts
	Eriksson et al: The anatomy of disciplinary discernment	**Zlatev:** Sound symbolism as evidence for mimetic origins of language	**Ranta:** Relevance and tellability in pictorial storytelling	**Lenninger:** Iconization and conven- tionalization in children's joint picture games
15:00 15:30	Coffee break			
	Hörsal **Semiotics in Science, Technology, and Mathematics**	H135a **The Origins and Evolution of Language**	H135b **Translation**	H140 **Iconicity in sound**
15:30 16:30	**Fredlund et al:** Variation as a method for perceiving disciplinary affordances	**Ferretti, Adornetti:** Embodiment, navigation and proto-discursive origins of language	**Sonesson:** Simple and double acts of communication	**Pršir:** Prosodic iconic schemas
	Bruun, Johansen: The interplay between dialogue, cognitive schemata and kinesthetic learning	**Cosentino, Chiera:** From conversation to language: An evolutionary embodied account	**Yoka, Kourdis:** Translation in the service of a globalized culture	**Coppin:** Progress toward translating 'visual' graphics into sound
16:30 17:30	General Assembly of IACS			
17:45 18:45	Plenary: **Cornelia Müller**			
19:00 22:00	Conference dinner			

Saturday, September 27, 2014

	Hörsal **Multimodal Communication**	H135a **Comparative cognition**	H135b **General session**	H140 **Media**	A121 **Culture and cognition**
8:00 9:00	Registration				
9:00 10:00	Plenary lecture: **Lorraine McCune**				
10:00 10:30	Coffee break				
10:30 12:30	**Andrén:** Multimodal constructions in children	**Persson**: Are you indicating (for me)?	**Airey et al**: On the disciplinary affordances of semiotic resources	**Sarría:** Cognitive semiotics as common ground for the debate between old and new film theory	**Tamariz, Kirby**: Culture: Copying and com-pressibility
	Ahlsén, Allwood: Word finding, word production and gesturing	**Parthemore:** A cognitive semiotic perspective on concepts	**Rekittke, Mittelberg:** Metonymic taboo descriptions	**Sticchi:** A Spinozan analysis of film experience	**Dunér:** Cultural evolution, conceptual metaphors and science
	Kreydlin, Khesed: Verbal and non-verbal markers of impolite behavior	**Linask:** Umwelt dynamics in human and non-human ontogeny	**Bruche-Schulz:** Episodic awareness and remembering	**Conde:** The role of sound in filmic experience	**Nölle:** Integrating cultural, socio-ecological and cognitive factors
	Cabak Rédei: Body images and the body as a sign	**Tønnessen:** Will the agents of nature please rise?			**Pelkey:** Retracing cultural symmetries
12:30 13:00	Lunch				
13:00 14:00	Closing plenary: **Mutsumi Imai**				
15:00 16:30	Guided tours				

3.   Practical Information

Lund and Lund University

Situated in the Öresund region in southern Sweden, Lund is one of the oldest cities in Scandinavia, going back more than a thousand years. Over the centuries it has earned a reputation for being a place where people meet. Today, more than ever, Lund is a meeting place for ideas. The university and science-park, its multicultural atmosphere and historical surroundings contribute to a unique combination, both nationally and internationally. Founded in 1666, Lund University is today one of the largest, oldest and broadest universities in Scandinavia and is consistently ranked among the world's top 100 universities.
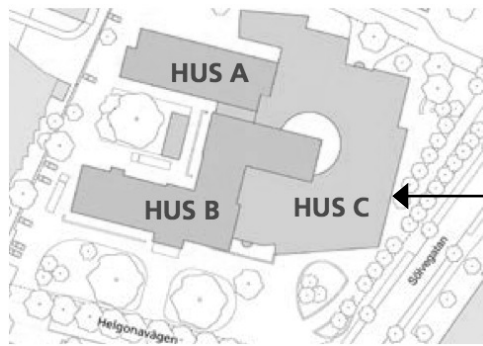
Språk- och litteraturcentrum (SOL)/Centre for Languages and Literature (CLL)

IACS-2014 takes place at SOL, which was established on January 1, 2006, combining the staff and students of the separate departments of the former section for languages, linguistics and literature. Currently SOL has a staff of some 250 people and 3000 students, including 100 PhD candidates. *Cognitive Semiotics* is one of ca. 30 different "subjects" or sub-departments within SOL.

The conference will take place in 4 rooms on the first floor of *Humanisthuset* (see the map on p. 12): The Auditorium ("Hörsal"), room H140, room H135a and room H135b. When there is fifth parallel session, it will take place in room A121, on the first floor of the Absalon building (see Program).

Registration desk and book tables

The registration desk is in front of "Hörsal" and will be open from Wedneday Sept 24, 4 to 7pm for advanced registration, and all during the conference. On registration, you will receive a conference bag with material, and a badge. *Please carry your badgaes at all times – they will be necessary for attending talks, for coffee, lunches, and the reception.*

Reception

LUX

Språk- och litteraturcentrum

Talks
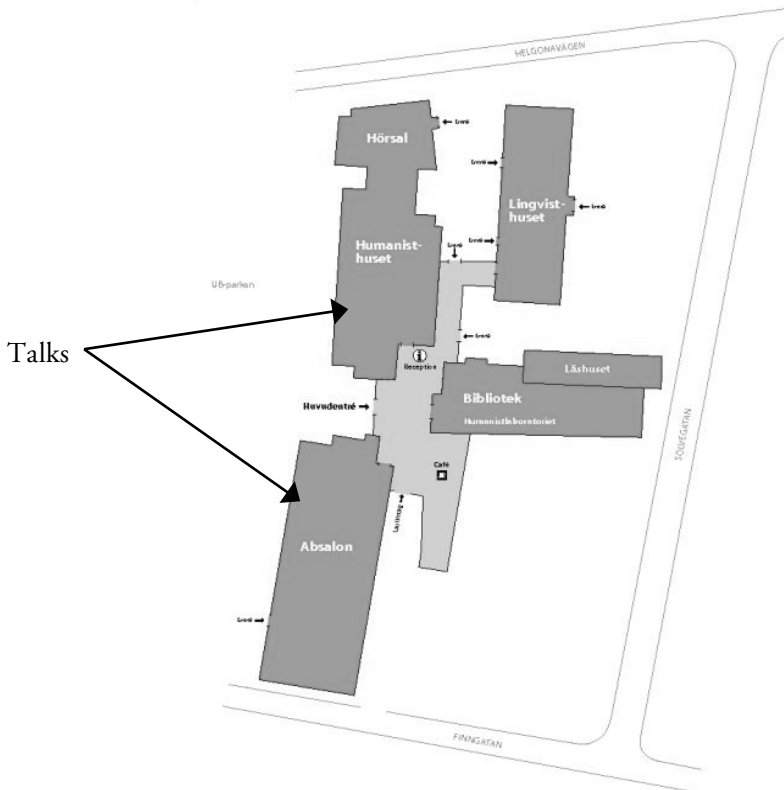
Oral presentations and posters

Oral presentations will last 20 minutes followed by 5 minutes for quesions (leaving 5 minutes for transitons between rooms). There will be computers and projectors in each room. Speakers are asked to go to the room where their talk will be presented in advance, and make sure that the presentation is uploaded. If you wish to use your own laptop, you should try it out in advance. Mac users should bring the necessary adaptors.

The poster session will take place at 15:30-17:30 on Thursday, 25 September, during its own, dedicated session. This will begin in the plenary hall with a one-minute slot for poster presenters to present themselves and their work to the audience. Posters should be hung no later than the end of the coffee break preceeding the poster session and removed by the end of the day.

Coffee breaks and lunches

Coffee/tea and refreshments will be served infront of Hörsal during every break. Buffe lunches will be served in two places: *in front of Auditorium for participants with last names from A to L – and in the middle of Absalon (see map) for participants with last names from M to Z*. Remember to carry your badges! On Saturday, sandwiches will be served during the short break before the closing plenary.

Reception

The reception will take place on Sept 25, 7-9 pm at LUX centre – the new building that is just across the street Helgonavägen from SOL. The reception is included in your registration fee, and will include food and drink. All participants are warmly welcome!

Conference dinner

The official conference dinner will take place at **AF Borgen** ("The Student Union Castle"), on September 26, from 7 to 10 pm. The location is a 5 minute walk downhill from the conference site. It is situated on one side of the small park (Lundagård) with the iconic University House ("the white house") on the other side and Lund's Cathedral to a third side. The dinner will include a buffe with 14 different dishes, including meat, fish and vegetarian food, and 2 alcoholic or non-alcoholic beverages. In addition, there will be a multi-modal, bodily-musical performance. *The price for attending is 500 SEK, in addition to the registration fee, and can be paid until the end of the first day of the conference at the Registration desk.*

Guided tour

For those staying in Lund until Sunday, we have organized a tour lead by a professional guide, from 3:00 to 4:30 on Saturday 27. It will start with a visit to *Kulturen*, the second oldiest open-air museum in the world, with more than 30 old and interesting buildings from the southern part of Sweden. The guide will show a professor's home from the 1830s, a farmer's house from 1750s, a wooden church built in 1652 from Småland and a cottage from 1850s. Then the walk will continue to the Cathedral from the 1100-th century, the University Place and the Kings House in Lundagård from the 1580s. *The price for attending is 150 SEK, in addition to the registration fee, and can be paid until the end of the second day of the conference at Registration desk.*

4. Plenary lectures

What kind of ontology for cognitive semiotics? The quest for a science of first-person experience

Sören Brier
Copenhagen Business School

How can we integrate a first-person view with the type of knowledge on cognition produced in the natural, life and social sciences? In particular how is it possible to produce a scientific description of how language interacts with experience, social and biological behavior? Living systems seem to be the minimal requirement for having experiential cognition without a language-imbued consciousness. We have a generally accepted scientific molecular description of the dynamics of life in traditional biology, but nothing that can explain experiential cognition. Konrad Lorenz - inspired by Jacob von Uexküll's cybernetic *Umwelt Lehrer* - attempted to develop ethology as a transdisciplinary paradigm between life, social and human sciences by finding a way to integrate a causal concept of the first-person experience of animals into a biological framework of cognition. But after 30 years, he failed to integrate a causal concept of first person experience in biology.

Maturana and Varela made a new attempt of a transdisciplinary description of the dynamics of living systems and their cognition with the concept of *autopoiesis*. It was (again) based on the transdisciplinary framework of cybernetics in its modern form of second-order cybernetics (Heinz von Foerster and Gregory Bateson). But neither autopoiesis theory nor second-order cybernetics has been able to provide adequate concepts of experience, signification and social communication within their functionalistic and constructivist approaches, estranged to semiotics and phenomenology. The theory of autopoiesis was further developed by Luhmann (1984), combining biological, psychological and socio-communicative autopoietic systems into a transdisciplinary theory of social communication. What Lorenz calls the reflex level is from the biological level called "languaging" (Maturana) or the coordination of the coordination of behavior. But above this level are Lorenz' motivated instinctual interactions of experiential bodies through which sign stimuli operate. But, in spite of Luhmann's flirt with Husserl's phenomenology we are still in cybernetic and system theory's lack of phenomenological and hermeneutical aspects.

My major claim is that combining Luhmann's system theory with cognitive semiotics gives a new transdisciplinary framework, which is an alternative to "the unity of science" of positivism on one hand, and post-modernism on the other. I advocate Cybersemiotics (Brier 2013) as a multidimensional semiotic constructive realism, the point of which is that "signs as concepts and classifications arise in our embodied biological and social 'life forms'" (2006: 283). For our understanding of meaning production a concept has to have a phenomenological and emotional constitution, there is therefore no good reason "why the inner world of cognition, emotions, and volition should not be accepted as just as real as the physical world as well as our cultural world of signs and meaning (2006: 283)."

But this view is beyond "science". We therefore need to engage in the construction of a transdisciplinary framework that serves as an alternative to the idea of science stemming from positivism and physicalism. To argue this I analyze and discuss the advances and limitations of Barbieri's non-Peircean based *Code biology,* which is promoted as being scientific, with the consequence that it lacks a concept of first-person experiential qualia and meaning production and free will.

Arnoldi, J. (2010), Sense making as communication *Soziale Systeme* 16 (2010), Heft 1, S. 28-48

Brier, S. (2006). The cybersemiotic model of communication: An evolutionary model of the threshold between semiosis and informational exchange. *Semiotica*, 158(1), 255-296.

Brier, S. (2013). *Cybersemiotics: Why information is not enough*. Toronto: Toronto University Press.

Lorenz, K. (1970-71). *Studies in animal and human behaviour I and II*, Cambridge: MA. Harvard University Press.

Luhmann, N. (1984/95). *Soziale Systeme: Grundriß einer allgemeinen Theorie,* Frankfurt: Suhrkamp (English translation: *Social Systems*, Stanford: Stanford University Press, 1995).

Maturana, H & Varela, F. (1980). *Autopoiesis and Cognition: The realization of the Living*, Reidel, London.

Maturana, H & Varela, F. (1986): *Tree of knowledge: Biological Roots of Human Understanding*, Shambhala Publishers. London.

Merleau-Ponty, M. (1945/2002): *Phenomenology of Perception*. Translated by C. Smith. London: Routledge & Kegan Paul. Originally published as Phenomenologie de la Perception (Paris, Callimard, 1945, English 1962).

Peirce, C.S. (1992). *The Essential Peirce: Selected Philosophical Writings*, Volume 1 (1867-1893). (Eds.) Houser, N. and Kloesel, C., Bloomington: Indiana University Press.

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Merlin Donald
Queens University

One important objective for the study of cognitive evolution is to establish the optimal conditions for human development and thriving. The human mind and brain are uniquely adapted for living in social networks. In traditional society those networks, and their respective semiotic systems, were small enough to be manageable. However, the scale and rate of change of modern semiotic systems confront the human mind with a qualitatively new level of cognitive challenge.

The modern semiotic hierarchy has one overriding characteristic: unprecedented variety, and a deliberate lack of structure. In the 20th century, new cinematic and information technologies created the basic conditions for a semiotic revolution. In the 21th century, the expansion of the Internet into every aspect of daily life has extended that revolution to every corner of the globe. Modern civilization is rapidly distancing itself from its predecessors in its extraordinary semiotic variety, and in its insistence on a completely open and largely ungoverned network.

However, the semiotic systems of social networks have traditionally required governance. Traditional societies offered a set of very limited and closely controlled values, rituals, and customs. This imposed limits on the semiotic challenges of daily life. In contrast, modern multicultural societies tend to encourage significant individual freedom of choice, and tolerate huge differences in the values and beliefs held by its citizens. This situation tends toward semiotic dis-integration and dis-organization, with an exponential increase in richness and variety. However, even (and especially) the most liberal cultures need to guarantee their central values and customs. The proliferation of ideas and symbols has proven a serious challenge for modern liberal societies, and there have been strong reactionary movements throughout the developed world.

The irony is that modern society, with far more choices and better information than any past society, is actually regressing rather than progressing in the semiotic domain. The human brain seems unable to handle the tremendous modern house of representational cards presently available to it.

This presents semioticians, and cognitive researchers in general, with at least three major challenges: (1) Strong Externalization: Can the autonomy of the individual mind survive in the context of massive and sophisticated external

programming? (2) Anonymity and extreme individuality: How can society construct networks of trust in a semiotic environment that encourages massive manipulation and evasive narcissism? And (3) Defensive conservatism: Should the most basic needs of the social brain be placed at the top of our governance priorities, and can this be achieved without falling back on a lowest-common-denominator strategy for public debate?

The sound-symbolism bootstrapping hypothesis for language acquisition and language evolution

Mutsumi Imai
Keio University

Sound symbolism is a non-arbitrary relation between speech sounds and meanings. Recently, sound symbolism has attracted researchers' attention as it seems to be connected to various important issues central to human cognition and language, including cross-modal mappings, synesthesia, language development and evolution. In this talk, I propose the sound symbolism bootstrapping hypothesis, which claims that (1) pre-verbal infants are sensitive to sound symbolism, with a biologically endowed ability to map and integrate multi-modal input; (2) sound symbolism helps infants to gain the referential insight for speech sounds; (3) sound symbolism helps infants and toddlers associate speech sounds and their referents and to establish a lexical representation; and (4) sound symbolism helps toddlers learn words by helping them to focus on referents embedded in a complex scene, alleviating Quine's problem. I present evidence for each of these claims through a series of behavioural and neurological studies with infants, toddlers and adults conducted in my laboratory. I further explore the possibility that sound symbolism is deeply related to the origin of language, drawing the parallel between ontogeny and phylogeny of language.

From mimesis to meaning: Gestures of negative assessment, refusal, and negation

Cornelia Müller
European University Viadrina Frankfurt (Oder)

The talk addresses the emergence of meaning from manual action and the evolution of a gesture family based on a semanticization of a shared effect of the motivating actions of the hand(s): The Away Gesture Family. The work presented here, builds upon a range of linguistic, semiotic, and anthropological studies of recurrent forms and functions in co-speech gestures, all of which point out that variations in gesture forms go along with differences in meaning (Calbris 2003, 2011; Harrison 2010; Kendon 2004; Ladewig 2011, Müller 2004; Müller & Speckmann 2002; Payrató & Teßendorf in press). Discussing, in particular, Kendon's analysis of the Open Hand Prone (OHP) family and further work on "gestures of negation" (Calbris 2003, 2011; Harrison 2010; Kendon 2004), a linguistic and form-based account of a gesture family will be offered, which is not only based on shared formational features and common semantic themes, but which is additionally motivated by a shared effect of an underlying action-scheme.

I will argue that the family of Away Gestures is semantically motivated by the effect of actions of removing or keeping away of annoying or unwanted things from the body. The family has in common that something has been moved away, or something is being kept away from intrusion. Sweeping Away gestures are used to *reject* and *exclude* topics of talk, they *negate manually*. Holding Away gestures *refuse* and *stop* unwanted topics of talk. Brushing Away gestures remove and dismiss annoying topics of talk, by rapidly brushing them away from the speaker's body. They assess topics of talk *negatively.* Throwing Away gestures remove and dismiss topics of talk, by metaphorically throwing them away from the speaker's body. The clearing of the body space goes along with a qualification of the rejected objects as annoying, that is, a topic of talk is being *negatively assessed.*

The processes that motivate the transition from miming practical action to the emergence of meaningful (conventionalized) gestures are metonymy and metaphor –they are both based on schematizations of bodily actions. We will strongly argue for a refined understanding of 'embodiment' and relate that to mimesis as a root for the evolution of gestures as "visible utterances" (Kendon 2004). It will be concluded that a form based linguistic approach to the

analysis opens up a path to systematically reconstruct the embodied roots of gestural meaning.

Calbris, G. (2003). From cutting an object to a clear cut analysis. Gesture as the representation of a preconceptual schema linking concrete actions to abstract notions. *Gesture* 3(1): 19–46.

Calbris, G. (2011). *Elements of Meaning in Gesture*. Amsterdam: Benjamins.

Harrison, S. (2010). Evidence for node and scope of negation in coverbal gesture. *Gesture* 10(1): 29–51.

Kendon, A. (2004). *Gesture: Visible Action as Utterance*. Cambridge: Cambridge University Press.

Ladewig, S. H. (2011). Putting the cyclic gesture on a cognitive basis. *CogniTextes* 6.

Müller, C. (2004). Forms and uses of the PalmUpOpenHand. A case of a gesture family? In: C

Müller and R. Posner (eds.), *Semantics and Pragmatics of Everday Gestures*, 233-256. Berlin: Weidler.

Müller, C. and G. Speckmann (2002). Gestos con una valoración negativa en la conversación cubana. *DeSignis* 3: 91–103.

Payrató L. and S. Teßendorf (in press). Pragmatic gestures. In: C. Müller et al. (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction* (38.2.). Berlin/ Boston: De Gruyter Mouton.

Streeck, J. (2009). *Gesturecraft. The Manufacture of Meaning*. Amsterdam: Benjamins.

Streeck, J. (2013) Praxeology of gesture. In: C. Müller, et al. (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction.* (Handbooks of Linguistics and Communication Science 38.1.), 674–688. Berlin/Boston: De Gruyter Mouton.

Meaning, consciousness, and the onset of language

Lorraine McCune
Rutgers, The State University of New Jersey

Children's capacity for conscious experience begins with a limitation to perceptual reality. In order to develop the semiotic resources for language, they must become representational. That is, they must develop a representational ability that includes true symbols, such that the signifier is differentiated from the signified and the symbols (words) can be combined in a grammar. Piagetian theory regarding symbolic development (Piaget, 1962) emphasizes the role of play in the child's representational development, while Werner and Kaplan (1963) provided a compatible detailed representational account of the transition from pre-linguistic communication to the expression of meaning in sentences. This dual theoretical background, allows analysis of the child's path from pre-language to the production of grammatical combinations from the perspective of consciousness and meaning. McCune (2008) integrates these two representational theories as a backdrop for empirical investigation that identified essential representational, communicative, and vocal production resources that, together, interacting in a dynamic system, allow these advanced achievements (Thelen, 1989; Thelen & Smith, 1994). The presentation provides the theoretical background and data demonstrating the prediction of the transition to referential language in individual children.

McCune, L. (2008) *How children learn to learn language.* New York, Oxford University Press.

Piaget, J. (1962). *Play, dreams and imitation in childhood.* New York: Norton.

Thelen. (1989). Self-organization in developmental processes: Can systems approaches work? In M. R. Gunnar & E. Thelen (Eds.), *The Minnesota symposia on child psychology: voume 22. Systems and development* (Vol. 22, pp. 77-117). Hillsdale, NJ: Lawrence Erlbaum Associates.

Thelen, E., & Smith, L. (1994). *A dynamic systems approach to the development of cognition and action.* Cambridge, MA: MIT Press.

Werner, H., & Kaplan, B. (1963/1984). *Symbol formation.* New York: Wiley.

Aping mankind: Neuromania and Darwinitis and the misrepresentation of mankind

Raymond Tallis
University of Manchester

Increasingly, it is assumed that human beings are best understood in biological terms; that, notwithstanding the apparent differences between humans and their nearest animal kin, people are, at bottom, organisms; that individual persons are their brains, and that societies are best understood as collections of brains ("Neuromania"); and that we should look to evolutionary theory to understand what we are now ("Darwinitis"); that our biological roots explain our cultural leaves. I will argue that we are not just our brains; rather we belong to a community of minds that has grown up over the hundreds of thousands of years since we parted company from the other primates. The gap between our nearest animal kin and ourselves is too wide to read across from the one to the other.

5. Theme sessions

Theme session I. Semiotics in science, technology and mathematics

One of the application domains of semiotics that will undoubtedly gain importance in the near future is science, technology and mathematics (STEM) education research and design. A shift in the conception of higher education already occurred in the 1980-ies with constructivist learning theories. Whereas this shift was at first aligned with the growing influence of cognitive science, more recent studies stress the role of *representational forms* and *situated and embodied aspects* of *disciplinary discourse* for science learning. This secondary shift should make semiotics – and in particular *cognitive semiotics* – highly relevant for STEM education research (and educational semiotics in general, cf. Tochon 2013).

Recent approaches to *educational semiotics* (Semetsky 2010), however, tend to focus on the role of semiotics within a *general philosophy of education*. Although there are alternatives based in pragmatic and sociocultural traditions – going back to John Dewey and Lev Vygotsky – which could be co-articulated with semiotics (Mortimer & Scott 2003; Roth 2013), this session will in contrast focus on the potential relevance of key concepts in cognitive semiotics such as *cognitive artefacts*, *representational forms* and *image schemata* in addressing *specific didactic problems* associated with *learning and conceptual understanding in physics, mathematics, and chemistry.* Many challenges of STEM education today seem to be related to deficient competencies in mathematics, to problems of graph and model comprehension in the sciences, or to problems of *scientific literacy* in multidisciplinary domains, where students are confronted with a multitude of representational forms and instrument techniques.

In the papers of this session we will approach issues of representational forms in STEM education through a number of exploratory studies. We will not present any pre-establish conception of semiotics or present definitive answers. STEM research should not focus entirely on pedagogical issues, but should move into the domain of the discursive forms of knowledge as expressed in *multiple forms of representation* characterized by *different affordances for learning and understanding*. In accordance with the focus of recent philosophy of science on the role of distributed cognition and external representations in scientific practice (Giere 2006; Humphreys & Imbert 2012), we need a semiotics of science (including an educational semiotics) to address questions about scientific literacy, the affordances and constraints of different representational forms and modeling systems in science, the dialogical nature

of collaborative inquiry and experimentation, and the multiple perspectives imposed on disciplinary knowledge by different discursive and material cultures of scientific practice.

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Roth, W.-M. (2013): *On Meaning and Mental Representation. A Pragmatic Approach*. Sense publishers.
Semetsky, I. (Ed) (2010): *Semiotics Education Experience*. Sense publishers.
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The interplay between dialogue, cognitive schemata and kinesthetic learning: Bodily explorations of force related concepts in physics

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We ask how students use communicative signs (e.g., speech and gesture) to shape and develop cognitive schemata during a bodily exploration of force and motion in a physics teaching-learning activity. We refer to this interplay between dialogue, cognition, and bodily exploration as kinesthetic learning. In essence we ask: to an outside observer (e.g. a teacher), what signs exist that students derive formally correct meaning and understanding from kinesthetic learning?

Learning kinesthetically in this manner means to integrate a bodily experience into a formal system of signs, here associated with force and motion in physics. We analyse this relationships in terms of image schemata (Lakoff & Johnson, 1980; Johnson, 1987, Lakoff, 1993) and consider kinesthetic experiences combined with dialogue as a way to facilitate the development of abstract/analytical concepts. Roth & Lawless (2002) has considered this idea in terms of gestures, while the teaching-learning activity employed in this study used kinesthetic exercises (Author, 2009) to develop concepts from image schemata.

Bodily experiences' link to image schemata may be at the root of a number of understandings of science concepts that are inconsistent with formal science. A classic example is when students think constant force equates to constant velocity, when constant force actually equates constant acceleration. Such a conception might be rooted in faulty application of an effort-resistance-flow image schema (Author, 2011). Some suggest that these types of non-formal conceptions can be corrected analytically (cf. Brown 1992). However, research documents a gap between analytical understandings and everyday bodily experiences (cf. diSessa, 1993).

A kinesthetically grounded perspective suggests that designing activities for teaching and learning physical concepts, such as force and motion, through bodily experience is likely to bridge the gap between everyday and analytical understandings.

To warrant that claim, we have analysed video and audio recordings of teaching involving two kinesthetic models of linear and circular motion. The focus of the lesson was to have pupils describe their experiences with their own words

and subsequently make and test predictions. The lesson was taught to joint classes of approximately 60-70 pupils on 4 different occasions.

In the complex interaction between students doing kinesthetic activities, seemingly playful activities are actually a combination of play and testing ideas. We find it to be crucial that the teacher recognises this duality to actively facilitate the integration of communicative signs into formal systems of signs associated with force and motion.

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Lakoff, G., & Johnson, M. (1980). *The metaphors we live by.* The University of Chicago Press.

Lakoff, G. (1993). The contemporary theory of metaphor. *Metaphor and thought, 2* , 202–251.

Johnson, M. (1987). *The body in the mind - the bodily basis of meaning, imagination, and reason.* The University of Chicago Press.

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The anatomy of disciplinary discernment – An argument for a spiral trajectory of learning in physics education

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Uppsala University

Traditionally, physics has been viewed as a difficult subject to master. The movement from everyday conceptions of the world around us to a disciplinary interpretation is fraught with problems. What characterises this disciplinary development from learner to expert? In this presentation we report on a study involving what students and professors discern from a disciplinary representation and use this to propose an Anatomy of Disciplinary Discernment (ADD) as an overarching characterization of disciplinary learning. To do this we bring together three important educational ideas – first, Bruner's (1960) notion of the spiral curriculum. Second, Fredlund, Airey, and Linder's (2012) notion of disciplinary affordances -- the 'inherent potential of a representation to provide access to disciplinary knowledge'. Thirdly Eriksson, Linder, Airey, and Redfors' (2013) notion of disciplinary discernment -- noticing something (eg. Mason, 2002), reflecting on it (Schön, 1983), and constructing (disciplinary) meaning (Marton & Booth, 1997).

Students in astronomy and their teaching professors were asked to describe what they discerned from a simulation video of travel through our galaxy and beyond. In all, 137 people from nine countries participated. The descriptions were analysed using a standard interpretive study approach (Erickson, 1986; Gallagher, 1991). This resulted in the formulation of five qualitatively different categories of discernment.

We found that these categories of disciplinary discernment could be arranged into an anatomy of hierarchically increasing levels of disciplinary discernment and subsequently the idea of ADD with a unit of analysis being the discernment of disciplinary affordance. The ADD modelling for the data incorporated four increasing levels disciplinary discernment: Identification, Explanation, Appreciation, and Evaluation. The visualization of the analysis demonstrates a clear relationship between educational level and the level of disciplinary discernment. Hence, the ADD can be seen to be related to Bruner's concept of the spiral curriculum idea and through this relationship projects a

learning trajectory that students experience while moving through the educational system.

The analytic outcomes of the study suggest how teachers may gain insight into how to create more effective learning environments for students to successfully negotiate a required learning trajectory by explicitly crafting the teaching to support the crossing of boundaries.

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Variation as a method for perceiving the disciplinary affordances of physics representations

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The sharing of knowledge in physics uses representations that the discipline has built a great deal of information into. In many cases, much of this information is not immediately visible because it has been "packed" in ways that can only be accessed by specific disciplinary ways of seeing. For example, consider the de Sitter space represented by a particular hyperboloid.

This is a powerful representation for physicists working in the field of string theory because, inter alia, it can provide de Sitter space with a multiplicity of coordinate systems (Domert, 2006, p. 30). At the same time such a representation can present challenges to student learning; students would have to learn to "see" what "lies behind" the representation. In this case, for example, how R is related to the concept of a de Sitter horizon.

While for physicists such a representation might evoke a rich awareness (or perhaps rather help constraining that awareness, cf. Ainsworth, 2006), it conceivably evokes little appropriate disciplinary meaning when first met by students. Northedge (2002) argues that physics teachers may not be aware that what they have learnt to "see" is not directly accessible to learners. That is, while physicists have developed a competency that allows them to immediately see the "disciplinary affordances" of a representation ("the inherent potential of that representation to provide access to disciplinary knowledge", Fredlund, Airey, & Linder, 2012, p. 658) they fail to recognize that their students may not, or even cannot, see what lies behind that representation.

Much research has shown that students often learn surprisingly little from traditional teaching resources such as talk-and-chalk followed by problem solving (Redish, 2003). To deal with this challenge several research-informed resources have been developed and empirically shown to enhance students' learning outcomes. Widely used examples include Tutorials (McDermott & Shaffer, 2002), Active Learning (Van Heuvelen & Etkina, 2006) and Peer Instruction (Crouch & Mazur, 2001). However, these resources have not been accompanied with a theoretical framing that would enable physics teachers to develop their own teaching resources. We believe that such a theoretical framing exists: creating the explicit experience of dimensions of variation (Marton & Booth, 1997).

In this presentation we develop this argument and illustrate it using examples of how representations can be varied in ways that facilitate the noticing of educationally critical aspects.

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Fredlund, T., Airey, J., & Linder, C. (2012). Exploring the role of physics representations: an illustrative example from students sharing knowledge about refraction. *Eur. J. Phys., 33*, 657-666.

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Material tools and meaning formation in mathematics

Mikkel Willum Johansen and Morten Misfeldt
University of Copenhagen

In this talk we will present some of the main results of an empirical investigation of the practice of working mathematicians. The investigation shows that working mathematicians rely heavily on cognitive tools, such as computers and various types of external representations. The tools are used for several different purposes and different tools are used at different stages of the working process. In our talk we will focus on the use of external representations such as symbols, figures and diagrams, and we will explain the role played by such representations in the cognitive practice of working mathematicians. The use and purpose of external representations has been discussed heavily in the literature (see e.g. Allwein, G. & Barwise (1996), Kirsh (2010), Giaquinto (2007, 2011), De Cruz & De Smedt (2013), Johansen (2013)). However, our investigation of the actual practice of working mathematicians has revealed several new aspects. For this presentation we will especially focus on how mathematicians use external representations as a way to familiarize themselves with, or ascribe meaning to the mathematical objects they are working with, and how this process plays an important role in the heuristic treatment of mathematical problems.

Image schematic interpretations as a source of confusion in student's graph and model comprehension in physical chemistry

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Early educational studies in mathematics indicated that graph prototypes and mental imagery can misguide conceptual understanding (Leinhardt, Zaslavsky & Stein 1990; Tall & Bakar 1992; Aspinwall, Shaw & Presmeg 1997), and studies of conceptual understanding in chemistry education focussed on misconceptions (Gilbert et.al. 2002). We might however be sceptical with regard to the stability of misconceptions: they might not take the form of fixed preconceptions, but could result from improvised meaning-making in student's attempts to make sense of e.g. textbook analogies, in-class metaphorical language, and embodied lab experiences. Recent studies in learning of classical mechanics and quantum mechanics (Brookes & Etkina 2009, 2007) highlights the role of analogies and metaphors as a "language problem" for students, or rather as a problem of scientific literacy in handling the disciplinary discourse of physics: when students struggle to make sense of concepts like force and energy, they will have to interpret and disambiguate metaphors and grammatical constructions (e.g. force as agent, force as property etc.) in physics discourse.

The present study will discuss the possible role of misapplications of image schemata in student's misinterpretation of a key model in physical chemistry: the activation energy barrier as applied in chemical reaction kinetics and in explanations of the action of enzymes. Classroom observations and conceptual tests indicate that some students do not understand why catalysed reactions happen, if enzymes only lower the activation energy barrier rather than remove it completely. This might be a misapplication of a force dynamics schema (Talmy 2000; Fuchs et. al. 2011) in the interpretation (in natural language) of the graph representation of the concept, i.e. conceptualizing the "barrier" as physically blocking chemical reactions. The relation of cognitive semantics to Peircian semiotics and forms of iconicity in this context has been described in (May 2014). In interdisciplinary domains such as biochemistry students are confronted with a multitude of unfamiliar representations: images derived from measurements, visualization of molecular models, and explanatory graphs of chemical reactions. This raises literacy issues for students that we need to explore (Schönborn & Anderson 2006), and cognitive semiotics should play a key role in these types of investigations.

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May, M. (2014): *Semiotics and Didactics of Graph and Model Comprehension in Enzyme Kinetics*. The Charles S. Peirce International Centennial Congress, Lowell University 2014.

Leinhardt, Zaslavsky & Stein (1990): Functions, Graphs, and Graphing. *Review of Educational Research, 60*, 1-6.

Schönborn, K. J. & Anderson, T.R. (2006): The importance of visual literacy in the education of biochemists. *Biochemistry and Molecular Biology Education, 34*(2), 94–102. Wiley.

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Theme Session II. The origins and evolution of language: A close link to action

In the last few decades, research from different disciplines (e.g., neuroscience, philosophy, linguistics, artificial intelligence) has converged in suggesting that the mind is shaped by the body, and that cognitive processes are rooted in body's physical interactions with the environment (e.g. Barsalou 2008; Clark,1997; Varela et al. 1991; Wilson 2002). This "embodied" account of cognition has challenged the traditional view of cognitive science, according to which the mind is an abstract information processing device. A widespread assumption in the traditional perspective is that 'low level' or sensorimotor processes, like action and perception, are separated from 'high level' or cognitive processes, like language and thought. Putting into question this separation, the viewpoint of embodiment has crucially contributed to re-define what language and cognition are. In particular, the idea that language is grounded in sensorimotor processes (e.g. Glenberg & Gallese 2012; Jacob 2013) has a huge impact on theories of the origins and evolution of language (e.g. Corballis 2010; Rizzolatti & Arbib 1998; Zlatev 2008). The goal of this theme session is to explore these implications and, more specifically, to investigate how language may have originated from action.

Our proposal is based on two key preliminary assumptions. The first one is a methodological claim. The idea that the embodied approach can shed light on the origins and evolution of language relies on the statement that this topic can be investigated by analyzing the actual linguistic processes of comprehension and production (Ferretti 2013; Ferretti & Cosentino 2013). In the same vein, evolutionary considerations have to be evaluated in the perspective of experimental psychology. The second assumption has to do with the connection between language and action in evolutionary terms. This connection can be articulated along two equally viable dimensions, namely the analysis of the link between linguistic processes and concrete actions undertaken by individuals in their environment, and the study of the relation between language processing and action representation (i.e., simulation) in the brain. In both cases, the reference to action involves a specific switch in the focus of attention when it comes to explaining language origins and evolution: from grammar to pragmatics. More specifically, language recruited action network to foster communication by means of action-based pragmatic

processes, which set the stage for the emergence of articulate grammatical language.

Bringing together scholars from philosophy, cognitive archeology and cognitive semiotics, this theme session aims at encouraging an interdisciplinary exchange of ideas on the relation between language and action from an evolutionary perspective. What's more, it promises to provide a springboard for future fruitful collaborations between people adopting complementary approaches to the study of the origins and evolution of language.

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Corballis, M. C. (2010). Mirror neurons and the evolution of language. *Brain and language*, *112*(1), 25-35.

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Zlatev, J. (2008). From proto-mimesis to language: Evidence from primatology and social neuroscience. *Journal of Physiology, Paris, 102*, 137-151.

From conversation to language: An evolutionary embodied account

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Human beings are capable of detaching from the present and projecting back to the past (episodic memory) and forward to the future (prospection). As these mental journeys in time involve the re-experiencing of past events or pre-experiencing of future scenarios, it has been argued that mental time travel requires a form of simulation of an alternative temporal scenario and is rooted in humans' sensori-motor experience of their physical environment (Buckner & Carroll 2007; Cosentino & Ferretti 2013). The aim of our contribution is to show that this ability for mental time travel was crucially involved in the origin and evolution of language. First, we will show that mental time travel contributes to carry out a key pragmatic function, namely the alignment between speaker and listener at different levels. In our perspective, interlocutors are aligned when they get to share similar representations of the topic under discussion in order to achieve successful communication (Garrod & Pickering 2009). Second, we will argue that more complex alignment strategies fostered linguistic communication triggering shifts from motivated signs to conventional language. By emphasizing the temporal alignment between speaker and listener, we suggest that the origin and evolution of language has to be interpreted in terms of proto-conversation.

Buckner R.L. & Carroll D.C. (2007) Self-projection and the brain,. *Trends in Cognitive Science 11*: 49–57.

Cosentino E. & Ferretti F. (2013) Communication as navigation: A new role for consciousness in language, *Topoi*, DOI: 10.1007/s11245-013-9166-y.

Garrod S. & Pickering M.J. (2009) Joint action, interactive alignment, and dialogue, *Topics in Cognitive Science 1*: 292-304.

Embodiment, navigation and the proto-discursive origins of language

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The idea that the phrase is the essence of human language is a conceptual hypothesis that has been strongly supported in the XX century. Within cognitive sciences this idea has been adopted by the fathers of orthodox position. For example, according to Fodor (1975, 2008), the predicative structure of sentence reflects the propositional structure of Language of Thought, and according to Chomsky (e.g. 1980, 1986) the devices at the foundation of the language faculty are those that elaborate the constituent structure of sentences. In this talk we maintain that the idea that the phrase is the essential constituent of language is strictly tied to the neo-Cartesian paradigm (see Chomsky 1966).

The neo-Cartesian tradition, which still characterizes a large part of the cognitive sciences (e.g., Jackendoff 1994; Pinker 1994), has been strongly criticized by the so-called "embodied perspectives" (e.g. Barsalou 2008; Clark 1997; Varela et al. 1991). In this perspective, we call into question the neo-Cartesian approach by assuming a grounded and situated conception of the mind and maintaining that language origin and functioning have to be analyzed in reference to the human (pragmatic) capacity to build coherent discourses rather than to the syntactical well-formed sentences. For what concerns the cognitive architecture, we claim that the devices governing the construction of the coherent flux of discourse are strictly connected with the systems of spatial and temporal navigation (Ferretti et al. 2013; Ferretti and Adornetti 2011; Cosentino and Ferretti 2014). Even though this claim may appear counterintuitive, the study of language origins has to put aside the 'from simple to complex model' (e.g. Bickerton 1990) and adopt instead a holistic perspective according to which at the foundation of the human communicative capacities there is a form of protodiscourse, which comes before the capacity of forming sentences.

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Past actions, past language – what does archaeology say?

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The study of language prehistory in the light of embodiment, with a close link between language and action, entails the study of actions in prehistory. This is methodologically tricky, as actions fossilize no more than languages do. Prehistoric actions must be inferred indirectly from preserved artefacts or behavioral traces.

In this presentation, I will review and evaluate some ideas and methods for inferring both actions and cognitive/linguistic capacities from archaeological observables.

The most straightforward handle on prehistoric actions is preserved artefacts. An artefact can be informative both of the actions involved in its manufacture, and in its use. Modern re-creations of the actions in tool manufacture can be highly informative (e.g. Stout et al. 2011). Use actions can be inferred in the case of highly specialized tools, where the tool determines the action (e.g. Soressi et al. 2013), but not for general-purpose tools such as Acheulean handaxes, unless they bear specific use-wear traces.

Information about diet in prehistory, through e.g. animal bones, tooth-wear patterns, or isotope patterns, can provide information about actions needed to obtain that diet. But whether e.g. hunting can be inferred from meat-eating remains contentious.

Hunting is an example of the complex action sequences with long-range displacement in time and space, that ought to be relevant for the origins of complex grammatical language. Otherwise, most such action complexes occur in the social arena. But prehistoric social actions are even more difficult to assess than actions involving durable tools (Johansson, in press). Some information can be had from

group structure and mating system (e.g. Lalueza-Fox et al. 2011), but only on a rather general level.

Traces of symbolic behaviour, involving e.g. ornaments or pigments, are highly valuable for inferring social actions, and are sometimes used directly to infer the presence of language (e.g. Henshilwood & Dubreuil 2009).

Camps & Uriagereka (2006) and Cole (2011, 2012) both attempt to link past actions directly to language-relevant cognitive capacities, but in totally different ways. Camps et al. note that knot theory is mathematically equivalent to the computations underlying minimalist syntax, and infer language abilities from knot-tying abilities, an somewhat dubious inference (Lobina 2012). Cole instead proposes what he calls the "Identity Model", in which he connects levels of intentionality with action patterns. Cole's approach appears quite promising, given the relevance of intentionality levels for complex language.

In summary, tools exist to infer some past actions. But restraint in interpretation is prudent.

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Orofacial gestures and the problem of 'modality transition' in gesture-first theories of language origins

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The topic of signaling in the visual as compared to vocal/auditory modality has grown to central importance in modern studies into language origins. As is widely acknowledged (e.g. Kendon 2004, Burling 2005, MacNeilage 2008, Fitch 2010, Tallerman 2011), the fundamental problem with gesture-first theories (and broadly, visual modality theories) concerns the change of modality, i.e. explaining the predominantly spoken nature of today's languages, given the putative origins of language in a mostly visual communicative system. In this paper, the "modality-change" problem is addressed with respect to a distinct – orofacial – class of gestures.

In our presentation, we summarise evidence bearing on the communicative role and possible evolutionary impact of orofacial gestures, supplementing it with another candidate mechanism. The idea of importance of orofacial gestures to language origins has figured in numerous accounts, starting with the early speculation of Paget (see Fitch 2010, Kendon 2011), but then shared by such major proponents of gesture-first theories as Hewes (e.g. 1996), Corballis (e.g. 2002), and Arbib (e.g. 2005), and recently by e.g. Studdert-Kennedy (2005) or Meguedritchien et al. (2011). In the spirit of Cognitive Semiotics, we review evidence from very broad range of disciplines; we put emphasis on very recent findings, such as the degree of volunary control of the orofacial area in apes (e.g. Leavens et al., in press), or differential manual-orofacial links for precision and power grip (Vainio et al. 2014). We conclude by developing a novel approach to the latter issue, drawing attention to the phenomenon of auditory feedback in speech production: we suggest that the reason for adding sound to the originally 'silent' orofacial gestures might have been to benefit not only the receiver, but also the producer, who could use the auditory feedback to better distinguish between the inventory of produced gestures.

Sound symbolism as evidence for mimetic origins of language

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According to the bodily mimesis hypothesis, language evolved from bodily mimesis – which, itself, evolved from the control of action in the context of Homo erectus culture (Donald 1991, 2001; Zlatev 2002, 2005, 2007, 2008). To the other types of evidence supporting this theory, adduced in the past, this presentation focuses on sound symbolism, the non-arbitrary mapping between the sound patterns and meanings of simple expressions.

After a long period in the 20th century when the phenomenon was either denied or marginalized in linguistics and arbitrariness was extolled as a "design feature" (Hockett 1960), recent studies using the methods of synchronic and diachronic linguistic typology (e.g. Johansson and Zlatev 2013), often in combination with psychological experimentation (e.g. Ahlner and Zlatev 2010) have seriously questioned the "Sausserean dogma" that the linguistic sign is arbitrary, in the sense of non-motivated. In particular, they have shown that sound symbolism is (a) pervasive within and across languages, to the extent sound symbolism should be considered a universal feature of language and (b) it is psychologically functional, especially in the context of language learning.

In my presentation, I review evidence supporting these claims, and conclude that this has important implications for re-conceptualizing the transition from bodily mimesis to speech – as both gradual and partial – unlike the common metaphor of a "switch" from gesture to vocalization.

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6.   General session

Beyond the mirror, into the world: Probing the Mirror System Hypothesis

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The Mirror System Hypothesis of Arbib (2012) states that language is evolutionarily grounded in the mirror neuron system via a gestural form of protolanguage. Such protolanguage starts from gestures for manual actions (what could be called enactive gestures) to gestures that mime other effectors and objects by "projecting their degrees of freedom" onto hand movements (representational gestures), and finally, progressing to proto-speech and language proper. It is also claimed that a cognitive mechanism for complex imitation is a necessary condition for communicative pantomime to emerge and that an expansion of the mirror neuron system underlies the changes in the forms of pantomime.

In my talk I wish to point out two problems with the evolutionary transition envisioned by the MSH. First, it does not sit well with evidence that children show a developmental progression from understanding and producing representational gestures (e.g. pretending that the fingers are a comb) to enactive gestures (e.g. pretending to hold a comb). While obviously ontogeny does not necessarily recapitulate phylogeny, the evidence is at least suggestive of the fact that enactive gestures are not cognitively straightforward (O'Reilly, 1995). Second, it remains unclear how exactly the mirror neuron system that is associated with actions could possibly enable gestures that represent motionless objects.

I will suggest that the MSH type of transition stems from a strong focus on mirror neurons and a goal-based view on the nature of complex imitation. I will then present an alternative account that allows representational gestures to emerge before or at the same time as enactive gestures. Such an account shifts the focus to the role of object affordances in both types of gestures and adopts an associative theory of complex imitation, in which the replication of novel actions is driven by attention to the transformation of the environment rather than attention to particular manual movements (Catmur, Walsh, & Heyes, 2009).

I conclude that regardless of whether the alternative scenario is the one closest to what happened in language evolution, considering the affordance-based view on how gestures represent is a fruitful exercise that can further our understanding of semiotic processes, communication and iconicity.

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Word finding, word production and gesturing

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What is the relation between words and co-speech gestures? Both words and gestures are dynamic and have many features. The study of word finding problems in persons with aphasia (PWA) has focused on if "compensation" for linguistic problems, e.g. word finding difficulties, using gestures is possible and has been connected to different theoretical assumptions about how words and gestures (mainly iconic or illustrating gestures) are related.

The following are different features of words and gestures that need to be considered in the analysis of gestures related to word finding problems:. 1) the basic Peircean sign types of symbol, index and icon (or combinations of them), 2) degree of conscious control, 3) the relation between the spoken context (and the assumed target word or target phrase) and the gesture, as well as the relation between the gesture and the communicative and non-communication actions with which it cooccurs, and 4) the situatedness of the gesture in a specific environment and/or social activity. Additional features of interest can be temporal phases, spatial types and types of elements of gestures and the coordination and alignment of gestures between speakers in the process of co-constructing meaning.

In order to find out whether the use of co-speech gestures by persons with aphasia is radically affected by the aphasia, gestures produced by persons with and without aphasia in similar contexts were compared. The study analyzed (i) 100 co-speech gestures accompanying nouns and verbs and 100 gestures specifically accompanying word finding problems, produced by persons with aphasia and (ii) a reference database of the same size and type produced by persons without aphasia.

Examples of findings are that some PWA gesture more, others less than persons without aphasi - depending on many factors, e.g. spontaneous use of pantomime. Based on the results, we can claim that PWA use gestures with the same basic features as persons without aphasia. Only a few clear differences between the groups are found, such as more gaze aversion, fewer bimanual gestures, and more object related gestures in PWA. Further discussion concerns how the complexity of gestures should be estimated and compared, the importance of mutual eye-gaze for co-construction of meaning, the "primacy" of gestures related to actions versus objects and how it relates to word finding. An example of how features interact will be presented.

That's funny! The humorous effect of misappropriating disciplinary-specific semiotic resources

John Airey and Maria Berge

Uppsala University

The socialization of disciplinary outsiders into an academic discipline has been described both in terms of becoming fluent in a disciplinary discourse (Airey, 2009; Airey & Linder, 2009; Northedge, 2002) and achieving disciplinary literacy (Airey, 2011, 2013; Geisler, 1994). In this paper we investigate disciplinary boundaries by documenting the responses of academics to a semiotic disciplinary hybrid. The hybrid we use is the Physikalisches Lied, a bogus piece of sheet music into which disciplinary-specific semiotic resources from the realm of physics have been incorporated to humorous effect.

The piece is presented to three distinct disciplinary focus groups: physicists, musicians and a group of academics who have had little contact with either discipline. In order to elicit disciplinary responses that are free from researcher prompts, each focus group is first asked the simple, open-ended question What do you see here? Once discussion of this question is exhausted the focus groups are asked to identify as many puns as they can—essentially all the disciplinary items that they feel have been misappropriated—and to attempt to explain what this means from a disciplinary standpoint. The differences in the responses of the three groups are presented and analysed.

We argue that semiotic material focused on by each of the three groups and the nature of the explanation offered, provide evidence of the degree of integration into the disciplines of physics and music. Our findings shed light on the process of becoming a disciplinary insider and the semiotic work involved in this process.

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What do you see here? Using a semiotic analysis of the Hertzsprung-Russell diagram in astronomy to create a survey of disciplinary discernment.

John Airey and Urban Eriksson
Uppsala University

Becoming part of a discipline involves learning to interpret and use a range of disciplinary-specific semiotic resources. These resources have been developed and assigned particular specialist meanings over time. Nowhere is this truer than in the sciences, where it is the norm that disciplinary-specific representations have been introduced and then refined by a number of different actors in order to reconcile them with subsequent empirical and theoretical advances. As a consequence, many of the semiotic resources used in the sciences today still retain some (potentially confusing) traces of their historical roots. However, it has been repeatedly shown that university lecturers underestimate the challenges such disciplinary specific semiotic resources may present to undergraduates (Northedge, 2002; Tobias, 1986).

In this paper we analyse one such disciplinary-specific semiotic resource from the field of Astronomy—the Hertzsprung-Russell diagram. First, we audit the potential of this semiotic resource to provide access to disciplinary knowledge— what Fredlund et al (2012) have termed its disciplinary affordances. Our analysis includes consideration of the use of scales, labels, symbols, sizes and colour. We show how, for historical reasons, the use of these aspects in the resource may differ from what might be expected by a newcomer to the discipline. Using the results of our analysis we then created an online questionnaire to probe what is discerned (Eriksson, Linder, Airey, & Redfors, in press) with respect to each of these aspects by astronomers and physicists ranging from first year undergraduates to university professors.

Our findings suggest that some of the issues we highlight in our analysis may, in fact, be contributors to the alternative conceptions of undergraduate students and we therefore propose that lecturers pay particular attention to the disambiguation of these features for their students.

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On the disciplinary affordances of semiotic resources

John Airey, Urban Eriksson, Tobias Fredlund and Cedric Linder

Uppsala University

In the late 70's Gibson (1979) introduced the concept of affordance. Initially framed around the needs of an organism in its environment, over the years the term has been appropriated and debated at length by a number of researchers in various fields. Most famous, perhaps is the disagreement between Gibson and Norman (1988) about whether affordances are inherent properties of objects or are only present when they are perceived by an organism. More recently, affordance has been drawn on in the educational arena, particularly with respect to multimodality (see Linder (2013) for a recent example). Here, Kress et al. (2001) have claimed that different modes have different specialized affordances. Then, building on this idea, Airey and Linder (2009) have suggested that there is a critical constellation of semiotic resources that students need to achieve fluency in before they can experience a concept in an appropriate disciplinary manner.

In this theoretical paper the concept of disciplinary affordance (Fredlund et al., 2012) is suggested as a useful analytical tool for use in education. The concept makes a radical break with the views of both Gibson and Norman in that rather than focusing on the discernment of one individual, it refers to the disciplinary community as a whole. Put simply, the disciplinary affordances of a given semiotic resource are determined by those functions that the resource is expected to fulfil by the disciplinary community. Disciplinary affordances have thus been negotiated and developed within the discipline over time. As such, the question of whether these affordances are inherent or discerned becomes moot. Rather, from an educational perspective the issue is whether the meaning that a semiotic resource affords to an individual matches the disciplinary affordance assigned by the community. The power of the term for educational work is that learning can now be framed as coming to discern the disciplinary affordances of semiotic resources.

In this paper we will briefly discuss the history of the term affordance, define the term disciplinary affordance and illustrate its usefulness in a number of educational settings

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Multimodal constructions in children: Is the headshake part of language?

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This study deals with the (meta-)theoretical question of whether gesture can be said to be part of language or not. Six Swedish children's use of the headshake was analyzed on the basis of longitudinal recordings, each child recorded on average once a month from 18 to 30 months as they interact with their parents at home. All children used headshakes more often with speech than without. When the children used it with speech, they tended to do so in strikingly restricted ways as if the headshake constituted an integral component of various recurrent (across observations at different months) multimodal expressions. Some of the patterns found were specific to individuals, and some were found across individuals: highlighting both individual and collective aspects of linguistic patterning. Importantly, there was a developmental progression from rote-learned coordination with speech to increasingly more flexible and productive coordination with speech.

To deal with these observations, I introduce the concept of multimodal constructions, as an extension of usage-based approaches to language learning and construction grammar to incorporate the kinetic domain as well, although these theories are otherwise typically applied only to development of language (e.g. Tomasello 2003). The concept of "constructions", as employed in these theories, has the benefit that it allows for a continuum from the holistic (lexical, rote-learned and formulaic) pole of linguistic structure to the analytic (structural, grammatical) pole, rather than a sharp divide between the two. The findings on how headshakes are coordinated with speech aligns perfectly with what usage-based theories of language learning would predict, if extended to include the kinetic domain.

Overall, I suggest that some of the conventionalized gestures that are frequently coordinated with speech, including the headshake, can be considered part of language, also in the traditional sense of language as a conventionalized system. In line with Langacker (2008: 251) I argue that for gestures that are both (a) conventionalized in a speech community and (b) bearing a systematic relation to the expressions it occurs in, "exclusion from 'the language' would be arbitrary". The argumentation goes partly against McNeill's (2005) view on "co-speech gesture", which emphasize mainly the dynamic (improvised and non-conventional) aspect of gestures that are coordinated with speech. My aim is not to deny that many "co-speech gesture" have a dynamic and improvised quality, as McNeill

suggests, but rather to open up for a disussion on how this is not the whole story (cf. Kendon 2008).

The emergence of multimodal metaphors in political debates: a comparative analysis

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In this work, we aim to analyze the emergence of multimodal metaphors in online face-to-face interactions that belong to the "Political-electoral debate" discursive genre, taking into consideration three variables: verbal, prosodic – that belongs to the auditory modality –, and gestural – that belongs to the visual modality. We assume the hypothesis that that the more entrenched in our conceptual system the metaphoric expression is, the more difficult it is to recognize it as metaphoric. On the other hand, the less entrenched in our conceptual system the metaphoric expression is, the easier it is to recognize it as a metaphoric expression. Moreover, we hypothesized that the emergence of less entrenched metaphors works as a compression mechanism for the argumentation developed in the speech turn (Lakoff & Johnson 1980; Grady, Oakley & Coulson 1999). In order to demonstrate the emergence of the metaphors in the modalities quoted above, as well as the relation among them, we have selected scenes from two second tour debate of the Brazilian presidential elections, broadcasted by Record, a Brazilian TV channel. In order to perform our analyses, we chose the Cognitive Semiotics Model proposed by Brandt (2004) that establishes architecture of spaces projected by the subjects in their interactions, which makes the cognitive processing of blends possible. We intend to perform a comparative analysis of the emergence of multimodal metaphors in the discourse of the candidates that participated in the debates, specifically observing the multimodal metaphoricity in speech and gesture compounds (Müller & Cienki, 2009), the emergence of prosody as a body-based feature (Auchlin 2013), the pragmatic use of gesture families (Kendon 2004) and the compression in argumentation (Hougaard 2008). Partial results confirmed our initial hypotheses that the more conventionalized the metaphors are, the more difficult it is to recognize the metaphoric nature of the expressions. On the other hand, the less conventional the metaphors are, the easier it is to recognize the metaphoric nature of the expressions, and, consequently, more gestural and prosodic resources are used for driving the

attention of the listener to what is being said or depicted by the gestures. After performing all the analyses, we intend to demonstrate how the verbal, prosodic and gestural features can interact in order to generate multimodal metaphors that can be more or less intentional, depending on the contextual environment of their emergence.

Light as temporal construction in Tarifit oral poetry improvised by Amazigh people from the Rif Mountains (Northern Marocco)

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In this paper we will show how time segmentation in Tarifit is partially organized by enactivating light (Varela 1992, Di Paolo & De Jaegger 2007) as frame of reference. Our hypothesis is that 'light' as experienced in the Rif area of Northern Marocco cognitively acts as initial (preconceptual) condition that opens this semiotic system to a temporal conceptual trajectory of increasing complexity. We will use a culture-specific meaning of day (El-Arbaoui 2013) as it appears in Tarifit oral poetry (Izri poem) to see how the cognitive organization of temporality (Sinha 2011, Nuñez et al. 2012, Bernárdez 2013) is grounded in the unique way individuals of this Amazigh Community experience light in the desert mountains. Basically, we search for meaning extensions of light in Tarifit that foreground the meaning of time as complexly structuring the temporal interval rentabilized as "day" as lexicalized in these poems.

A survey of cognitive analysis will be sketched applying the different models (ICMs) that progressively schematize its evolution, from Conceptual Metaphor Theory to various versions of Conceptual Integration Theory. Our aim is to advance into a more complex dynamicist description (Prigogine & Stengers 1984, Hayles 1991, Guerra 1992) that connect this dynamics to current enactive approaches (Di Paolo & Thompson, 2013).

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Temporality encoded by English prepositions - seen from the perspective of phenomenology, cognitive linguistics and distributional semantics

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The aim of the paper is to discuss how temporality is expressed in language, in particular to show some correlations existing between temporal meanings encoded by "on" and "at", as well as to trace convergence between the temporal and the spatial meanings expressed by the two English prepositions/particles. The hypothesis (Bączkowska 2011) to be tested stems from the working assumptions that (1) "on" is typically used to express time protraction whereas "at" is suggestive of time compression; (2) it is possible to identify contexts wherein these prepositions encode reverse concepts, i.e. "on" may be used of short actions/states and "at" may imply prolonged actions/states, thus illustrating antonymous polysemy; (3) the temporal and spatial meanings are conceptually intertwined.

The proposed analysis will be conducted in line with the main theses of cognitive semantics (Talmy 2000). Along with the theoretical and methodological framework typical of cognitive linguistics (Langacker 1987), the discussion will be enriched with philosophical and psychological approaches to the notion of time flow, time perception and conception, in particular seen from a phenomenological perspective and described by a philosopher, a linguist, a cognitive psychologist and a sociologist (Husserl 1964[1905], Evans 2004, Levine 1997, Flaherty 1999). The thesis at issue will be attested by data gleaned from several language corpora and further supported by statistical results retrieved from corpus tools offered by the Sketch Engine platform.

The polysemous meaning (spatial and temporal) encoded by the prepositions, in particular by "at", will be also analysed in connection with modality. Temporality seen as modality, an issue already fathomed by a number of scholars (e.g. Jaszczolt 2009, Portner 2009), should provide further evidence in support of antonymous polysemy and should manifest a tendency of "at" to trigger conceptualizations associated with epistemic distance and low probability of events, as opposed to high probability or factuality and high density of events believed to be invoked by "on".

Most importantly, however, it seems that it is not only the preposition that is the carrier of modality and temporality. How much probability is actually ingrained in the preposition and how much in the words (nouns, verbs) it patterns

with is difficult to assess intuitively; corpus data should cast some light on the intriguing problem of semantic prosody (Bublitz 1996, Lewandowska-Tomaszczyk 1996) and semantic preference (Bednarek 2008). The conceptual meaning of the prepositions in question encoding temporality will thus emerge from meaning distributed across the immediate context, illustrating thus the distributional approach to language analysis (which goes back to Harris 1954 and Firth 1957), in particular the recent developments in distributional semantics.

The IN IS LIGHT metaphor in context: A case study

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The Implicit Association Test (IAT) has become an important means of understanding implicit attitudes. The IAT test enables us to measure the association strength of concepts in memory. Since its introduction in cognitive and social psychology literature in 1998, the IAT has been applied to many different areas of study with promising results. However, only in very recent cognitive linguistic literature has it been employed in cognitive semantics, as a means of understanding the implicit association strength of semantic categories. This study investigates the implicit association between the spatial concepts described by the prepositions IN and OUT and those described by the sensorial categories of LIGHT and DARK. After having designed an IAT using word stimuli, 31 American students (24 females and 7 males) participated in the study. Results have proved to be consistent in showing a high association strength value between the categories of IN and LIGHT, thus demonstrating the interconnection of the concepts of space and light/colour. This result was not a given, because both construals are possible according to human experience, namely IN/LIGHT - OUT/DARK or IN/DARK - OUT/LIGHT.

While working on this research regarding this association, I came across two examples of this orientational metaphor* (Lakoff & Johnson (1980)) being used in literature (Hermann Hesse's Demian (1919)) and film (Jim Sharman's The Rocky Horror Picture Show (1975)). This metaphor seems to be coherent with KNOWING IS SEEING, SEEING IS LIGHT, In both cases, the IN IS LIGHT metaphor emerges, but with very different purposes. In the German novel, the interior of the main character's house is described as being "full of light" and "safe", as opposed to the exterior of the house, which in turn is associated with "darkness" and "danger". In The Rocky Horror Picture Show instead, this metaphor is subverted to create irony. The two main characters, when lost in the woods at the beginning of the film, think to have found a safe shelter – "There's a light, light in the darkness of everybody's life". The IN IS LIGHT metaphor is made evident in the film with the help of images as well. I shall argue that in both cases this association refers to the Implicit Association that my research assessed.

*The IN IS LIGHT metaphor seems to be coherent with GOOD IS LIGHT, KNOWING IS SEEING, SEEING IS LIGHT/COLOUR which entails IN (your field of vision) IS LIGHT.

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The role of material representations in joint epistemic actions

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In many situations in people's everyday lives, cognition is a highly situated and social activity. This study investigated the role of material representations in collective creative processes. How do material objects shape and aid joint epistemic processes? How do people coordinate and spontaneously distributecognitive labor when solving an open-ended creative task together? These questions guided a qualitative study of social interactions in 6 groups of 4-5 participants solving a series of creative workshop tasks involving LEGO blocks as part of a psychology experiment. A qualitative micro-analysis of the video recordings of the interactions identified three different roles that the material representations play in the joint epistemic processes involved in the tasks: illustration, elaboration and exploration. Firstly, the LEGO blocks were recruited for illustration, to support top-down structured processes, such as to represent already well-formed ideas in order to support communication and epistemic alignment. Furthermore, the LEGO blocks were examined and questioned in ways that gave rise to discussions, clarifications and highlighted underlying disagreements, this we call elaboration. Lastly, the LEGO blocks were used for exploration, that is, the material representations were experimented on and physical attributes were explored resulting in discoveries of innovative practices and new meaning potentials. The study points to a tendency for the more top-down ways of engaging material representations to be supportive of gaining and maintaining authority as well as to provide powerful tools for achieving epistemic alignment. However, more bottom-up oriented approaches were characterized by more distribution of cognitive labor, more unconventional usage of materials and more possibility for unanticipated solutions to take place that shaped the problem solving processes.

Bodily and non-bodily forms of subjectivity in the linguistic construal of non-actual motion and change

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'Non-actuality' is a term proposed in Brandt (2010) to cover a range of linguistic phenomena, including what is known in cognitive linguistics as "fictive motion" (Talmy, Matlock) and "virtual" (Langacker) or "subjective" change (Matsumoto). Emphasizing the role of conceptualization in language, this paper offers a phenomenological account of the various forms of subjectivity present in the conceptualization of non-actual motion, as manifested in sentences like "That mountain range goes from Mexico to Canada", where the verb 'go' "evokes a sense or a conceptualization of something in motion" (Talmy 2000: 104). Talmy describes this phenomenon as two co-existing but incongruous representations of the same entity: "two discrepant representations, one of them more palpable and veridical than the other" (p. 124). The dual representation, according to Talmy, consists in a "factive" stationariness, pertaining to the "real" nature of the referent and assessed as more veridical, and a "fictive" representation, perceived as less palpable and assessed as being less veridical.

In contrast to this explanation, I propose that the motion is in fact ascribed to the conceptualization itself rather than the referent entity; the non-actual motion is used to 'build up' the conception of a stable situation. Building up to a representation is a process leading to a full conception. The resultant conception can be more or less accurate (hence 'veridical'), but the building up is not in itself propositional (and hence is non-veridical). This description is compatible with Langacker's proposal that "It is this virtual motion [used to 'build up' the conception], rather than the static situation in actuality, which motivates the use of go as well as the path prepositions from and to." (Langacker 1999: 84)

Langacker, however, uses the terms "virtual" and "fictive" synonymously. The presumed interchangeability of these terms exposes a greater philosophical problem, which has to do with the employed notion of what is 'real'. In cognitive linguistics, fictivity is commonly mistaken for mind-dependence. Ascribing fictivity to all phenomena which are mind-dependent, I claim, extends the notion of fictivity too far. (Langacker: "Should we go all the way and say that everything is fictive?") As an alternative to current accounts of non-actual motion, my suggestion is that we differentiate between the (non-veridical) act of representing and the veridical content of the representation. On any account, and regardless of any

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Linguistic theory in the framework of cognitive semiotics

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From Louis Hjelmslev's radical immanentism to A.-J. Greimas' semantics and Ron Langacker's cognitive grammar, or to current structural semio-linguistics and construction grammar, something important has happened to the idea of a science of language: linguistics becomes a science of meaning and mind. It now seems increasingly difficult to conceive of language as an autonomous, Chomskyan, biological 'organ' separate from other mental and neural, embodied and pragmatic, contextual and social mechanisms and functions. And yet – the unanswered question remains relevant: languages do have grammar, they have syntax and morphology, and what are these, and how can they be modelled? Construction grammar does not answer the question but lazily appeals to school grammar. What would a relevant model of 'language as such' look like in the perspective of cognitive semiotics? What would be its components and its architecture? Would it still be relevant to build a Theory of Language? This paper will address these questions in the key of a critical theory of semiosis and the communicative mind.

The approach presented will point toward a new ontology of meaning based on consciousness and conceptual integration in a semiotic key, and on a new model of mental architecture of meaning. It will include a view of grammar stressing its role as a constructive bridge between meaning and expression, not as a mysterious 'pairing' of form and meaning, but as a transcription in both directions using a linguistic format that may not be found anywhere else than in language – thus still a specific 'immanent' structural property.

Episodic awareness and remembering: On pictorially framed understanding

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Humans are known to share "episodic knowledge and awareness" with other primates (Donald 2001: 117), i.e., they share the bodily grounded foundational experience of event types as woven into the neuronal underlay of consciousness. Such event types manifest themselves in the tense-aspect-mood variants of different languages (Givon 2005), have been described as spatial gestalt structures (Johnson (1987), and sketched out as the scaffolding of "metaphor" (Lakoff and Johnson 1999: chapter 4 and passim). The "drive system" (Donald 2001: 218) called the mind uses various concept structuring systems to gain access to the experience of event types (after Talmy 2000 I and II, passim). Language is a powerful tool that channels the use of these systems. But pictorial means do so as well.

In this paper, I scrutinize reader responses given in pictorial formats. Five groups of readers glanced through a narrative text and 'jotted down in the margin what came to mind'. Altogether ninety-two responses, rendered as pictorial objects, show scenes and scenarios filled with material things and human characters; they also include emblematic and iconic signs. I suggest that such pictorial objects reflect types, or categories, of the bound percepts, i.e. the traces of events "that are batched together into coherent chunks" (Donald 2001: 201) in episodic awareness. The question arises as to which route the bound percepts take from the reading of a narrative text to the perceptual effects of episodic awareness in pictorial objects. I believe that the narrative text retains the feel of events, i.e. that it retains the chain of meaning "from external properties to words" (Musacchio 2005: 417) – and allows to retrieve the feel of events from the words of a (narrative) text. Like the word 'red' retains its experiential value, i.e., the feel, caused by its neural analogue in a collocation such as 'red tomato', in the same way, the episodic awareness of foundational events engenders its imprint on the readers' minds. Since the pictorial responses do not refer to events by discrete symbolic keys, the question will be addressed whether they may, like linguistic symbols, refer both to the experience of a "stable pattern" of a remembered past and "a changing pattern" of a current occurrence (after van Heusden 2009: 619), or whether they engender a "feeling of presence" only (Matthen 2010: 121).

Body images and the body as a sign: Outlines for an experiment

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Research from experimental psychology has shown that exposure to "thin-ideal images" (selection of images of thin celebrity women, and of larger celebrities known for their size) have an immediate negative impact on participants' (female university students) body satisfaction measures (Tucci and Peters, 2008), however, not necessarily long lasting. The Cultivation theory (media prompt explanation) (Cohen, 2006: 59) is the vantage point in the project in progress at hand, designed to compare responses (including eye movement measures) to body images by healthy controls (HC) and women with an eating disorder not otherwise specified (EDNOS) matched for gender and age. Further, we adhere to the continuum model (Thompson et al., 1999) ranging from a zero degree of disturbance in one end to severe. Other research has shown that body measures of internet models (on American websites) and of Playboy centrefolds have changed. Especially the Playboy centrefolds have become increasingly thinner since 1960–1970, in comparison with 1997 (Owen and Laurel-Seller, 2000).

On the basis of previous research (Wagner, 2007; Fladung et al., 2010; Keating et al., 2012), we predict that there will be correlations between fixations and fixation durations at crucial body parts (defined as area of interests, AOIs, e.g. chest, waist, hip and thighs), and eye-blink rates and pupil dilations. Gaze patterns will shift, across groups, according to whether the image showed an underweight or overweight canonical female body, and they are predicted to reflect emotional mood states, controlled for by using a Visual Analogue Scale (VAS) ranging from "No pain" to "Worst Possible Pain". The VAS responses are hypothesised, based on previous research (Keating et al., 2012), to be different for EDNOS compared to HC according to the reward contamination theory (Keating et al., 2012). Eye movements of EDNOS, analogous with VAS responses, are envisaged to display an avoidance pattern when being exposed to images of overweight women in contrast to images of underweight women. Eye movement patterns are predicted to be the opposite for HC.

In semiotics terms one may speak of the body as a sign (Cabak Rédei, 2005), thinness representing beauty, health, success and control, triggered by media reflecting and producing our socio-cultural environment.

Factors motivating structure in gestural communication systems: An experimental semiotic approach

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Natural language syntax emerges and evolves in response to various pressures exerted by the cognitive, social and environmental domains (Tylén, Fusaroli, Bundgaard, & Østergaard, 2013). Due to its largely non-conventionalized nature, nonverbal gesture constitutes a particularly productive window into processes shaping representational structure. Previous studies have indicated a strong and universal preference for a specific representational order (SOV – subject, object, verb) for describing transitive events using only gesture (Goldin-Meadow, So, Ozyürek, & Mylander, 2008; Langus & Nespor, 2010). Findings are presented as evidence for innate biases in the conceptualization and representation of events.

We offer a competing explanation proposing that the structure of gestural representations are influenced by at least three 'external' factors: 1) the inherent structural properties of the events themselves, 2) communicative pressures (i.e. interactive alignment), and 3) distributional/frequency properties of experience. These hypotheses are tested in three experiments in which pairs of participants engaged in a referential game (Fay, Garrod & Swoboda, 2010), jointly matching stimulus pictures via gestural communication.

In the first experiment, we show that structural properties of the stimulus events have a strong influence on gesture order. Whereas the previous studies have only considered what we call object manipulation events, in which agents perform actions that involve and affect objects, we add a novel category called object construction events and show that participants spontaneously change their gesture order (from SOV to SVO) to match a different event structure.

In the second experiment, we increased the communicative pressure by randomizing the stimulus event types. This enables us to show an additive effect of interpersonal alignment, i.e. participants' propensity to opt for the gesture order used in the previous trial by their co-participant even if it is incompatible with the stimulus event type.

In the third experiment, we manipulated the relative frequency of the two event types to be communicated. This had the effect that participants started to generalize the gesture order used to communicate the majority type to the minority type, which could be interpreted as a process of initial stabilization and conventionalization of one gesture order.

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The role of sound in filmic experience: A cognitive semiotics approach

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In the Semiotics of Cinema tradition sound was assumed as a particular type of "expression substance" among others, an ingredient of "syncretic" semiotics. From this perspective, films are closed texts made of codes decipherable by the spectator (Metz, 1971, 1974), one of which would be the sound code. After the cognitive turn in film theories (Bordwell, 1987; Branigan, 1992; Currie, 1995; Bordwell & Carroll, 1996; Grodal, 1999, 2009, among others), film (and audiovisual) semiotics is interested in accounting for the viewer's experience. This experience is now understood under the same parameters of real life experience, to the extent that humans use the same skills to understand movies that to deal with reality. Some researchers have devoted part of their theories to the description of sound and hearing experience in cinema from different approaches: ecological (Anderson, 1998; Anderson, Fischer, Bordwell et al, 2007), socio-historical (Altman et al, 1980, 1992, 2001, 2007) "eclectic" (Chion, 1985, 1991, 1998, 2003) or even cognitive –in a broad sense (Jullier, 1995, 2002, 2012). Nevertheless, the bridge between cognitive theories and film semiotics is still weak, particularly when dealing with the multimodal dimensions of spectatorship experience.

To address the role of sound in filmic experience with more powerful tools, in this presentation I propose to follow the current trend of cognitive semiotics and its link with phenomenology and cognitive sciences (Sonesson, 2009). First, I will show the insights of philosophy and phenomenology of sound (Ihde, 2007; O'Callaghan, 2007; Nudds, O'Callaghan et al., 2009): the phenomenological description of the auditory field and sound horizons, and the idea of conceiving sounds as events in hearing experience. Second, I will present some discoveries of cognitive research from an enactive perspective, about the intersubjective exploration of sound spaces (Krueger, 2006, 2000, 200). Third, I will link these ideas with a general description of event perception and conception (Zacks, 2008, 2010: Zacks & et al., 2011), particularly in film comprehension (Zacks, Speer, and Reynolds, 2009; Zacks & Magliano, 2009). Finally, I will integrate all these insights in the context of a new semiotic theory: agentive semiotics (Niño, 2013a, 2013b; Niño, forthcoming). This theory provides precise criteria to distinguish (but also integrate) the experience of "semiotic scenes" (intentional constructions assumed here as a particular type of events) and the experience of the world. Thus I

hope to provide a new approach to understand the role of sound in the (multimodal) experience of film spectatorship.

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Progress toward translating 'visual' graphics into sound to produce more accessible interfaces (with implications for the picture perception debate)

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In this presentation, I will describe our progress toward translating 'visual' graphics into non-visual perceptual modes such as sound to produce more accessible interfaces. Additionally, I will demonstrate how our design is guided by a provisional model that treats the visual cortex as a spatial cortex that is recruited by sight, sound and touch (cf. Knauff, 2013).

The problem: According to WCAG guidelines, a 'visual' graphic (i.e., a picture) is considered 'accessible' (e.g., to low-vision and/or blind users) if it has been 'translated' into a text description (Caldwell, et al., 2008). However, if an author's intention could be conveyed via text, then why did they great a (visual) graphic? One often cited advantage is that "the eye and the visual cortex of the brain form a massively parallel processor that provides the highest-bandwidth channel into human cognitive centers" (Ware, 2012). In contrast, a screen reader sequentially reads through text descriptions.

However, are these advantages only possible though visuals? Sonic interfaces are routinely used for sense making: Doppler ultrasound conveys anatomical structures via audible frequencies and researchers have converted video signals into sound to enable blind audiences to navigate outdoors and to recognize faces (i.e., Levy-Tzedek et al., 2012). Spatial structure seems to transcend the visual: It can be conveyed via sound (i.e., when we hear an echo) or touch.

In addition to demonstrating how this provisional model can guide interface design, I will also propose how it relates to, and in some cases can help reconcile, classic debates about the 'unlearned' (e.g., Gibson, 1978; Kennedy, 1974) versus 'learned' (e.g., Goodman, 1976) properties of picture perception between art theory and perceptual psychology.

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Cognitive semiotics: A common ground for quarelling film theories

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Film theory has traditionally drawn from other more established disciplines. For decades, the prevailing approach in the field consisted of an agglomeration of neighboring theories that relied on psychoanalysis, Marxism and structural semiotics. The cognitive turn led by Bordwell and other scholars in the 1980s opened the door to a new paradigm that moved away from traditional film theory by calling into doubt the validity of some of its main assumptions. Currently, the confrontation between the two views is an ongoing discussion, and cognitive film theory still is only fairly present in film studies. I will outline what I consider to be some of the tenets that structure the opposition between these two views, while pointing to those parts in which they complement each other, namely their different emphases on social and cognitive aspects. I will present some insights from psychology, cognitive linguistics and film theory itself, with a particular focus on empirical studies conducted with audiences, a corpus of research that is seldom considered by traditional film studies. My intention is to propose cognitive semiotics, which embrace both scientific methodology and humanistic concerns, as a common ground for film scholars to start a dialogue and set up a new direction in film theory.

Metaphor creation in Ch. Dickens' novel 'A Tale of Two Cities'

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The paper examines samples of water imagery and their metaphoric transformations in Ch. Dickens' novel 'A Tale of Two Cities'. The text of the novel has been analyzed from the standpoints of cognitive science (Brandt 2004, Kovecses 2008, Lakoff 1993, Lakoff & Johnson 1980, Reinhart 1984, Stockwell 2005) and Systemic Functional Linguistics (Halliday 1978, 2003). It has been observed that similar to other works by Dickens, 'A Tale of Two Cities' is abundant in various types of water images that are employed for the following purposes:

I. The water image (well, fountain, river, sea, ocean, channel} is an essential (quite often central) element, the relevant stroke in a Dickensian landscape, it: (a) determines the overall mood of a particular scene; (b) heightens suspense; (c) forms the ground for the figures in a particular scene or in the novel itself. In many a case all the three functions of the water image are realized simultaneously.

II. Throughout the narrative, different representations of water acquire a symbolic value, metaphorical load serving as the basis for the plot structure of the novel. In some instances the ground and the figure merge producing a new figure. In this respect, two of the images prove to be of particular relevance:

> (a) The 'whispering fountain'presented as an indispensable element of village, town or palace architecture; one of its basic functions being the gathering place of citizens.

> (b) The destructive, rough sea which is ever present in the novel, it permeates the fabric of the narrative: it is depicted in marine landscapes, is used in similes characterizing objects or people; however, as the ground the sea is gradually transformed into the figure designating crowds of people.

Thus, as the text unfolds, individuals initially referred to as unknowable still waters (Chapter 3) form groups of discontent people identified with whispering fountains and gradually transform into crowds of revolting people identified as a destructive sea/ocean, a whirlpool of boiling waters/ deluge.

III. In the novel Dickens invokes archetypal conceptual metaphors of water; the recurrent conceptual metaphors being Time is Flowing Waters, Time is a Flowing River; Life is a River; Eternity/Infinity is Sea/Ocean; The Realm of Death. is Sea/Ocean.

IV. Objects are characterized via the terms of water domain.

The creative use of water images, their metaphoric and symbolic transformations, alternation of referential and metaphoric meanings of water terms serve as means for achieving textual coherence and make the narrative of the novel sound dynamic.

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Cultural evolution, conceptual metaphors and science

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The cognitive abilities explained by cognitive science and cognitive semantics can inform us concerning the use of metaphors in science. The thesis is that abstract ideas rest on experiences of the concrete world. In this paper I will explain the use of conceptual metaphors in science, with examples from the mechanistic worldview of the 17th and 18th century. If we proceed from the way people think in general, their mental abilities, reason and cognition, we could get close to an understanding of how scientists during the scientific revolution shaped their ideas about the invisible geometry of matter. This is a cognitive history of ideas. What is called the 'cognitive turn' in the humanities has generated vigorous growth of research, for example, in cognitive poetics, neuroaesthetics, and cognitive anthropology. These approaches try to arrive at an understanding of creative processes. In the historical sciences there is also a growing interest in cognitive-historical analyses, particularly in archaeology and history of science. The aim of the cognitive history of science is to reconstruct scientific thinking on the basis of cognitive theories. The starting point for a cognitive history of ideas that I defend here is that philosophy, science, and mathematics do not really happen just in texts, in language, in laboratories, or in social contexts, but in brains and minds in interaction with the world around the subject, and are thus connected to the body, to perception, thoughts, and feelings. We humans are captured in our brains situated in the world, we are dependent on our thoughts and senses, our prior knowledge, our mental images, when we try to create a picture of the world. Science, in other words, is shaped by our distinctive way of reasoning, not least in metaphors.

Spatial strategy preference and language variety: A study of Peninsular and Nicaraguan Spanish

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This study provides support for linguistic-cognitive alignment within the spatial domain, while at the same time suggests that membership to a particular language variety is also a factor that influences spatial frame of reference (FoR) preferences in discourse and in non-linguistic tasks. Using linguistic and nonlinguistic spatial performance data from two varieties of Spanish – Barcelona-Spanish and Nicaragua-Spanish, results from Generalized Logistic Mixed Models (GLMMs) of the linguistic data indicate that while language is a predictor of speakers' spatial FoR preference, membership to a particular linguacultural community is also a factor. Similarly, in modeling the non-linguistic data from speakers of both Spanish varieties, language variety was found to be significant in predicting the relative spatial FoR solution type.

Crosslinguistic studies indicate that when asked to remember and produce figure-ground arrays, speakers' linguistic and cognitive performance aligns – and their perspective-anchoring preferences, e.g., egocentric or allocentric, follow suit (Carlson-Radvansky & Irwin, 1993; Levinson, 1996; Levinson, 2002; Levinson, 2003; Majid, et al., 2004; Pederson, et al., 1998; Wassman & Dasen, 1998). These findings suggest language plays a role in shaping at least some cognitive faculties. Critics of this proposal argue that environmental cues and within-group cultural preferences (Li and Gleitman, 2002; Arbarbanell, et al., 2011, respectively) are better predictors of spatial FoR preferences.

Both tasks used in this study, the paired referential communication task, Ball & Chair (B&C), and the non-linguistic spatial alignment task, New Animals (NA), were designed as part of a larger crosslinguistic project (Bohneyemer 2008). B&C is a photo-matching task, comprised of 48 photos, while NA requires participants to memorize and reproduce a linear array of objects over 6 trials. For the B&C and NA tasks, Nicaraguan Spanish provided n=10 and n=15, respectively, while Barcelona Spanish provided n=12 and n=10, respectively.

Linguistic usage of the relative FoR type was the preferred strategy for both varieties during the B&C task. However, results from GLMMs show that usage of the relative FoR strategy differed significantly between the varieties for the B&C task, with p < .0001, and LSM output confirms this difference. These models excluded demographic factors (age, sex) as predictors. Subsequent GLMMs of the non-linguistic spatial performance data, again, identify linguistic variety as a

predictive factor for relative FoR preference (p < .0103), and these results are also confirmed by LSM output. These results provide evidence for language-specific linguistic-cognitive alignment, while simultaneously identifying significant differences in the relative FoR usage between varieties.

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Applying cognitive linguistics to political text and images: The case of the far-right British National Party

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There is today a growing interest in integrating theories and models subsumed under the label Cognitive Linguistics with critical approaches to discourse. Recently, Hart (2011a, 2011b, 2013) has broken new ground by combining theories of Cognitive Linguistics (Croft & Cruse, 2004; Langacker, 1987; Talmy, 1988) with Critical Discourse Analysis (see e.g. Meyer & Wodak, 2009). This has rendered critical enquiries more systematic and helped us understand the cognitive underpinning of powerful language, but such approaches often focus on text rather than image.

This paper presents an analysis of the use of images in political texts published by the extreme-right nationalist British National Party (BNP). The BNP is to date the most successful extreme-right party in British electoral history and the only one to have been represented in the European Parliament. The BNP also pioneered the use of multimodal features in political online material where the different semiotic resources also clearly have different functions (see Copsey, 2008 and Goodwin, 2011 for general accounts of the BNP).

This case study complements Hart's (2013) approach with blending theory (Fauconnier & Turner, 2002) in order to better understand how the BNP constructs what is traditionally called in-groups and out-groups using text and images. The analysis is aided by corpus linguistics methods, which allows for systematic and rigorous annotation of relations between semiotic forms and underpinning cognitive processes. By focusing on the interaction of text and image in news articles published by the BNP, this paper argues that the party has pioneered the aestheticization of the far-right and that BNP images express what cannot be expressed using words. Furthermore, using blending theory, it is argued that BNP adversaries are not so much real social actors as synthetic hate objects emerging from a generic mental space of enmity.

The findings of this paper have important implications for our understanding of group formation and can be generalized to other forms of right-wing and nationalist parties. By combining blending theory and critical approaches, we can study the construction of political enmity and out-groups and thus dismantle arguments used against these "enemies". Furthermore, as an empirically oriented form of the emerging field of Cognitive Semiotics, the methodological

synthesis presented here suggests one way in which cognitive theories can be applied to matters of rising social concern.

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A search through cognitive semiotics for enhanced understanding of the musical knowledge embodied in the practice of the artistic medium soundpainting

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In the light of current discussions of embodiment I will share in this presentation some aspects of my research, which focuses on experiences of the artistic medium called Soundpainting from the perspective of classically trained musicians. Created by North-American musician Walter Thompson in the mid 1970s and defined by him as a sign language for live composition (Thompson, n.d.), Soundpainting re-contextualizes musical knowledge by replacing the function and transforming the referential aspects of traditionally notated musical scores through body/hand signs, and by establishing improvisation as a main source for the emergence and organization of musical expressions. Based on common knowledge of the conventions of the medium and through the continuous non-verbal transactions between a group leader (i.e., soundpainter), who defines and presents sequences of physical signs and gestures to a group of musicians, and the musicians, who perform responses to these, unique performances are created in real time. The change from paper to body and the various levels of indeterminacy built in the medium create an other opportunity for the recognition, application, and expansion of embodied musical knowledge.

Music learning and performing processes are therefore presented as examples in which concepts discussed in cognitive semiotics become enacted. The materialization of artistic thinking in an artefact (Dewey, 1934), even if a transient one, holds both the embodied knowing marked by interactions with the environment acknowledged in (Johnson, 2011; Johnson & Rohrer, 2007) and aspects of representation that in different ways characterize artistic expression (Dewey, 1934/2005), various instances of embodied meaning (Sonesson, 2007), and language (Zlatev, 2007). As a non-propositional medium, instrumental music nevertheless serves the purpose of intersubjective communication, in some cases sharing similarities with language transactions without necessarily possessing the same features of the latter. Musicianship – i.e., the compound of musical knowledge, sensitivity, and craftsmanship is built upon, among other things, an accumulation of "mimetic records" (Sonesson, 2007) or "mimetic schemas" (Zlatev, 2007), which serve as a base for deeper representational levels of artistic expression. Through Soundpainting practice embodied knowledge can be explored

anew when one is either playing one's instrument or communicating musical meanings directly through one's own body. Bringing together reflections upon such practice, contextualized in the field of artistic-research, and conceptual tools derived from the field of cognitive semiotics, the aim of this presentation is to disclose particular musical processes as a rich empirical ground for studying and illuminating understandings of artistic embodied cognition.

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Sterelny's apprentice model meets brain plasticity

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Kim Sterelny's apprentice learning model ascribes the evolution of the human mind in large part to the combination of four factors: 1) enhanced cooperation, 2) cultural inheritance, 3) phenotypic plasticity, and 4) skills and expertise. I agree with Sterelny's account of cultural transmission and I am sympathetic to his model of the evolution of human cognitive behaviour. In this paper, however, I argue that Sterelny's model, in order to be more accurately grounded, needs a more precise account of the ontogeny of cognition and in particular a more detailed taxonomy of the types of plasticity observed in humans and of how they relate to each other. For this reason, in analysing the mechanisms underlying ontogenetic learning throughout the lifespan, I propose to connect Sterelny's evolved apprentice learning model to what I call 'dynamic enskilment'.

Dynamic enskilment is, roughly speaking; the idea that both brain structural organization and cognitive processes are heavily dependent on patterned practices and culture-sensitive activities throughout the entire lifespan. The concept of patterned practices refers to the persistent participation of subjects in certain socio-cultural activities (e.g., spending hours listening to and producing music). Participating in these socio-cultural activities and so taking part in particular patterns of practice drives how subjects perform and regulates how people perceive and act in particular group and context specific ways (see Farina forthcoming).

In order to investigate the many manifestations of dynamic enskilment in the world, I propose in this paper a dynamic enskilment (DE) framework. Such a framework aims at describing lifespan changes in behaviour as interactions among maturation and learning and tries to integrate empirical evidence across different domains (from behavioural to neural levels of analysis), while acknowledging the dramatic power of rewiring in an individual's lifetime. In doing so, the dynamic enskilment framework I propose affirms that adult entrenchment in different socio-cultural contexts (including learning in apprentice style situations) can dramatically shape the functioning of the human mind and generate completely dissimilar neural responses (even among conspecifics) through embodiment and internalization; leading to structurally different, neuro-cognitively diverse, and deeply enculturated brains (Farina, forthcoming).

Through the analysis of a number of case studies involving dynamic enskilment -ranging from arithmetical cognition (Hanakawa et al. 2003); to stone tool manufacturing (Stout and Chaminade 2007), and singing (Mithen and

Parsons 2008) - I demonstrate that Sterelny, by fusing together dynamic enskilment and his apprentice learning model can discover the ontogenetic conditions that are necessary to support and better specify the phylogenetic claims he proposes in his account. So, I argue that implementing an account of ontogenetic learning in Sterelny's view is beneficial because it will: : 1) provide us with a detailed taxonomy of the varieties of plasticity observed in humans (which is also important for the field); 2) allow us to understand the importance of this multi-dimensional taxonomy for a description of the evolution of human cognitive behaviour; 3) offer a more comprehensive framework to explain the emergence of processes of skills acquisition and expertise transmission 4), enrich Sterelny's phylogenetic account, by suggesting the implementation of new lines of research (research on plasticity, developmental psychology, and cultural/social neuroscience) within his own framework, thereby making Sterelny's view even more plausible and accurate.

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In current debates on cognitive metaphor theory (CMT), metaphor is usually seen as a basic conceptual phenomenon and, in turn, conceptual metaphor is conceived as underlying metaphorical expressions within language. Empirical research in cognitive linguistics has demonstrated in the past decade that the supposed conceptual metaphorical mappings at the level of thought are distinct from the mappings within language (Zinken 2007), and at least one different "class of metaphors" – "discourse metaphor" – is in need to be acknowledged: unlike conceptual metaphors, discourse metaphor "emerges and evolves in and through language use" (Evans 2013: 103). A number of studies presenting critical assessments of conceptual metaphor have convincingly shown that: (1) Conceptual metaphor cannot account for all instances and types of metaphorical expressions in language, and thus "metaphorical language is not all based on conceptual metaphor" (Gibbs 2013: 18); (2) Corpora data analyses do not support the CMT" assumption that all abstract concepts are primarily structured by conceptual metaphors (Sauciuc 2013: 262); (3) Cognitive metaphor research should take seriously the task of exploring "the formative influence of language on cognition" and of considering "language as constitutive" for mental structures and thought (Leezenberg 2013: 150, 148).

In contrast to the current practices in cognitive science research, my paper will approach the metaphoric phenomenon as a "discursive" process within the semantic medium of language. The contribution is part of the broader project, initiated within the *Center for Integralist Studies* in Cluj-Napoca, which aims at further developing E. Coseriu's conception on expressive speaking and "metaphoric creation in language" (Coseriu 1985 [1952]). I will first consider the critical objections to CMT and argue in favor of E. Coseriu's 'matrix' as a comprehensive framework for explaining the creative semantic processes. In doing this, I will briefly present the proposed "trichotomy" of levels in language studies (individual, historical and universal level), and show that cognitive linguistic research has usually focused on either individual or historical level. Special emphasis will be given to the distinction between the historical and universal level in the assumed semantic matrix, and to their distinctive semantic content ('meaning proper' and 'designation'). Secondly, I will show that metaphor first emerges in the activity of speaking "as a [basic] need for expressiveness" (Geeraerts 1999: 91-108; Sauciuc

2013: 262), which also implies the need "to enrich" the cognitive semantic content (Borcilă 2013).

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Non-Western historiography and the experience of history

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What is the use of History? That question is often posed to schoolchildren around the world and the answer offered is as often as the question: Those who cannot learn from history are doomed to repeat it (Santayana). The answer thus links the knowledge of the past to the present experience, the historiographical readings to the extrapolations and inferences that the reader makes from them. The use of history seems to lie in the ability to process textual information (in the broadest sense) and to adapt it to new situations. The paper proposes a semiotic reflection on the kind of experience that non-Western forms of historiography offer, especially the History of the Conquest of Mexico written by Indian authors that form the " vision of the vanquished " (expression given by Nathan Wachtel to Peruvian accounts of the Conquest, and that Miguel León Portilla used for the Mexican case) . To do this I will rely on a semiotics of events and becoming (Flores, in press) and the concept of semiotic efficiency. The semiotics of events allow us to address the issue of temporal reach of narrated events within the overall structure of historical narrative, in terms of their aspect and, in particular, the effects of overaspectualisation (Brandt 1992) arising from the insertion of individual event in a broader narrative structure. The paper argues that these aspectual interactions have effects on the way a story presents the narrative becoming of the events and, in the case studied, confronts a Providentialist conception of history with a non-finalist one. Both perspectives, perfective or not, determine the experience of history, not only in terms of effects of meaning, but also in terms of affection and in terms of what is the effect-affection and, moreover, how those it works; which raises the question of semiotic efficacy (Pezzini, 2000) and, especially, of semiotic efficiency in historiography.

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What the mind's digital eyes can see

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This presentation aims at discussing certain issues that emerge from the analysis of the worldwide spread of ICT technologies for digital data analysis, representation and sense-making. In a way, ICT technologies development, related to Data Analysis and Information Visualization needs, seems to demonstrate that something like the mind's eye really exists, and not just in a metaphorical sense, but as a complex prosthetic device, equipped to expanding human capacity.

We will start from precisely this working hypothesis, that the evolution and diffusion of digital data analysis and representation technologies are expanding human perceptual skills beyond the familiar limits, allowing humans to see entities that do not have a concrete nature, such as the abstract relations between these same data.

Assuming this working hypothesis raises some questions. After all, graphics, interactive diagrams, and all of the external data representation formats commonly used in integrated analysis systems have no depictive nature per se, thereby they do not seem to belong to the kind of visual representations that would somehow allow to see what they represent, even in a indirect way, triggering perceptual processes whose phenomenology and description have been abundantly investigated in philosophical and scientific literature on the perception of images.

I suggest that both the perceptive experience triggered by the visual analysis of data and the meta-cognitive experience of the comprehension of such data have their own peculiar phenomenology. Moreover I argue that a special kind of process is involved in the complex activity leading to attributing of sense to data collection, a process that I'll try to describe as being both semiotic and perceptual in its nature.

In addition to these issues, others arise, related to the fact that representations used in data visualization techniques have an intrinsic social nature. The data sense-making/semiosis arise from a cooperative process in which a community of individuals work together towards the creation of a shared, intersubjective social consciousness and comprehension of situations and events for which the analyzed data provide the evidence.

The additional working hypothesis I would like to discuss, then, is that digital data representation techniques can provide a socially shared and constructed visual experience. Can a socially shared perception exist, in the same way a socially distributed cognition does? Which facts and arguments can support this hypothesis?

The objective of the presentation is to formulate some theoretical answers to the questions raised thus far and, subsequently, to evaluate these responses.

Learning in terms of the semiotic enactment of patterns of disciplinary-relevant aspects

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Student learning typically takes place in a range of situational contexts. In this paper we consider "sets of situations that have certain relevant aspects in common" (Marton, 2006, p. 503) where each aspect involved is qualitatively unique. We argue that in order for students to come to holistically experience the relevant disciplinary knowledge, they need to become familiar with enacting those relevant aspects (i.e. expressing them with semiotic resources, such as spoken and written language, equations and images.).

We suggest it is possible to construct idealized patterns of the aspects that a discipline deems to be relevant for a given field of knowledge – thus characterizing its typical situations and phenomena. We call such a pattern an "idealized pattern of disciplinary relevant aspects" (IPDRA). Each of the aspects that together constitute an IPDRA can be seen to be manifested in discourse in terms of particular configurations, partly prescribed by the "rules" governing the semiotic resource at hand (such as grammar for language). The discursive configurational patterns (cf. Lemke's, 1990, "thematic patterns"; and Tang et al.'s, 2011, "multimodal thematic patterns") that can be empirically found in student discourse can then be compared with the IPDRA to see whether the required aspects have been enacted.

The semiotic resources that are used in a scientific discipline are often highly specialized. Any given semiotic resource may therefore be more appropriate for expressing certain (combinations of) situational aspects (what we have called its "disciplinary affordances", see Fredlund, Airey, & Linder, 2012). We argue it is the disciplinary affordances that determine which semiotic resources that can do which work in terms of representing the knowledge captured by an IPDRA. A pedagogical implication of this is that students need to become fluent in, and learn to choose, those semiotic resources that have the most appropriate disciplinary affordances for enacting a given IPDRA.

In this paper we demonstrate how different semiotic resources have different disciplinary affordances and thus how changing the semiotic resource can lead to the possibility to enact different aspects of disciplinary knowledge.

The adverb prototype

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While adjectives have been much debated as a potentially universal category (Dixon 1977, Wetzer 1996, Stassen 1997, and Dixon & Aikhenvald 2004), adverbs remain rather neglected in the typological and cognitive literature. For adjectives, Dixon (1977) proposed core semantic types such as color and dimension, which will be found among the adjectives of a language to the extent that such a category can be discerned at all. In the present study, it is shown that the semantic types speed and value (cf. Dixon 1977) are similarly central to adverbial modification. Expressions denoting such types are found as adverbs or unmarked constructions in many unrelated languages. From a cognitive perspective, these concepts appear to have a fundamental role within categorization in general.

This talk focuses on languages which show clear unmarkedness patterns for items of speed and value, with examples drawn from a sample of 50 languages from all continents. The data primarily comes from reference grammars and the sample is based on a combination of selecting languages with relevant adverbial structures and using as genealogically diverse languages as possible. Constructions have been extracted by identifying how speed, value, and other so-called manner expressions are encoded when functioning as modifiers of predicates. Many of the languages display patterns of adverb derivation or several alternative constructions, but they also have non-derived adverbs or unmarked forms in adverbial function. The results show that such adverbs even occur in some languages that lack a clear class of adjectives. Accordingly, and perhaps contrary to expectation, adverbs appear to be conceptually no less basic than adjectives. Although numerous different constructions are expected to be found in the adverbial function in the languages of the sample, such diversity does not hinder the tendency for certain concepts such as speed and value to appear as basic adverbs. As the notion of speed is inherently associated with motion or action, speed terms can be expected to occur as modifiers of verbs. Thus, unmarked items of the speed type are here argued to instantiate prototypical adverbs, shedding light at the core of the complex area of adverbial modification.

Blended joint attention, hyperembodiment and extended embodiment in computer mediated communication

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Early research had a tendency to view computer mediated communication (CMC) as a deficient version of face-to-face communication lacking central and characteristic cues of the embodied interactional activity (Baym 2006). And indeed there is in general a strong bias towards face-to-face contexts in the models and analyses found in the work of scholars of interactional communication. Additionally popular view still has it that online experience, interpersonal relations and communication are not "real life". They are seen as constituting artificial or second order kinds of social activities. And researchers (Turkle 2012) have followed suit for instance by nostalgically celebrating the good old practice of doing conversation. To top it all neuroscientists (e.g. Klingberg 2008) warn against the shock effects of online activities on brain function arguing that our brains are being overloaded. Against all this it is hard to envision a more ambitious place for research in online social interaction than as an exotic, culpable, peripheral, disembodied variation of social, human activity. However, the appreciation of the feats of CMC depends largely one's notion of "medium" and "embodiment" (Shapiro 2011). The late media theorist Marshall McLuhan is said (Logan 2013) to have predated the notion of extended cognition (Clark and Chambers 1998) when arguing that any medium is "an extension of ourselves". In this view then a medium is not something that stands between users, but something that amplifies or accelerates existing processes in them and between them. In fact by divorcing the user from space, time and body the medium may be seen to create "embodiment beyond embodiment". Cases in point would be blended joint attention (Turner and Steen 2013) in shared images and video on Facebook, hyperembodiment in for instance shared Snapchat close-ups and extended embodiment in selfies and usies. These phenomena transgress "narrow" embodiment as limited to the direct sphere of the physical body and hence at the same time blow up the traditional face-to-face discourse space with its direct physical grounding. But as phenomena that are appreciated in their own right—and not just as poor imitations of "real" experience and

communication—they offer rich material for the continued discussion and evaluation of notions of embodiment.

This talk will present analyses of blended joint attention, hyperembodiment and extended embodiment and discuss possible implications of these phenomena in connection to the broader ongoing discussion of embodiment.

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Narrating perception: Multiperspectivity and the 'aesthetics of observation' in early 20th century German novels

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"I am a camera with its shutter open, quite passive, recording, not thinking." (Isherwood [1939]1999: 243)

It has been established as a narratological consensus that there is a significant increase of multi-perspectival forms of narration since the 18th century (cf. Klepper 2011, Hartner 2013). Though multiperspectivity is strictly speaking not a recent phenomenon, the aesthetic reflection on "the conditions of perception and narration" (Hartner 2013: 7) since early literary modernism spurs the development of complex forms of narrative perspectivization which manifest themselves e.g. in the increasing intertwinement of narrator's and character's point of view in narrative discourse (cf. Schmid 2010: 120).

Based on this general observation, the presentation aims to shed light on specific narrative strategies of multiperspectivity based on a cognitive-linguistic resp. cognitive-semiotic notion of 'narrativity' (cf. Igl & Zeman [eds.] in prep.). The initial assumption thereby is that the foundation of multi- and metaperspectival phenomena – as the afore-said intertwinement of narrator's and character's point of view in modern narration – lies in a basic cognitive-linguistic principle: the potential split between the viewpoints of 'speaker' and 'observer' (cf. Lazard 1999: 95; cf. also Graumann & Kallmeyer [eds.] 2002 regarding the cognitive-linguistic notion of 'perspective'/ 'point of view'). The cognitive-linguistic distinction between 'speaker' vs. 'observer' is reflected in the narratological differentiation between the levels of 'narrator' vs. 'character': In contrast to a non-narrative discourse mode where both levels coincide by default, narrative structure is characterized by a hierarchical distance between the two levels. It is this distance which allows for multiperspectival effects on the textual surface (cf. Zeman in preparation; for the concept of distance cf. also Dancygier & Vandelanotte 2009).

Against this background, the presentation gives an exemplary analysis of two novels associated with the German literary movement 'Neue Sachlichkeit' ('New Objectivity') that are characterized by a highly elaborate use of multi- and metaperspectival effects: Alfred Döblin's "Berlin Alexanderplatz" (1929) and

Irmgard Keun's "Das kunstseidene Mädchen" (1932). Both novels reflect the programmatic turn in contemporary avant-garde literature to an 'aesthetics of observation'. But other than the term 'Neue Sachlichkeit' would suggest – and more recent studies seem to indicate (cf. for example Becker 2002) –, this aesthetics does not consist of a mere display of an 'objective' observer (resp. narrator). As I will argue, the 'aesthetics of observation' can instead be described as an intertwinement of different 'subjective' viewpoints that vary in distance towards the object of observation. It is thus based upon multiperspectival narrative strategies that suggest a seemingly paradox conjunction of 'distance' and 'proximity' regarding the relation between observer and observed object. This conjunction can be explained as an elaborate effect of the above-mentioned viewpoint split, and is e.g. explicitly conceptualized in Ernst Jünger's contemporary aesthetics of the 'stereoscopic gaze', where he claims that the (artist as) observer has to be at the same time distanced from the object of observation as well as 'emotionally involved' (cf. Igl submitted; Morat 2003).

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Tracing a prehistoric process of semiotic scaffolding through early body ornamentation

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In the past decade, ornamental shell beads, such as those unearthed at Blombos Cave, South Africa, and dated to approximately 75 thousand years ago, have been at the forefront of prehistoric archaeology. Most evolutionary archaeologists view them as inherently symbolic products of an already symbolic brain, and purport that their codified meanings were collectively shared through language (Henshilwood et al. 2004; d'Errico et al. 2005, Henshilwood and Dubreuil, 2011). On this basis, they treat them as an undisputed proxy for the origins of behavioural, and by extension, cognitive modernity. The symbolic and linguistic inferences have not gone uncontested though, for their invalidity has been aptly recognised by the linguist Rudolph Botha (2008, 2009, 2010). The archaeologists' main theoretical assumptions, about the linguistic nature of material signification and the representational function of cognition, were not however challenged.

Given that material signification is neither inherently symbolic, nor the a priori product of innate symbolic representations computed by the brain, they commit a pair of fundamental methodological mistakes – namely, the fallacy of the linguistic sign and the representational fallacy (Malafouris 2013). In this paper, I avoid the pitfalls of the strictly symbolic approach by opting for a pragmatic semiotic theory and an enactive theory of cognition. The synergistic fusion of Charles Peirce's semiotic theory with the hypothesis of enactive signification advanced by the cognitive archaeologist Lambros Malafouris yields a framework geared towards studying the evolutionary emergence of signification. By applying it to early body ornamentation, I trace the transition from the perception of iconic and indexical grounds to the conceptualization of iconic and indexical signs; which in turn provided the foundations for the creation of symbolic concepts and systems. For, according to Terrence Deacon (2011, p.399), symbolic reference depends on a system of relations that is not embodied in the sign vehicle, within which its formal similarities and correlative aspects are embedded. To this extent, early body ornaments appear to have provided the material anchoring required for a prehistoric process of semiotic scaffolding.

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Gradient meaning constructions in everyday social interaction

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When cultural practices become conventionalized, their meanings are generally shared by practitioners. Although most practitioners find it difficult to articulate just what those meanings are, they nevertheless quickly discern variations in performance as being significant. This paper examines a pervasive type of non-verbal communication that is accomplished in everyday social interactions by means of 'performative metaphor' (O'Doherty Jensen 2002), the objective of which is to discern that variant of a given practice which is appropriate in a given context. A range of non-verbal communication channels can be at issue in such enactments. The focus in this paper is upon differentiated uses of material objects as an analogue medium through which events, social relationships and other matters are represented. Unlike verbal language, the sign system at issue is non-arbitrary. However, such practices can also be mediated by verbal language. In that case, the discernment at issue in performative metaphor can be described as regarding the space between polar opposite categories (gradable antonyms) and the distance between the variants of one or more categories as ranged on gradient continua.

The cognitive operation underlying performance is described as a 'gradient blend', this theory being a development of Conceptual Metaphor Theory (Lakoff & Johnson 1980) and Blending Theory (Fauconnier & Turner 2002). It is argued that gradient blends have a generic structure in which inputs are aligned by discerning the relationship between the grades of entities as distributed on at least two continua. Inferences made on this basis are bi-directional. What is mapped from one input to the other is the discernment of the relative position of a given entity on one continuum (such as how loud a given volume of applause or how inferior a given beverage) to the relative position of a different entity on another continuum (such as how deep a given level of appreciation or how important a given social occasion). This theory is illustrated with reference to a range of empirical studies of household food practices drawn from sociology and anthropology. It contributes to our understanding of the mimetic dimensions of contemporary human cultures (Donald 2001). It also contributes to our understanding of the agency underlying the performance of cultural practices, and thus their replication or non-replication over time. Although these empirical data refer to recent decades, this theory might suggest that a gradual ritualization of everyday eating practices was one path along which human culture has evolved.

The conscious semiotic mind

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I would like to consider the possible role(s) of consciousness in semiotic activity of a cognitive system (or a mind). I take consciousness to be a heterogenous phenomenon and I would base on the distinction between phenomenal and psychological consciousness (as presented by Chalmers, 1996) as a useful tool for analyses.

I. Experiencing a sign

When one is experiencing a sign - either "real", or imagined (Peirce 2.230) - - it seems that it is phenomenal consciousness that plays the main and first role, i.e. we start with qualia and their features. Namely, these experiences are associated with some abstract values like being external/internal, familiar/unfamiliar or meaningful/meanigless (Jackedoff 2007: 87-96). The latter valuation is of particular interest. Sometimes one "feels" that one's experience (of object, sound or reminiscence) is meaningful -- without realizing the meaning itself. Such aspects of phenomenal experience bias (or guide) agent's behavior or direct further cognitive processing. The phenomenal valuation (e.g. feeling of being external and meaningful) would be a basis for initial distinguishing between between signs and non-signs. It is the experience that may trigger further cognitive semiotic processes (like interpretation).

II. Sign, object, ground

I will argue that consciousness and awareness have their role in apprehending a relation between a sign and its object (Peirce 2.247-249): icons would be more closely connected with phenomenal consciousness, whereas symbols would primarily require psychological consciousness. In the above situations, in which phenomenal consciousness is involved, subjective experience could be (and usually is) followed by psychological consciousness (awareness): the feeling that something is meaningful may be followed by an analysis of ground of meaningfulness (similarity, convention) or trials to elicit a meaning (cf. also Chalmers 1996: 218-222). Although experiencing a sign involves phenomenal consciousness. It will be shown that the very process of establishing Thirdness requires psychological consciousness.

III. Metacognition

The very response to the sign is not enough to establish a semiotic mind/cognitive system. As Fetzer (2001) indicates, to be a real sign-user, a cognitive agent has to use a sign as a sign. The situation requires a kind of meta-

knowledge embracing semiotic (also: cognitive) activity of an agent. I'd like to show, that such meta-cognitive processes require psychological consciousness.

Finally, taking natural language as a special kind of sign systems, I will try to apply above conclusions to semiotic analyses of natural language.

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The verbal and non-verbal markers of impolite behavior (in the Russian language and body language)

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The paper aims to describe the semantics and syntactic properties of the class of Russian verbal and non-verbal sign units which cover the nucleus of the semantic field of impoliteness. The verbal units are adjectives grubyj 'rude', hamskyj 'caddish', nevospitannyj 'discourteous' and some others as well as their noun derivatives. The set of non-verbal units consists of so-called Russian impolite gestures. According to the lexicons of several Russian gesture dictionaries (Akishina, Kano 2010; Armstrong, Wagner 2007; DRG 2001) it includes more than 40 emblematic gestures (in terms of Kreydlin 2002), which express the ideas of 'familiarity', 'obtrusiveness', 'indiscretion', etc. In our paper, we focus on the correlation between the verbal and non-verbal units.

By impoliteness we imply a communicative category that is described with the following Russian script:

X is impolite to Y in the situation Z = 'In the situation Z (and other similar situations) Russians are used to behaving in a way that is considered good; The speaker thinks that person X is now behaving differently; Russians deem X's behavior to be bad'.

This script presents the semantic description of impoliteness, which takes into account the findings of Bousfield 2008; Culpeper 2009; Krylova 2006; and Larina 2009, 2013. It shapes the nucleus of the semantic field of impoliteness and is invariable for the field. The latter means that the semantic representation of each core unit includes all these propositions together with the propositions describing the corresponding semantic peculiarities.

We believe that the semantic descriptions of the Russian language units proposed in our paper illuminate and enrich the explanations previously given in several modern Russian dictionaries including BAD 1951-1965; SAD 1983 and NEDS 2004.

The description of the meanings and usage of impolite gestures that belong to different body languages and that have been discussed (among others) in Calbris 2011; Cienki 2013; Kendon 2004; Kreydlin 2002; Morozova 2006; and Morris 2010 shows that impolite gestures can be distinguished by the following features: (a) the way in which the gesture is performed; (b) the typical sphere of usage of the gesture and (c) particular features of the communicative situation in which the gesture is used.

These features create the upper level of the <functional-semantic> typology of Russian impolite gestures. Thus, the feature "a typical sphere of usage" allows us to distinguish zhesty nachal'nikov (lit. 'gestures of bosses'), eroticheskije zhesty ('erotic gestures'), zhesty nemotivirovannogo preryvanija kommunikatsyjji ('gestures of the unmotivated communication break'), etc. The complete semantic representation of the Russian impolite posture of bosses sidet' razvalivshis' <v kresle, na stule, divane i t.d.> (lit. 'to hog a seat <in an armchair, chair, sofa, etc.>; to sprawl') is given.

In the final part of the paper it is shown that each impolite verbal or non-verbal sign unit corresponds to and forms a particular type of impolite behavior. Those types have idiomatic Russian names (gruboe povedenije 'rude behavior', derzkoe povedenije 'impudent behavior' and hamskoe povedenie 'caddish behavior') that shape the basis of the Russian non-etiquette language.

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Iconization and conventionalization in children's joint picture games

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Throughout her semiotic development, the child learns to use various kinds of meanings, e.g. lifeworld perceptions and communicative signs. Very young children show genuine but at the same time ambiguous understanding of pictures (DeLoache et al., 1979; DeLoache & Burns, 1994; Liben, 1999); some ambiguities remain for years in childhood (Robinson et al., 1994; Zaitchik, 1990). A critical aspect is to understand the use and potentiality of similarity relations as resources in communication. Grounded in their primary iconic relations (Sonesson, 2008) pictures have adequate meanings that can be shared by very young children and adults. However, based on the same argument not all meanings by a picture are shared (Lenninger, 2012).

In their second year children enjoy labelling games. As in other communication games social interaction dominates meaning for the child. The initial structure for communication games is dyadic (Bates, 1979; Nelson, 2007). Vocal and gestural communication takes advantage of the dyadic response immediacy. When the picture is brought into the game previous engagements and experience of shared actions predominates the child's understanding.

One reason for the protracted time scale in children's learning to understand pictures may be explained by an encounter or tension between, on the one hand, acts of iconization when generalizing perceptual similarities; and, on the other, acts of communication when generalizing communicative meanings through a process of conventionalization. In the presentation these two processes are discussed within the development of young children's picture understanding.

Universals of poetic rhythm in poems by Seamus Heaney

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Poetic rhythm is formed in a process, where reading adjusts the sounds of the poem into patterns that are not exactly equivalent with acoustic registration. This is done with the help of perceptual schemas that are triggered by the means of versification and give basic form to the gestalts of the poem.

At the neurological level, we have three kinds of memory with different extension:

- The short time memory has a time limit of about 3 seconds (2 – 5 seconds). This moment will cover a line and a breath.

- The echo memory has a time limit of approximately half a second. This interval is recognised in metered poetry - time between prominences endures about half a second.

- The long time memory uses more than 3 seconds. It yields rhythm patterns that are either cultural or cognitive out of biorhythms. Cognitive patterns are supposed to be the primary ones, but cognitive forms tend to develop into aesthetic conventions.

The three kinds of memory also cooperate with three kinds of rhythmic design, serial, sequential, and dynamic rhythm, three basic sets of gestalt qualities. Serial rhythm is to be heard in the tactus, and sequential rhythm in the line. Dynamic rhythm organises the relation between lines and stanzas framed by the whole poem.

The 3 second interval of the short time memory would give a kind of explanation to the most typical device of poetry - the division in short lines. This pictures poetry as a string of expressive moments unlike prose that goes on continuously.

The human body really looks like a system of wider and smaller rhythms. Hormones and neurons all dance in rhythmical patterns. We cannot judge their exact relations to poetry, at least not yet, but these biorhythms are most possibly somehow involved:

- The heart beat that is equivalent to the verse foot - and the size of the echo memory

- The breath size of a verse line (and the approximate size of the short time memory)

- Walking with its many possibilities like jumping and running – or resting.

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Umwelt dynamics in human and non-human ontogeny

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The research on Jakob von Uexküll's concept of umwelt continues to open up new vistas for the semiotic theory. From the point of view of human ontogeny, three stages of development can be outlined based on Uexküll's Theory of Meaning (1982), according to the different types of meaning-making that they involve—the pre-representational umwelt stage of meaning-factors, which are related to the building-plan of the organism; the stage of umwelt of meaning-carriers or objects, which relate the subject to its environment; and finally, the stage of the observer with an umwelt of neutral objects, which are independent of subjective relations. These stages correlate to different, albeit interrelated levels of meaning-making in the biological human being. Although it will be shown that Uexküll's model of the functional cycle is not especially designed for the developmental analysis of human beings, it is clear that in the same way different organisms have different meaning-relations with their environments, so does the organism's umwelt change over the course of its ontogeny. Aside of the theoretical view given on Uexküll's concept of umwelt in the context of human experience and ontogeny, a research study conducted in the early 1930's in Hamburg, Germany by the psychologist Martha Muchow (Muchow; Muchow: in re-publication [1935]) is introduced. It will be argued that Martha Muchow's observations and analyses of the life space of the urban child were philosophically based on Uexküll's model of umwelt and can be considered an application of the model to human development. She found in her observations that although urban dwellers shared the physical environment of the city, they preferred constructing their own city, or life-worlds, according to their own needs and interests. She also found that the city and its parts were experienced differently by different age groups of children. She managed to demonstrate that the way the city is experienced depends on the size and structural particularities of the dwellers of different ages. In other words, she showed that the life worlds of children and adults differ in the example of life spaces they construct. It is further argued that by doing that, she tied Uexküll's model of umwelt to a developmental perspective in the example of human beings, similar to how Uexküll related the model to a comparison of umwelten for different species. While Uexküll demonstrated that different species experience their environment in different ways that complement their physiological build, Muchow adapted his model and showed that the way environment is experienced also depends on individual changes. In addition, Muchow's work in psychology can be considered as a

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Interpreting emerging structures: The interdependence of combinatoriality and compositionality

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Languages have structure on two levels: the level of combinatoriality, where meaningless building blocks make up meaningful signals, and the level of compositionality, where a combination of meaningful signals conveys a meaning which is a transparent function of the meanings of the signals and the way they are combined. Experimental work on language evolution has demonstrated the emergence of structure from unstructured input; however, this is often treated without detailed analysis of structure in relation to meaning. As such, the terms "compositionality" and "combinatoriality" are often conflated or used interchangeably. We argue that even when compositionality and combinatoriality are clearly defined, their emergence and development are interdependent. Further, this interdependence can be investigated experimentally to yield insights into the conditions that facilitate the two forms of structure.

Defining combinatoriality as the reuse of elements in a pattern that does not predict meaning, and compositionality as the reuse of elements in a pattern that does predict meaning, allows for precise characterisation of structure in both real language and experimental results. However, we still encounter problems defining transitional states. In some experimental work investigating the emergence of combinatoriality from a continuous articulation space (de Boer & Verhoef, 2012; Verhoef 2013) participants represent some meanings iconically. As a communication system emerges, initially iconic signals may be reinterpreted as combinatorial, making previously meaningful elements meaningless; however, disentangling these from the point of view of the participant can be challenging (Roberts & Galantucci, 2012). Conversely, Kirby, Cornish & Smith (2008) show compositional language arising through cultural transmission from initially meaningless syllables within holistic signals. The transition of this structure from combinatorial to compositional is driven by participants reinterpreting meaningless signal elements as predicting meaning.

Importantly, these are not only methodological issues with specific experiments, but apply to real language, where combinatorial and compositional structures are neither autonomous, nor fully stable. Pressures from meaning affect combinatorial inventories across languages: e.g., Wedel, Jackson & Kaplan (2013) show that the loss of phonemic contrasts is predicted by the number of minimal

pairs they distinguish. On a more local level, particular constructions within a language move from being compositional to combinatorial as previously novel compounds are lexicalised (e.g. 'understand', 'cupboard'). These changes are driven by the cumulative effects of individuals' changing conceptions of how elements of language predict meaning. We propose future work examining the pressures that lead individuals to introduce and reinterpret language structure in relation to meaning.

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Situated action and semiotic forms: Inter-comprehension between distributed cognition and dialogism

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What do we mean by inter-comprehension? How can it interest a cognitive semiotic? In this paper we'll discuss about inter-comprehension as general process of conversation. Its modelization constitutes an important aim for discourse analysts, situated and distributed cognition theorists (Brassac 2004). Inter-comprehension has been explored by cognition sciences, semiotic and philosophy of action.

Two theoretical tendencies have dealt with this topic. On one hand, a representational direction considering inter-comprehension as an adjustment process of inter-agents' mental states. During the interaction, the speaker intends to transmit a series of contents that the listener re-treats. Inter-comprehension is conceived as a deployment of a succession of "production-interpretation" asymmetric couples presupposing one or several speaker-owned preexisting intentional senses, that the listener has to rediscover, the trace of which is the topic of treatment. The sentence is a representation entity among this chain of individual cognitive processes; it composes a block of information from the thousands populating the listener's world. Therefore, the negotiation defining the inter-comprehension consists of a succession of information treatments engendering mental states.

In opposition to this orientation, we claim a phenomenological, dialogical and distributed approach to the conversational interaction. If we consider meaning as a dialogically and in-process co-built phenomenon, there is no preexisting sense before expression and comprehension of linguistic forms uttered in context. On the contrary, social actors, "immersed in a finely impermanent potential of sense, [...] shape this and make possible a temporary and always negotiable sens to emerge" (Brassac 2004).

Inter-comprehension is this operational and inter-subjective blend. Communicative action has to be considered as a continuous interactional history, during which actors co-shape received forms in semiotic status. This semiotic shaping of interactions spreads by the body of the subjects (and not only by their central nervous system) and the material objects fashioning conversational milieu

and own semiotic-linguistic forms. Thus, sentences can be defined in terms of ecologically oriented semantic potentials (Evans 2006).

We suggest a dialogical, distributed and situated approach according to which the inter-comprehension can be intended as an extended category embracing negotiation of sense and management of cognitive conflicts. "Understanding each other doesn't mean only reach a consensus, even local; it means, more generally, being able to make durable, a shared construction of meaning" (Brassac 2004).

In this way, it is possible to develop an enactive view allowing us a better understanding of interaction as shaping of linguistic, bodily and technological forms and tools.

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The observer perspective: An insight into the interface between memory, imagination, and perception

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Psychologists have distinguished two distinct visual or visuospatial perspectives in autobiographical, or personal memory: Firstly, field perspectives, in which one remembers the past event 'from-the-inside', from one's original point of view; Secondly, observer perspectives, in which one remembers the event from the position of an observer and one sees oneself in the memory (Nigro & Neisser, 1983). The availability of such 'field' and 'observer' perspectives is a puzzling aspect of the phenomenology of memory and imagery. Some philosophers completely neglect the observer perspective in discussions of memory, while still others explicitly deny that observer perspectives are genuine memories. If observer perspectives are not instances of genuine remembering then it must be assumed that they are false memories or images of the imagination.

This paper will argue that observer perspectives are genuine occurrences of autobiographical memories. The phenomenon of the observer perspective will be used to explore the relation between memory, imagination, and perception. It will be suggested that the denial of observer perspective memory may result from an overly strict separation of these three faculties. Rather, the nature of memory, perception, and imagination is more deeply interlaced than some theorists of memory claim. In addition to the multimodal nature of sensory perception, perception itself is multimodal in the sense that it is ineluctably entwined with memory and imagination, and this multimodality can create a space for the inclusion of observer perspectives as occasions of personal memory.

One main reason for denying the mnemonic status of observer perspectives is that at the time of the original event one did not see oneself from such a vantage point. This claim will be examined and it will be argued that such a conception individuates events too finely. If one broadens the notion of perceptual experience, and invokes an active rather than purely passive element to perception, then, it will be proposed, one can account for the phenomenon of observer perspectives as authentic memory images. This proposal, that observer perspectives are genuine memories, will be further examined by drawing on insights from such domains as phenomenology, the causal theory of memory, and theories of mental imagery.

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Back in time is not back in space: New evidence from spontaneous gesture

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The fact that people gesture in seemingly "metaphorical" ways has often been cited as support for the cognitive reality of analogical processing of linguistic metaphors (Lakoff and Johnson 1999; Gibbs 2005). For instance, Rafael Nuñéz and Eve Sweetser (2006) have presented evidence that speakers of the American language Aymara gesture backwards when they talk about the future, consistent with the verbal metaphors in that language. Such observations can be seen as supporting a "cognitive metaphor" theory of linguistic processing.

However, a number of more recent studies have raised doubts about this claim. In one study, Daniel Casasanto found that English-speakers tend not to gesture backwards when they talk about events "back in time," but rather in a sideways fashion, from right to left (Casasanto 2008). Casasonto and Jasmin (2010) also found that left-handed and right-handed subjects gesture differently from each other even when they use identical linguistic expressions. These studies problematize the use of gestures as a source of evidence about thought and language, as it is unclear whether the linguistic or the gestural level should take precedence when the two disagree.

As an elaboration of this argument, I will present a dataset consisting of 194 hand-tagged video clips of Yale University lecturers using the phrases 'far back,' 'way back,' and 'back in time.' The clips have been coded for whether the use of the phrase is temporal or not, whether there is a visible gesture on the video recording, and the directionality of the gesture.

The pattern that emerges from this dataset supports Casasanto's observations: Backwards gestures are in fact extremely rare in connection with temporal back phrases, and right-to-left gestures are much more common. Even more problematically, gestures with theoretically very unexpected forms are also quite common: There are, for instance, several cases in which lecturers gesture back-to-front while uttering phrases like 'way back in lecture one.' This raises some serious problems for an interpretation of either gestures or words as a "window to the mind" (Gibbs 1996: 310).

After presenting, illustrating, and discussing this dataset, I will reflect its theoretical implications. I will suggest that it corroborates a growing concern in cognitive linguistics, namely, the worry that surface phenomena like words and gestures might not reliably reflect cognitive events (Cienki 2008). This raises a

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Imagery as experience

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The so-called Imagery Debate addresses pictures and language as two particular forms of imagery. The question is an epistemological one: do we think in pictures or language – and if in both, are they both indispensable vehicles of thought? Pictorialists consider picture-like representations as a representational form in its own right Propositionalists make a way stronger claim by holding that the one and only format of cognition is a language-like one, and that even though pictorial imagery may occur, it does not play an essential cognitive role.

Despite all their differences, the assumptions standing behind both positions have a lot of – problematic – traits in common:

– They both start out from the idea that there are such things as mental representations, a kind of intermediate entities between the world and us. Spoken language as well as man made pictures thus appear as a mere expression of cognitive states. The gap between objects and signs could be bridged though by looking at our understanding of the world and our understanding of our symbolical access to it as a correlated enterprise.

– Mental representations are conceived of as signs in the aristotelian sense of 'aliquid stat pro aliquo', thereby missing out perspective and experience as crucial to cognition.

– The focus lies mainly on the symbolic dimension of signs – on the interpretation of something as something. However, when iconic and indexical aspects are not taken into consideration, the dynamic character of semiosis vanishes and it becomes difficult to understand interpretation as a learning process.

– Pictorialists and propositionalists both hinge upon the computational model of the mind. Imagery is chiefly looked at as a kind of information processing: Instead of conceiving cognition as an embodied activity of a concerned human being, it is misunderstood as a transformation process and the outcome of such processes can be attributed a meaning only in a rather metaphorical sense.

While for operations like rotating mental objects or combining list elements a technical model can do, when it comes to human actions such as thinking, imagining or remembering it is far from being adequate. The creation, use and interpretation of images and language does not belong to the repertoire of scientific objects, but to the domain of human actions and experience. As such they can't be neither traced in scientific experiments nor clarified by way of computational models but may better be grasped by narrative.

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Cognitive semiotics and the problem of "brain as machine": Identifying firstness-capacity in humanoid robots

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The metaphor of brain as machine, as computing machine, has created such strong parameters around the very discussion of the evolution of the brain and our linguistic capacity that it is, in fact, very difficult to think outside of this imposed paradigm. As humanoid robots are a particular breed of robotics technology (mainly because they are capable of mimicking one of the human being's greatest qualifying types : that is to say our ability to produce and use language) the study of linguistically performing humanoid robots in conjunction with the evolution of language as a greater whole, may provide us with a better metaphor on the brain, or at the very least, confirm, once and for all, that the brain is in fact the seat of stored schemata, lexicons, structures and so on that make our interactability with the world, let alone with other beings in the world, viable.

Through a study and an appreciation of the matrix offered to us through research on code-semiotics, Soren Brier and Cliff Joslyn lay out a theory creating paradigmatic foundations capable of solving the enigma of how life and consciousness emerged. This, combined with Robin Allott's theories on the origins of semiosis and Lorenzo Magnani's contributions on the discourse of artificial minds, serves as the new position on studying counter-evolutionary firstness and the artificial symbolic universe. This paper hopes to provide new insights on how to construct artificial intelligence according to the newly discovered structures of cognitive building blocks through a paleo-semiotic lens and aims at elucidating a different metaphor with which to explain the mind… one that might provide an escape from the prison house of language.

Agentive semiotics: An alternative to semiotics in product design

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Our research proposes Agentive Semiotics as a new perspective to addressing the semiotics studies of industrial design. The novelty of this perspective lies on that design semiotics with Agentive approach is not limited to the artifacts communications aspects, like most design semiotics states of the art, but considers that all kinds of action are an act of signification. For this reason, Agentive Semiotics takes into account experience as a whole. This approach to semiotics is a holistic perspective, based on experience. This focus allows keeping away from linguistic terminology overused in design semiotics studies.

Agentive Semiotics (Niño, forthcoming) is a new research program from Universidad de Bogotá Jorge Tadeo Lozano. Agentive Semiotics is based on a cognitive (enactive/situated) and pragmatistic perspective, inspired by Charles Sanders Peirce's purpose notion and following Dov Gabbay and John Woods (2003) agenda/agent/agency notions.

Agentive Semiotics describes the way an agent accesses to and processes information in order to obtain meaning. Meaning emerges when agent tries to comply his agenda. Agenda is the goal that agent wants to comply. Agendas are states which agents wants to achieve. Agency is the capability for acting. In this way, organisms are agents, but Agentive Semiotics addressing human agents exclusively for the time being.

Agentive Semiotics is supported by the following principles:

1. Signification is an activity of agents

2. The process of signifying is intrinsically able to be assessed and monitored

3. Significance it to be conceived of as a grounded possible (virtual) response, in opposition to signification, which is to be understood as an actual response. This idea does not have any connection with affordance notion, inasmuch as grounded possible response is not only about physical attributes of artifacts, but any kind or response that an object (any semiotic item) can have. Following Niño, 2013 "(…) significance [is] the grounded virtual responsivity (cf. Short, 2007:162) , it is to say, the justified possible response a word, sentence, image or object (in general, a semiotic item) can have; and signification the actual response an agent has in trying to achieve her agendas. In this sense, when an agent is trying to achieve her "local" agendas, she's

always signifying (…). Now, often this signification consists in actualizing the significance of the semiotic items she interacts with (or better, enacts). And when an agent actualizes the significance of a semiotic item not by chance, but with the agenda of "enacting it properly", she tries her agenda to match the virtual derivative purpose(s) of the item(s) in question, and therefore, her signification should match the item's significance. This matching process can be subjected to error also, either because the agent misrecognises or misattributes the item's derivative purpose(s)".

Taking into account the above, our goal in this paper is to explore Agentive Semiotics applications into Industrial Design practice.

The agentive approach enables us to understand in great detail, the process of an agent's using artifacts. This is possible because It focuses on events and has a narrative and enactive character. Designers have to predict what people will do in human-artifact interactions. An agentive approach provides a framework for such an analysis, with a new semiotic basis for design semiotics.

In synthesis, semiotics of design, based upon an agentive framework, offers a manner of comprehending the way that agent assigns meanings to artifacts. And also, the consequences of the artifact meanings assigned by designer.

Agentive Semiotics has a potential for construction of a theoretical base to Design Semiotics with an autonomous corpus and avoiding to force linguistic theories into design studies.

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In this paper we propose to discuss the role of hypoicons in the light of their integration in the larger domain of iconism. In a first work (Morgagni and Chevalier, 2012) we started analysing the various interpretations of the notion of iconicity in semiotics and cognitive science, we turn back to Peirce's original approach of the class of icons, arguing for the necessary preservation of the concept of similarity. In this view, similarity has to be understood in the more general framework of its interrelations with reasoning processes (first of all, abduction), just like the trichotomy of signs should be understood in the more general framework of semiotics as a systemic cognitive activity.

Further developments of this approach require discussing the precise status of hypoicons. As is well known, they include images, diagrams and metaphors. But what is the exact relation between icon and hypoicon? Peirce claims that "an iconic representamen may be termed a hypoicon" (EP 2.273, 1903), meaning that an icon is only the possibility of an uninstantiated sign whereas the hypoicon is the sign. But the specification added by hypoicons to icons may not be that clear nor univocal. In particular, what is the precise role of metaphors in cognition? As Peirce rather mysteriously writes it, "a pure idea without metaphor or other significant clothing is like an onion without a peel" (EP 2.392). What does it teach us on the role of hypoicons?

We will propose a real systemic semiotic turn, too often overlooked by semioticians as well as by cognitive scientists who most of the time have reduced the problem of iconicity to a simple debate on categories. Hypoicons and their functioning will so be analysed in their interwoven relations with at least the following elements: i) iconic signs taken in their praxis and social uses which represent the signs working primarily by their hypoiconical dimension; ii) perceptual, temporal and intersubjective dimensions of (hypo)iconicity in the light of a form theory driven by minimal narrative mechanisms, habits, social norms and convention, as well as dispositions to act following a global pragmatic epistemology.

Meaning construction and assesment: The agentive semiotics' proposal

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Recent developments in cognitive science have shown that meaning is an online construction people do by deploying cognitive resources (cf. Gibbs, 2006). If this is right, it follows that the meaning of signs is secondary with respect to how agents perform the meaning construction. In this sense, an explanation of how agents construct meaning, and thus an explication of what an agent is and does, is methodologically, epistemologically, and ontologically prior to an explanation of a sign's meaningfulness. A recent proposal dubbed 'agentive semiotics' has endeavored to deal exactly with that. According to it, an entity is an agent only due to its having an agenda, i.e. an aim or objective he or she is directed at (cf. Gabbay & Woods, 2003). Now an individual human agent is constrained by three parameters: embodiment/enactivity (Gallagher, 2005; Menary, 2006; Thompson, 2007; Stewart, Gapenne & Di Paolo, 2010), situatedness (Zlatev et al., 2008; Robbins & Aydede, 2009), and attention (Gurwitsch, 1964; Arvidson, 2006, 2010; cf. Oakley, 2010). On its part, an agenda's completion is open to evaluation, insofar an objective is able to be achieved, completely, partially, or not at all. The main claim of agentive semiotics is that meaning construction emerges when and because an agent tries to accomplish his or her agenda in course. Accordingly, a sign's actual meaning depends upon an agent's actual appropriation of its significance, which is to be conceived of as grounded responsivity (derived from the Peircean tradition of sign significance, understood as grounded interpretability [Short, 2007]). 'Responsivity' here includes things such as affective, sensory-motor, or intellectual potential responses. And of course, a response only occurs in relation to a certain aim or purpose. Thus, inasmuch as a sign is not an agent, its purpose is ultimately derived from the agents' agendas; and so, in order to be used, a sign's purpose must be appropriated as part of online agents' agendas. A potential response is said to be 'grounded' if it is backed or supported by something which warrants up to some degree its being better or appropriate (relative to a purpose). (Within the Peircean tradition, groundedness corresponds to the representamen-object relation.) It follows that a sign is properly used only when its actual response (i.e. actual meaning) matches its grounded responsivity; otherwise, issues such as misunderstandings, errors, defective uses, and the like will emerge in meaning construction. The aim of this presentation is to present the details of this new approach.

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Integrating cultural, socio-ecological and cognitive factors in theories of language evolution

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In this paper the emergence of language will be discussed in the framework of a co-evolving continuum of language, culture and cognition. Contemporary accounts of language evolution put emphasis on different aspects: Biolinguists (cf. Di Sciullo & Boeckx 2011) regard language as a discontinuous accomplishment of genetic evolution that led to emergence of a universal language module (Universal Grammar, or a 'Language Instinct'). In contrast, evolutionary linguistics puts emphasis on cultural language evolution. For the latter there is strong evidence from experimental robotics. Applying usage-based and constructionist approaches from cognitive linguistics in agent-based 'language games' has proven to successfully simulate rapid cultural evolution (cf. Steels 2011). Challenging nativist and universalist models, linguistic structure emerges from scratch via self-organization and selection in the course of many interactions. At the same time, cross-linguistic data from actual languages shows a high variance in grammatical and conceptual categorizations, likewise opposing universal accounts (Croft 2010). There is now a growing body of literature in comparative linguistics suggesting that while there is no strict determinism, mild linguistic relativity effects can be observed across various modalities (see Everett 2013 for a review). Language seems to be intertwined with general cognition and not biologically autonomous. While biological evolution is certainly not to be excluded completely, it is only one factor along with cultural and social evolution as Steels (2012) points out. I furthermore suggest integrating ecological correlations (see, e.g., Majid et al. 2004) to certain cognitive categorization strategies into this cycle. A semiotic experiment will be proposed to test whether the environment at hand has influence on an emerging semiotic communication system, which would suggest that ecological affordances have to be acknowledged as a possible constraining force selecting specific cognitive strategies and their linguistic counterparts. Furthermore the Virtual Reality paradigm employed provides a less abstract and more naturalistic approach to explore an emergent communication system. A cognitive semiotics framework thus allows for integration of data from comparative anthropological and linguistic fieldwork to model cultural evolution, which later can be tested for their psychological reality in neurocognitive research. This interdisciplinary approach is necessary to understand where our uniquely human language ability has come from, how it is shaped at the moment and where it will go.

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The "deonstemic" modality in legal and political discourse: The cognitive semiotics of layered actions

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Modal auxiliary verbs in English (e.g., must, may, can, among others) have been extensively studied as instances of force dynamics (cf. Talmy 2000; Sweetser 1990). The modal, "must," for instance, implies a stronger antagonistic entity exerting force against a weaker agonistic entity. In addition, such modal verbs are thought to apply equally well to situations involving physical and social force as well as to matters of mental causation and inference, leading linguists to distinguish deontic from epistemic modality: The utterance, "You must wash your hands before dinner," imposes an obligation on the addressee, while the utterance, "He must be home, his car is in the driveway" expresses certainty about a given situation. Accounts of deontic and epistemic modalities are treated largely as disjunctives, with occasional acknowledgments that it is possible, given the right context, to coerce epistemic readings out of deontics and vice versa (cf. Sweetser 1990: 65-68)). Systematic treatment of what I lcall "deonstemic" usages has not been sufficiently appreciated, and, thus, theoretical frameworks developed among linguists do not account for their appearance, let alone recognized as a significant discourse phenomenon. Cognitive semioticians, with their concern for understanding meaningful interactions with one's surroundings, including textual ecosystems, are poised to regard such ambiguous cases as exceptions that prove the rule, but only after understanding how these exceptions function.

A close examination of 883 instances of must in 32 of the most influential Supreme Court opinions as well as close examination 43 such instances in the final report of Senate hearings on the banking and finance crisis of 2008 suggest certain situations exist in which modal verbs with local epistemic meanings make full sense only by charting how they are likewise interpreted as deontics. For instance, when Justice Marshall concludes the majority opinion in McCulloch v. Maryland (1809), with the statement, "Such a tax must be unconstitutional," he is at once inferring a conclusion and imposing the rule of law. These ostensible epistemic usages are, in effect, staged communicative acts operating at multiple layers in synchronized harmony, requiring language users to have a shared basis for differentiating the intentional scene of one layer from that of the other (cf. Clark 1996: 353-384). The central empirical finding is that the "deonstemic" modal originates as a jurisprudential act to a nearly exclusive degree, as we find no such instances in the Senate hearings document. We think this fact is partially motivated by an

isomorphic antagonist/agonist relationship in which the semantics of the modal verb aligns with the impositional powers afforded the judges. (See Clinton (1989) for an historical account of the Supreme Court's arrogation of judicial review, the powers to review and declare unconstitutional statutes and orders originating from the executive and legislative branches of federal and state governments.)

Linguistic accounts of modality-in-action necessitate a broader cognitive semiotic approach.

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From verbal statement to gesture: The resemiotization of the Jacob Zuma "shower" statement

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In 2006 current South African president, Jacob Zuma was the accused in a rape trial. Although Zuma was found to be not guilty, the trial is more frequently remembered because of a controversial statement made by Zuma in answer to a question of how he protected himself against HIV/AIDS (the accused was HIV positive). Zuma answered that he took a shower to minimize the risk of contracting the virus. This statement has moved across different contexts, practices, and modes and has been used for different functions in public discourse in South Africa. The concept resemiotization (Iedema 2003, 40) has been used to explain "how meaning making shifts from context to context, from practice to practice, or from one stage of a practice to the next." The coinage of resemiotization has led to multimodal textual analysis being much more grounded in the historical context but have also left many other questions unexplored. For one, Iedema (2003) himself asks what resemiotization says about human experience. Are certain experiences for example more likely to be presented in one mode rather than the other? This paper will start investigating this question by linking multimodal textual analysis more clearly with theories of embodied experience (Csordas 1994). Firstly, how the statement made by Zuma moved from the verbal to the visual and gestural modes will be investigated. Secondly, the textual analysis will be provided with a "dialectical partner" (Csordas 1994, 13) in the form of a phenomenological understanding of multimodality. I finally argue that by having both a textual and phenomenological understanding of resemiotization we can move some way to investigating not only the how of resemiotization but also the why.

A cognitive semiotic perspective on the nature and limitations of concepts and conceptual frameworks

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Theories of concepts represent a particular subfield within philosophy of mind and, under the potentially misleading rubric of "knowledge representation", cognitive science, describing the properties of conceptual thought typically through a list of such desiderata as systematicity, productivity, compositionality, intentionality, and Kantian spontaneity. Leading contemporary theories include Jesse Prinz's proxtypes theory and Peter Gärdenfors' conceptual spaces theory, both based on Eleanor Rosch's work on prototypes and firmly entrenched in the empiricist tradition; and Jerry Fodor's informational atomism account, grounded in rationalism.

Cognitive semiotics helps clarify discussion over what is, inevitably, a highly abstract area, bordering on metaphysics, by:

- Through its roots in phenomenology, drawing attention to the conceptual distinction between concepts as we reflect on them and concepts as we possess and employ them non-reflectively: the former representational, the latter non-representational;

- Through its connections to the semiotic theories of Peirce and Saussure, showing how concepts and signs as communicative tools common to e.g. gesture and language are both deeply intertwined and pull apart from each other;

- Through its deep resonance with enactive philosophy, explicating how -- in keeping with the discussions of categorical perception from the psychology literature -- concepts impose seemingly sharp and clear boundaries on what are, from a conceptual perspective, underlying continuities;

- Through its focus on meaning and meaning making in the context of dynamic systems, showing how concepts, though they *are* concepts to the extent to which they are relatively stable across contexts, nevertheless *must* adapt to fit each new context, by definition at least subtly different from any previous context.

- Through its bold refusal to shy away from opposing perspectives, showing how concepts both *extend* cognitive capacities and -- in fundamental ways -- limit them.

As a specific application area and relatively concrete example, I will discuss the conceptual nature of metaphor from a cognitive semiotic perspective, based on work I am doing with Jens Allwood of Göteborg University. I will show how – given the problematic nature of so-called literal meaning – the crucial distinction is *not* between literal and metaphorical meaning, but between what is implicitly

and explicitly metaphorical. The lesson is not -- as some might lampoon our position -- that "all meaning is metaphorical" but rather that metaphor is intrinsic to meaning, even if many conceptual and linguistic constructions are not -- with good reason! -- termed metaphorical.

Retracing cultural symmetries: A digital prototype for testing embodied relationships in language, culture and cognition

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Picture a pair of patterns: Argyle knit and Celtic knots. Both are medieval Gaelic designs from remote regions of two North Atlantic islands, yet both share striking iconicity with motifs found in traditional societies around the world – societies separated not only by thousands of miles but also by thousands of years. This might be unsurprising were not such patterns, and the simpler crisscrossing geometries from which they derive, absent from the visible natural world. Stranger still, the earliest known example of human symbolic representation is itself a lattice design inscribed on a 73,000 year old fragment of red ochre (Henshilwood et al. 2009, 2011). Such facts as these blend to become an Indexical Legisign, an unwitting "symptom" that cries out for explanation; but surprisingly little progress has been made in answering (or even posing) such questions. In short, the persistent re-appearance of crisscrossing lattice designs throughout human history suggests a kind of "universal selection bias" (Froese et al. 2013: 208) with values, or meaningful benefits, that require explanation.

As part of a broader project intent on exploring the interrelationships these designs may share with the organization of language, culture and embodied meaning, the paper reports on the development of a digital touchscreen application prototype that is being designed as a tool for exploring the cognitive/affective benefits of observing and retracing intertwining patterns from traditional cultures around the world. Interface design is described, along with plans for experimental trials. Cognitive testing will explore meaningful benefits that may result from manually or visually retracing such patterns, including possibilities for enhanced fluid cognition, esthetic pleasure in pattern completion, analogic/linguistic pattern solving and general attitudes toward ambiguity and paradox. Should cognitive testing prove conclusive in any of these regards, this would help explain the mysteries outlined above.

The paper interweaves presentation of prototype design with discussion of cognitive semiotic grounding, from the diagrammatic relations of Charles S. Peirce (e.g., 1902: CP 2.277, 4.233) to the intertwining phenomenology of Maurice Merleau-Ponty (1960) and the corporeal schemas of cognitive semantics (Johnson 1987, Hampe 2005). Contemporary methods of plane-pattern analysis in

anthropology (Washburn and Crow 1988, 2004) provide further perspective, particularly when modified by a recent finding in the conceptual evolution of "symmetry" (Hon and Goldstein 2008), suggesting that the traditional designs in question are not merely bilaterally symmetric but involve a more ancient awareness of harmony between parts and wholes.

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Cooperation as a major drive for the development of cognitive abilities in the Homo genus

Juan Olvido Perea García

When trying to account for the differences between humans and other animals (especially other apes, in comparative studies, but also cetaceans and birds) it is clear that the rise of cultural phenomena sets us apart from them in significant ways. Drawing from the study of apes, there has been a tendency to assume that the development of social skills in the homo genus has been influenced by intraspecific competition.

Less attention has been paid, however, to the role of intraspecific collaboration and its role in shaping our social interactions and, eventually, the cultures we embody and enact in the course of our individual development. By making use of the notion of "inclusive fitness", I will present a series of findings from different fields in order to illustrate how humans' cognitive endowment and peculiar physiology strongly point towards collaboration as a major drive for the evolution of cognitive abilities in the homo genus.

Regarding physiological aspects of human beings, the research conducted by Kobayashi & Koshima (their "signaling hypothesis", specifically, Tomasello's et al. expansion on it - the "cooperative eye hypothesis") will be pivotal in developing my own view. In relation to our cognitive endowment, I will refer to terms such as "joint attention", "natural pedagogy" and "ostensive cues".

Phenomenological modalization and the mutual enlightenment

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Universidad de Bogotá Jorge Tadeo Lozano

Recent work on the relationship between phenomenology and cognitive linguistics has developed the seminal idea proposed by Sonesson (1989; 2009), according to which cognitive science, semiotics and phenomenology, must be intertwined in order to advance into a new and suitable paradigm for the study of meaning. Particularly, J. Zlatev (2010; Blomberg & Zlatev, 2013) has tried to advance in the phenomenological elucidation of both the fundamental assumptions made by cognitive linguistics regarding the nature of language, and the experiential basis underlying some of the cognitive phenomena revealed by cognitive linguists (e.gr. fictive motion (Langacker, 2008; Talmy, 2003)). Nonetheless, little has been said on the specific ways in which phenomenology can be enriched by the discoveries and the insights made by cognitive linguists, which, following Husserl (1973: 50) – and, to some extent, Sonesson (2009) – may function as leading clues in the actual practice of phenomenology.

In the work of Husserl, there seems to be a specific interest on the phenomenological grounding of modern science, and it must be said that his exceptional and revealing analyses on time, the lived body, and intersubjectivity, which have fascinated contemporary readers with an interest in cognitive science (to name a few, Thompson, 2007; Gallagher, 2005; Gallagher and Zahavi, 2008), are carried out by Husserl with a clear teleological orientation towards logic and scientific knowledge. Maybe this is why Husserl devoted too little attention to ordinary speech, whose epistemological value is far away from the commitments language has, when circumscribed within scientific thinking, concerning truth and logical consistency. However, his analyses on modalization, carried out in his Analyses concerning Active and Passive Synthesis (1920/21 [2001]), open the door to a phenomenological investigation on ordinary speech (though not developed by Husserl himself) that fits very well with the critique of formal semantics advanced by cognitive linguistics.

In my presentation I will, first, ask about the relevance for cognitive linguistics, specifically for the notion of "construal" as proposed by Langacker (2008), of the Husserlian characterization of meaning in terms of the interplay between empty and fulfilled intentions. Then, I will show how the dyad empty-fulfilled intention is experientially modalized in a phenomenological analysis of speech acts. Finally, I will make some brief remarks on the importance of the

notion of horizon for the phenomenological understanding of the construal operation, as proposed by cognitive linguistics. The presentation follows both Sonesson's and Zlatev's suggestions on the role of phenomenology in the study of semiotics, but explores the relevance of some phenomenological domains, whose relevance must be pointed out in order to advance in the "mutual enlightenment" (Gallagher, 1997) between phenomenology and cognitive science.

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Implicit primary metaphors as a subliminal advertising strategy

Lorena Pérez Hernández

Metaphor is a powerful tool of rhetoric. It allows speakers in general and professionals working with language as a raw material (i.e. branding and marketing specialists, journalists, etc.) to creatively lead their audiences to envision one thing in terms of another, thus highlighting some of the relevant characteristics of their communicative target. As noted by Zaltman et al. (1982: 170) "there are probably few areas of inquiry in the social sciences that rely on metaphor to the degree marketing does." However, there are also very few references in the marketing literature devoted to an understanding of its nature, use, and inherent limitations (Kitchen, 2008: 5; Tynan, 2008: 11). Other disciplines, such as linguistics, have looked into the metaphorical basis of marketing and advertising narratives with the purpose of finding evidence of the workings and usefulness of metaphor in yet another type of discourse and,

more recently, in the rich variety of modes (audial, visual, textual) offered by printed ads and commercials (Forceville, 1996); or alternatively, in order to delve into the role of metaphor in the creation of inferences and persuasion in the discourse of advertising (Dabrowski, 2000; Lundmark, 2005; Martín de la Rosa, 2009).

This paper looks deeper into the use of metaphor in advertising. More specifically, it focuses on the use and potential abuse of a specific type of metaphors in advertising narratives, namely those whose source domain is experientially grounded (i.e. primary metaphors) in human sensory-motor actions and notions (i.e. upward/downward/horizontal movement/location, experience of containment, etc.) and physical feelings (e.g. hunger, thirst, heat, cold, closeness, distance, etc.) The use of explicit primary metaphors in advertising has already been pointed at in previous works (Forceville, 1996; Ágnes, 2009). As our corpus of printed ads and commercials shows, however, primary metaphors are also often included in ads in an implicit, submerged manner, so that only the source domain of the metaphor is present and its full activation does not take place in the ad/commercial, but in the minds of the audience. Since primary metaphors are conceptually basic and experiencially grounded, this activation is virtually automatic and inescapable, leading the consumer to make associations that are not explicitly communicated. The results of the analysis should lead to a debate on the ethics and appropriateness of the use of this type of implicit primary metaphors in advertising. Their usefulness is already beyond doubt given the success of some well-known marketing campaigns that have based their narratives on this strategy.

Are you indicating (for me)? The role of stimulus relations in pointing behaviours

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A point does not start with an intent to communicate. It starts with an interpretation of the surroundings, where things are perceived to stand in relation to each other. This is primary, and any communicative expression concerning the surroundings is secondary. A referential pointing gesture thus singles out one thing among others. Importantly, these other things must have been interpreted to stand in a confounding relation to the thing that has been singled out, hence the need to

single it out. (A "thing" can of course be a collective – but then a collective that is clearly differentiated from other things.)

What has been described above is the case of the ideal point: the indication. There are other, point-like, behaviours that are not necessarily true cases of indication. I propose a take on point- and point-like behaviours that takes this underlying prerequisite into consideration, which we can call the ability to be selective – to make choices - which in turn depends on relating stimuli. Together with the more classic focus on social cognition, we thus end up with two intersecting dimensions on which we can map point-like behaviours:

1. non-relational vs relational strategies
2. non-informative vs informative strategies

This gives four classes of point-like behaviours. The talk will illustrate these classes with examples from empirical work with great apes; species that are expected to indicate in various forms of choice-tasks, as well as tested on their understanding of point gestures. While focusing on productive pointing, the talk will also touch upon implications for understanding other's pointing behaviours. It is proposed that certain, somewhat perplexing, effects in these studies are best interpreted by considering that non-relational strategies might have been involved. If that is the case, it is also premature to explain the behaviours in these cases solely from a socio-cognitive point of view.

Prosodic iconic schemas

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While studying discourse prosody, the researcher has to face a certain number of phenomena that the classical structural approaches cannot provide an account for. On the contrary, an experiential and embodied approach of discourse proposes to consider prosody beyond its syntactical and phonological features as it takes into account its sensori-motor features (Auchlin 2013; Pršir and Simon 2013).

How do voice and prosody participate in the construction of a meaning? The major problem for a linguist when dealing with prosody is that there is no one-to-one correspondence between its form and its function. But still, there is a mutual understanding of prosodic signs among the speakers. Following Johnson's (1987) notion of image schema, as well as proposals of Barsalou (1999), I try to gather evidence for what I name prosodic iconic schemas such as amplification, hesitation, opposition, balancing or alert. These schemas are considered through

their relation with the real world (interaction between people and objects, time and space) according to the Lakoff and Johnson (1980) experiential viewpoint.

The scope of this paper is to investigate the body-language relation through natural speech data: everyday conversation and radio press review in French. Focus is on reported speech, the moments where the speaker changes his vocal and prosodic features while imitating the quoted persons. Their phonostyle is integrated within the speaker's, and this causes a complex perceptual and experiential integration (Brandt 2010, Pršir 2012).

Study of iconic schemas of the speaker's speech helps to understand how he uses prosodic variation to express his stance in the middle of other voices. I argue that the speaker uses different prosodic devices to superimpose his point of view to the quotations he is reporting.

Following the principles of usage-based linguistics, I undertake instrumental analysis of fine phonetic details (using Praat and its implemented scripts: Prosogram, Prosodyn) to characterise different prosodic iconic schemas. The data illustrates how speakers use iconic and embodied procedures to express themselves through their prosody. In a general way, this research contributes to a global understanding of prosody in discourse organisation, particularly in its polyphonic and dialogic dimensions.

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Relevance and tellability in pictorial storytelling

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In this paper, I shall discuss some possible criteria of narrativity with regard to pictorial objects, and I will argue that pictorial works may express or imply narrative structures of various kinds. In which way(s) can pictorial representations render stories, and which structural, causal or otherwise narrative-enabling properties are most relevant in this respect? Further, I intend to focus upon another kind of relevance, namely the narrativeness of pictures, their "tellability" qua stories --that is, what makes them worth telling at all, or their noteworthiness.

A number of features contributing to the tellability of narratives have been suggested, such as eventfulness, changes of state, and the deviation of event or action sequences from pre-established expectations. Alternative criteria for tellability would include, for example, suspense, curiosity, and surprise; unusualness; switches and contrasts; violations of certain orders (political, social, or moral); and so on. Apart from that, it could also be argued that the emotional significance and exemplary status of narrated events play a crucial role. Monika Fludernik, for example, has stressed the relationship between "experientiality" and narrativity, the appeal to humans' prototypical existential concerns. Indeed, many successful stories seem to be concerned with more or less universal human preoccupations such as sex, danger, life and death, power, money, and so on (Roger Schank 1979).

This paper will debate what narrative features might be more relevant than others as enabling or "good-making" qualities of pictorial storytelling. Recent research within cognitive psychology and narratology, as well as some concrete pictorial examples, will be taken into account.

Metonymic taboo descriptions: Multimodal behaviors moving along an indexicality-iconicity continuum

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This research examines how speakers employ speech and manual gestures when talking about a subject matter representing a taboo in their culture(s). So far only little research has been done on gestural taboos (Kita 2009). Research focusing on verbal behavior suggests that mainly socially accepted aspects of a taboo topic are profiled for communicative purposes (Lanza 2002).

The study presented here is based on a corpus consisting of multimodal discourse data of thirty bilingual native speakers of Luganda (the language of the Baganda clan in Uganda) and Ugandan English (Rekittke 2012). Participants were asked to retell in each language an Ugandan short film featuring human actors. The movie deals with the issue of adultery which does not exhibit the same taboo status across social groups (Luchtenberg 1999). Correspondingly, the discourse strategies observed in the data reveal varying degrees of explicitness in the speech and also varying degrees of iconicity in the gestures.

Following Mittelberg & Waugh (in press), we first demonstrate how distinct metonymic principles may operationalize different kinds of contiguity relations (Jakobson & Pomorska 1987). Drawing on inner contiguity relations of an action or object affords different degrees of iconicity and abstraction (via internal metonymy). Activating outer contiguity relations between persons/actions in the movie scenes – or between gesturing hands and the virtual bodies/places they allude to – allows for indirect reference through indexicality (via external metonymy). Furthermore, we show how these gestural practices share the semiotic work of mediating taboo topics with the concurrent speech.

Results are presented along an indexicality-iconicity continuum (Mittelberg 2013), ranging from predominantly indexical gestures (external metonymy) to schematic image, diagrammatic and metaphoric iconicity (Peirce 1955) profiling selected aspects of the interaction in a given scene (internal metonymy). This continuum of gestural practices was found to correlate with patterns of speech strategies characteristic of taboo discourse: A) Pointing and palm-up open hand (Müller 2004) gestures primarily co-occur with straightforward verbal expression (e.g., 'having sex'). B) Gestural diagrams underpin verbal reference to relationships and morality (e.g., 'cheating'). C) Gestures reflecting image schemas (e.g., Cienki 2005) portray semantic primitives: e.g., gestures expressing CONTAINMENT tend to accompany paraphrases underlining the action's private character (e.g.,

'doing their things', 'secret love'); gestures evoking a PATH or CYCLE (Ladewig 2010) express the idea of ongoing action (e.g., 'during the event', 'in the process'). D) The aforementioned schematic gestural imagery may accompany linguistic metaphoric expressions (e.g. 'preparing the meal'; e.g., Cienki & Müller 2008).

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The coming into being of architecture: an agency-based semiotic perspective on the wills that form cities

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While architecture is still often considered in its visual appearance, as a matter of the look of singular buildings, as the manner of singular architects or as the significant style of historical periods – it must in a broader cultural and ecological perspective more rightly be seen as the making of environments through several forms of representation. The coming into being of architecture may be seen as a complex semiotic act that includes professional practices, material constraint, mediated visions, representational images, financial restrictions, legal preconditions, political negotiations and the current sociological state of affairs including the receiving community's expectations and response. Despite the fact that new building projects often are regulated in law to include public opinion, we, as modern citizens, have more or less given up the idea of ourselves influencing the hazardous and often large-scale game of urban development. In an evolutionary perspective we might say that we have lost a sense of architectural community, i.e. a sense of how we like to live with others in large conglomeration. In this paper, a case of architectural renewal of a public square in Malmö, Sweden, will cast light on what a common understanding of the communication of architecture means. Through a semiotic modelling of participating actors, and the authorisation given or not given to these actors, the issue of who has agency will be discussed, including how taken-for-granted agency can be questioned. This modelling includes the impact of the image-, matter-, and text-based modes of communication that are part of the of branding, projecting, engineering, and purchasing of buildings, to mention but a few steps in a typical architectural process. By taking into account the agency-theories of Hammad (1989) and Latour (2005), as well as theorization on emancipatory space (Ranciere 2010), authorisation (Sassen 2010) and niche-construction (Sinha 2009), the collective and individual wills of actors will be considered in ways that allow not only an insight into the becoming of architecture, but also a "semiotics of desire", and how that may have spatial influence on our daily life. As regards the specifically visual representation of architecture, the notion of "secondary iconicity" (Sonesson 2007), i.e. the "explained" look-alike-factor in visual representation, will be shown as important for the linkage between visual impressions and the meaning of images in architectural representation. Thus the mutual interdependence of agency and image, in the coming into being of new environments, will appear as important.

Homo Polyglottus: Multilingualism and multimodality of human culture

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The paper addresses the much-debated questions of human uniqueness and the evolution of natural language from the viewpoint of Yuri Lotman's cultural semiotics.

In recent years, Merlin Donald's (1991, 2001) theory of cognitive and cultural evolution of humans, in which a gestural protolanguage precedes the spoken language, has received a wide recognition, giving rise to a number of other "gesture-first" theories (e.g., Arbib 2012; Zlatev 2008, 2014; Collins 2013). Other scholars, however, argue in favor of a multimodal protolanguage, most notably McNeill (2012), who maintains that thought is multimodal, and speech and gesture are intrinsically linked.

The paper returns to this debate, following several insights of Yuri Lotman and focusing on two essential features of human culture, namely, the unprecedented collective and individual polyglottism, and also the multimodality of our communication. I argue that Lotman's understanding of culture as a collective intellect and especially his concept of semiosphere may offer a conceptual framework for the study of human cognitive evolution. In particular, the application of Lotman's semiotics might challenge the idea that ontogenesis recapitulates phylogenesis, "gesture-first" theories, and the idea of linguocentric cultural evolution.

The semiotic cocktail of food labelling – mixed and consumed

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The cross-disciplinary Danish research project "Spin or fair speak – when foods talk" (www.fairspeak.org) takes an integrated approach to the mechanisms underlying consumers' decoding of words, figures, and images on food packages, jointly referred to as food labelling, during everyday shopping. Unlike traditional marketing approaches, the focus is on supporting the transparency and fairness of in-store product-to-consumer communication rather than on merely triggering consumers' attention, liking, and choice. This includes developing new experimental techniques for measuring the misleading potential of individual labelling solutions on empirical grounds. The present paper presents a further spin-off of that research in the shape of an integrated analysis of the semiotic potential of and interplay between the various labelling elements found on food packages. These span from food names and verbal claims on the front, over more detailed product facts on the back, to logos, brands, signpost labels, and pictures scattered over the physical wrapping and the looks, size, and shape of that wrapping itself. While all these variables are potential carriers of semiotic content, they are mostly dealt with in isolation within research disciplines spanning from linguistics over visual rhetoric to sensory sciences. Still, on food packages they merge into a single "semiotic cocktail" the cognitive and emotional impact of which is not just a straightforward function of its parts. The paper presents a first sketch of a typology of the main categories of food labelling elements in consideration of their degree of propositional determinacy, semantic negotiability, susceptibility to normative regulation, potential for mutual disambiguation, and reliance on first-order embodied sensory experience versus second-order encyclopaedic (propositional) knowledge and pre-determined (linguistic or other) codes. It also briefly addresses the capability of the various elements to attract stimulus- and goal-driven visual attention and the impact of this on the process of semantic disambiguation. The analyses draw upon and synthesizes existing theorizing and empirical insights on the individual elements of the "cocktail", including recent work by the FairSpeak Group. Apart from addressing the specifics of food labelling, the paper aims at illustrating the relevance of the line of analysis suggested to the study of multimodal communication at large.

Simple and double acts of communication

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The idea of the disciples of Jakobson and Peirce, according to which all acts occurring within and between different semiotic systems are acts of translation, may certainly give some insights into processes of meaning, but it leaves us without any understanding of the specificity of the act commonly known as translation. In an earlier paper, I suggested that translation proper (as Jakobson also calls his interlinguistic translation) is a double act of communication, and thus different from single acts of communication, such as the ordinary situation in which several persons are sharing information using one or several semiotic system for which they have (in principle) equal competence. In the following, in order to be able to discuss these issues, I will substitute the notion of transference for Jakobson's notion of translation, retaining the term translation only for his translation proper. It should also be noted that Jakobson erroneously seems to suppose that such transference can only take place from or to language or between languages. Since there must be analogues to interlinguistic transference in other semiotic domains (such as gesture, pictures, etc.), we will adopt the general term intrasemiotic transference. Intralinguistic translation will thus be an instance of intrasemiotic transference.

This argument gives rise to two further issues: would Jakobson's intralinguistic and intersemiotic transferences also be double acts of communication? And could double acts of communication be distinguished from two single acts of communication that follow each other, of which there are certainly numerous instances which we would not like to call translations? To answer both questions, we have to clarify the notion of double act of communication. We will pursue this task in two ways: first of all, we will suggest that the content of both acts of communication should be, in a qualified sense of the term, identical all through the acts, which is impossible for different reasons, in intralinguistic and intersemiotic transference. In the second place, we will argue that it is not the sequence of one act of communication and another one which is a translation of that act into another verbal language which makes translation into a double act of translation, but the fact that this second act must take into account the situation of the sender and receiver of the original act, as well as of the act currently taking place. In this sense, intralinguistic and intersemiotic transferences remain analogous to translation proper.

Some issues in evolutionary cultural semiotics

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Anticipating the work of the Tartu school on the semiotics of culture, Edmund Husserl posited an opposition between the Homeworld and the Alienworld as a universal of all cultures. Originally as a development of the conception of the Tartu model, the Lund school has suggested that a Homeworld, or Ego-culture might, in certain cases, have access to two kinds of alienworlds, the Alius-culture, in which members of other cultures are treated as being on a par with things, well beyond the possibility of any communication, and Alter-culture, where the other is considered more or less as an alternative Ego, with which communicative exchange and, in the ideal case, even understanding is possible. In this way, cultural semiotics is related to the theory of empathy and the study of intersubjectivity. This tripartite model has been used to analyse both historical events and events and phenomena in contemporary society, including the art world. An urgent question, however, is how such universals can be explained from the point of view of evolution. Instead of following mainstream evolutionary psychology, developed out of socio-biology, we will here consider some more recent models in evolutionary theory. Relying on multilevel selection theory, as conceived by Sober & Wilson, we will suggest that Alius-culture cannot only be explained, but will be an immediate result of group selection, in which altruism gains over egoism within the group, only to the extent that each group is pitted against other groups. At the same time, this result leaves Alter-culture a complete mystery. Nevertheless, if there is a co-evolution of culture and nature, as suggested by Boyd & Richerson, it is possible to conceive of Alter-culture as developing out of Alius-culture, possibly initiated as a consequence of the circulation of mates, but also perhaps as slaves and prisoners of war. These are all instances of what we have elsewhere called the inner other, the kind of Alius/Alter that traditionally occupy portions of the territory which Ego-culture conceives as its own. In the end, however, we will have to ask ourselves whether these results may not be artefacts of the use of game theoretical models, which start out from the individual, even to explain group selection. If we really take the competition between groups to be primary, other results should follow.

A Spinozan analysis of film experience

Francesco Sticchi

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Today, Cognitive Film Theory draws upon Cognitive Science, Philosophy, and Linguistics to research the sub-conscious cognitive and emotional acmutivity of film spectators. A number of recent films – for example, Melancholia (2011) by Lars Von Trier – push us to cognitively comprehend and emotionally confront uncomfortable feelings and controversial behaviour of its characters. Thus, spectators are also affected by these extreme negative emotions (the film portrays the end of the world, and dwells on the characters' emotional reaction to this cosmic event). Generally, cognitive film scholars assume that when we experience these kinds of narrations we try to overcome destructive sensations by reaching a final catharsis, or by assuming a distant point of view (Plantinga, 2013, p. 109). Both explanations suggest that viewers can estrange themselves, by watching the film from the outside.

In order to not fall into this reductive explanation, I will apply Baruch Spinoza's model of the human mind to film spectators with the purpose of defining a new kind of agency and potential cognitive activities, particularly referring to his theory of the imitations of affect (Baruch Spinoza, [1677], 2009, p. 279). The Dutch philosopher posited a clear connection between emotion and reason by assuming that we elaborate conceptual models of our physical experience and we use them to understand phenomena and to simulate the others and their perception of the world. In fact a conceptual model is a semantic structure through which words and sings obtain significance. Spinoza claimed that a complete understanding is able to assume also uncomfortable positions, and to transform them into a deeper source of power and comprehension.

As Heidi Morrison Ravven explains (2003), the assumptions made by Spinoza find new interpretation in George Lakoff's linguistic theory and in his analysis of metaphor (Lakoff 1987) – which is not a mere figure of speech but a cognitive model through which we can associate physical (in this case visual) experience to abstract thought. Thanks to these cognitive conceptualizations we can organize the world, since these mappings allow the formulation of language and other abstract activities, and interact with other humans, trying to understand their perceptions and values. Therefore, we can identify a new model of how the meaning making process works within films, establishing a complex physical and semantic interaction between what happens on the screen and within the viewer.

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Cognitive semiotics represents the combination of novel methods with ancient categories (e.g. 'symbol'). But are traditional definitions of such categories still fit for purpose in modern cognitive science? Is it scientifically useful for cognitive semiotics to define symbols as 'arbitrary' or 'conventional'? Naturally, an assessment of fitness-for-purpose depends on that purpose: a specific research question and the methodologies appropriate to that question. One important topic for cognitive semiotics is the evolution of symbolic communication in our species. In this presentation, I evaluate the fitness-for-purpose of traditional definitions of 'symbol' relative to this particular question. I provide theoretical and empirical support for an internal definition of 'symbol' (i.e. one relative to the cognitive processes needed in interpretation) rather than an external definition (i.e. one relative to features of the sign, such as its being arbitrary or conventional). This allows that traditional definitions may be well suited for other research questions.

First, I explore the notion of arbitrariness in human and animal communication and show that, depending on one's sense of 'arbitrary', defining symbols as 'arbitrary signs' either results in claims too subjective for language evolution or focuses unduly on superficial perceptual similarities in a way that runs counter to non-perceptual differences in communicative behaviour: meaning is not ultimately a perceptual issue.

Secondly, I unpack two accounts of 'convention', one based on game theory (Lewis, 1969) and the other on imitation (Millikan, 2005). I argue that, for game-theoretic conventions to play an explanatory role in the evolution of symbolic communication in our species, they require salience-deciding inference (Cubitt and Sugden, 2003; Postema, 2008). For imitative conventions to do the same, they require relevance-deciding inference (Csibra, 2003). I link salience- and relevance-deciding inference to claims about context-deciding inference in pragmatic interpretation (Sperber and Wilson, 1986) to show that what is special about human (or human-like) communication is a matter of this open-ended or comparatively unconstrained form of inference, which I identify as abduction, or insightful hypothesis generation.

Finally, I present several cognitive semiotics experiments where participants make guesses about the meaning of novel signs in communicative contexts that are unconstrained in the ways set out above. These show that adopting this inference-

based definition of 'symbol' has practical, testable implications for language evolution.

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Commutation of cognitive source domains as a semiotic tool for paradigmatic analysis

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The process of conceptual mappings from source to target domains has been the focus of interests of linguists and semioticians ever since Lakoff and Johnson in the last decades of the previous century offered a new cognitive approach towards the complex phenomenon of metaphor. This radical shift in perspective from language to thought has opened space to manifold disciplines of research, semiotics included, with particular emphasis on image schemata deriving mainly from our bodily experience, either anthropologically or culturally grounded, producing both universal and relative concepts of representation. The consequent research of metaphor has mostly been focused on either semasiological or onomasiological analyses based on various corpora in an attempt to categorize the conceptual systems of particular languages or cultures. Such findings have inevitably been the prerequisite for this study of conceptual domains, and in particular Metalude data base of metaphors. The focus of the research is primarily based on the process of *diversification* of metaphorical domains (Goatly, 1997), or *range of target* (Kövecses, 2005). It refers to the existence of various conceptual source domains leading to one target domain (conceptual 'synonymy'), which has been unjustly neglected compared to the much more analysed occurrence of various conceptual target domains being derived from a single source domain (conceptual 'polysemy'). In semiotic terms, the objective of the paper is to examine the alterations of the various, in the database already registered, source domain signifiers for the 'same' conceptual signified. Such a paradigmatic analysis will verify or reject the possibility of replacing some presumably ideologically-loaded metaphors with alternative ones, as suggested by some authors with reference to the Whorfian language determinism and our cognition of reality affected by the choice of metaphorical concepts we live by. The advocated possibility of 'conceptual correctness' will be examined through a number of commutation tests in the same context, with the emphasis on political discourse. In conclusion, if, e.g. 'the goal to shoot/aim at' (POLITICAL ACTIVITY IS FIGHTING) can be replaced by 'the goal to reach' (POLITICAL ACTIVITY IS PATH), or ORGANIZATION can be viewed either as BUILDING or PLANT, it is worth discussing the conditions which make such alternatives possible.

Culture: Copying and compressibility

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Repeated cultural transmission to new individuals transforms cultural information towards increased compressibility (Smith et al. 2013) for instance, languages become more regular (Kirby et al. 2008); and drawings become more recognizeable, more similar to existing schemata (Bartlett, 1932; Sperber, 2006). Existing diffusion chain studies include in their design two processes that could be responsible for this tendency: storing a pattern in memory (where it can interact with pre-existing knowledge), and producing it. We manipulated the presence of storage in memory: participants in a diffusion chain saw an initially abstract seed drawing for ten seconds, and then had to reproduce it either from memory, as in past transmission experiments (memory condition) or having the original in front of them (copy condition).

We found that the drawings in the memory condition became increasingly compressible in the two ways expected: first, they had lower perimetric complexity (Pelli et al. 2006) values; second, they tended to look increasingly like conventional signals such as letters or numbers, which can be interpreted as them having a shorter description length, or algorithmic complexity: "letter R, a dot , a line underneath" as opposed to "two curved lines superimposed, one larger than the other...".

The drawings in the copy condition, in contrast, changed, but not towards increased compressibility: they stayed as complex and abstract as the seed drawings. The details of the drawings and, importantly, innovations introduced by participants, were preserved over repeated productions.

These two aspects of transmission help explain human culture's fundamental balance between stability and innovation. First, copying can introduce innovations that are random with respect to cognitive biases, and cumulatively retain those innovations across the generations. Second, the study crisply demonstrates that when information is transmitted through the bottleneck of learning (even if this is as tiny as remembering a drawing for a matter of seconds), then we see a cumulative increase in compressibility.

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Metaphorical understanding, bodily experience, and cultural context: from STRAIGHT to HETEROSEXUAL

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Metaphorical expressions involving bodily experience widely exist in many languages and they are effective to understand the real world (e.g. Gibbs 2006, 2008, Gibbs and Colson 2012, Johnson 2007). For example, "That person is straight" (honest) is used in English and many other languages. At the same time, the expression means that the person is heterosexual in English. Is the underlying metaphorical extension from STRAIGHT to HETEROSEXUAL less possible in other languages?

The interaction between metaphorical extensions based on bodily experiences and their cultural contexts has been discussed in many places. Some extensions have much to do with speakers' experience in particular cultures (Cienki 1999, Quinn 1991) and the speech community in which certain extensions are employed plays an important role in metaphorical understanding (Croft 2008). I suggest that some unusual extensions can unexpectedly emerge in given cultures, and that they are conceivable in other cultures even though they are not encoded. Some extensions based on bodily senses lead to broad-based understanding.

In this study I investigate metaphorical extensions in English and Japanese through a psychological experiment including questionnaires and interviews. I use the metaphorical expression "That person is straight" and its Japanese equivalent "Ano-hito wa massugu da" and examine their related images. Most native speakers in both languages connect the expression (honest) to the images [a person who stands upright] and [a person who goes straight without deviating]. In addition, many English speakers give the image [a pair of couple] for the expression (heterosexual). "That person is straight" has two underlying metaphorical extensions from STRAIGHT to HETEROSEXUAL and from STRAIGHT to HONEST.

In the United States, the word "straight" (heterosexual) has its origin from a gay slang in the mid 20th century. In Western cultures some people speak significantly of gay and the word "homosexual" is used to contain a person's social identity (Green & Stiers 2002). It is no wonder that some words indicating "heterosexual" can be newly produced there. In Japan, social affiliation based on sexual orientation does not exert a great influence on person's personality and

LGBT social movements have been inactive. However, many Japanese speakers can imagine the meaning (heterosexual) through the mediating concept NORMAL or CONVENTIONAL which leads to HONEST and can bridge the gap between STRAIGHT and HETEROSEXUAL. By using their bodily senses on STRAIGHT, they understand the extension from STRAIGHT to HETEROSEXUAL.

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Will the agents of nature please rise: What is agency?

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In this presentation I present Tønnessen, forthcoming, the first in a series of review articles addressing biosemiotic terminology, which is meant to establish the format of the series. In contrast to the five existing biosemiotic glossaries compiled by individual authors (one or a few), this project is inclusive and designed to integrate views of a representative group of members within the biosemiotic community based on a standard survey and related publications. The methodology section describes the format of the survey conducted in November–December 2013 in preparation of the current review and targeted on the two terms 'agent' and 'agency'. Next, I summarize denotation, synonyms and antonyms, with special emphasis on the denotation of these terms in current biosemiotic usage. On this point the survey findings include ratings of nine citations defining or making use of the two terms. I provide a summary of respondents' own definitions of the terms and suggested usage. Further sections address etymology, connotations, and related terms in English and other languages. A section on the notions' mainstream meaning vs. their meaning in biosemiotics is then followed by attempt at synthesis and conclusions.

While some other fields, such as medical and veterinary science, has a pragmatic interest in the notion of agency qua causal, biosemiotics has an ontological interest in the occurrence of agency in the living realm at large. Although there is currently no consensus in the biosemiotic community on what constitutes a semiotic agent, i.e. an agent in the context of semiosis (the action of signs), most respondents agree that core attributes of an agent include goal-directedness, self-governed activity, processing of semiosis and choice of action, with these features being vital for the functioning of the living system in question. I agree that these four features are constitutive of biosemiotic agents, and further suggest to define 'semiotic agency' as the capacity a living system has of affecting the course of events in which it is involved by relating to sign relationships. Finally, I stipulate that biosemiotic agents fall within three major categories, namely 1) sub-organismic biosemiotic agents, 2) organismic biosemiotic agents and 3) super-organismic biosemiotic agents.

Tønnessen, Morten, forthcoming. The biosemiotic glossary project: Agent, agency. To appear in Biosemiotics 8(1), April 2015.

A system of replicable constraints in the age of semiotic binge: On the complementarity of symbolic and dynamic aspects of language

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Converging with a framework recently developed by Joanna Rączaszek-Leonardi, my contribution will address language as a system of replicable constraints (Rączaszek-Leonardi and Kelso 2008; Rączaszek-Leonardi 2009, 2013). From this perspective, linguistic symbols underdetermine the message being conveyed, while the rest of the communication is supplied by the specific frame of reference. In other words, symbols constrain the development of an interaction, rather than performing a merely representational function. As a result, meaning is not to be found in either individual minds or objects of the external world, but rather should be seen as soft-assembling in context.

In an age of proliferation of media, when we are constantly -and, often, simultaneously- attending to multiple stimuli, I will investigate the integration of linguistic symbols and visual background in a sample of multi-modal pictures published on Facebook® by different users over the last year. Given the present approach, the expectation is that the conventional semantic value of a linguistic symbol will constrain the range of possible non-linguistic backgrounds it can be coupled to, without nevertheless being deterministic. The results show that not only is this in fact the case, but the process is bi-directional, with the non-linguistic background also constraining the choice of the linguistic symbol. While the coupling of a linguistic with a non-linguistic stimulus may seem an individual rather than social affair, this is not the case. Indeed, the publication of a post happens in the context of a social network, where communication is regulated by collective dynamics (cf. Rączaszek-Leonardi and Cowley 2012), and can trigger a wide range of potential integrations and replies.

I will thus suggest that the increasing complexity of the contexts of language use speaks in favor of the complementarity of symbolic and dynamic aspects of language advocated by Rączaszek-Leonardi. Indeed, it is possible to observe a principle of causal circularity in action (Kelso 1995): on the one hand, the sum of common traits observable in the bulk of occurrences of a symbol over time shapes its conventional semantic value, allowing the community of language users to employ it again later; on the other hand, each situated occurrence of this symbol integrates this value with contextual information. From this perspective, it seems

possible to argue that each communicative event creates its own meaning (cf. Thelen and Smith 1994); therefore, it seems sensible to characterize linguistic symbols as constraints on the development of a specific interaction.

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Some ways gestures and diagrams communicate

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Both gestures and diagrams use space and elements in space to represent and communicate a range of kinds of information. A series of experiments on production, preference, and performance illustrate and validate the immediacy of establishing certain meanings in contexts by using place in space and elements such as simple geometric forms that can be drawn or gestured. For example, dots stand for places in maps and ideas in knowledge networks; lines are like paths and connect places on maps, values in graphs, ideas in networks. Arrows are asymmetric paths and indicate asymmetric relations. The presence of these simple geometric forms change meanings. Similarly, viewing or producing different simple gestures accompanying the same verbalscript change meaning about time and action. Other experiments I will report show that constructing simple schematic diagrams or gestures can augment memory and understanding. The augmentation of memory, comprehension, and performance seems to derive from the fact that the forms and locations of forms used in diagrams and gesture bear more immediate relations to meanings.

Individual and joint epistemic exploration in a scrabble-task

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Discussions in the context of extended and distributed cognition have pointed to the way people enhance their performance in cognitive tasks by relying on the manipulation of external artifacts (Clark and Chalmers 1998; Hutchins 1995). By externalizing a cognitive problem in a public and manipulable representation, we can explore the problem by manually experimenting on it, hence the notion of epistemic actions (Kirsh and Maglio 1992; 1994). While most experimental research within this field of research has been conducted on ways that solitary individuals use tools to think, we extend the paradigm to the case of joint reasoning. We hypothesize that the epistemic manipulation of external artifacts might be particularly powerful in the case of joint reasoning as it facilitates the sharing and collective exploration of perspectives and insights. In this paper, we compare the effects of working alone or together in embodied problem solving by employing a Scrabble-like, experimental setting.

28 pairs of participants had to generate as many words as possible from 2 balanced sets of 7 letters either individually or collectively. In one condition they could freely manipulate the tiles while in another the only had visual access but could not reorder tiles. Preliminary results indicate that pairs indeed outperform the best of the individuals in this task. Furthermore, two parameters have a significant impact on the efficacy of collaboration: i) Pairs, whose performance is more similar in individual trials, gain higher benefit from collaboration and ii) Pairs having the collective condition first perform better. This points to collaboration catalyzing optimal solution strategies which can be used in the successive individual trial.

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Objects and nouns: A theory on the relation between language and cognition

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Most proposals that aim to investigate the relation between cognition and language study in detail the sets of ontological primitives that constitute these domains. Ontologies of cognitive representations about the external world include primitives such as objects, places and events (O'Keefe & Nadel 1978; Landau & Jackendoff 1993; Scholl 2001; Metzinger & Gallese 2003; Tversky et al. 2011). Linguistic proposals usually suggest that syntactic categories such as nouns, prepositions, adjectives and verbs form the building blocks of most languages (Stassen, 1997). Certain proposals have furthermore argued that there is a one-to-one mapping between these set of ontological primitives. For instance, objects are usually mapped onto nouns, events onto verbs, places onto prepositions (Landau & Jackendoff 1993; Evans 2010). Such an approach to the relation between these domains faces an empirical challenge when semantic categories are taken in consideration: language seems to have a richer ontology than cognition. To illustrate this empirical challenge, consider (1)-(4):

(1) The bird is flying over the cloud
(2) The birds are flying over the cloud
(3) The flock of birds is flying over the cloud
(4) Water is flowing through the canal

Examples (1)-(4) respectively include a singular noun phrase (henceforth: NP), a plural NP, a "group" NP and a mass-denoting NP (water) (Chierchia 1998). All of these sentences can be descriptions of the visual information that a speaker is observing; hence, the sense of these NPs seems to match that of the visual scenarios the speaker describes. Under current assumptions about the relation between cognition and language, these examples are not accounted for, as no precise cognitive relata seem to exist, for these types of NPs.

Our goal in this paper is to offer a solution to this problem. The central idea behind this proposal is to investigate in more detail both cognitive and linguistic ontologies, and offer a principled mapping between the two ontologies. For this purpose, we follow the central assumptions of current models of object recognition (Pylyshyn 1989, 2003; Riesenhuber & Poggio 2002; Tversky et al. 2011). Thus, we assume that a visual object is any possible object that we can keep track of, via indexation in our short-term memory, including "copies" of object types from long-term memory. Via this assumption, we can enrich our ontology with "new"

visual object types such as "plural" or "group" objects (a multiplicity of birds vs. a flock), and show how semantic types and visual types are connected. Thus, we can offer a richer cognitive ontology, and a more precise theory of the relation between language and cognition.

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Normativity and cognitive control in Peirce's second normative science practics

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C.S. Peirce defined his concept of sign and semiotic as a logical concept and theory. As such its principal purpose was to develop a logic of science, how rational scientific inquiry proceeds and what are its normative standards. Although this does not mean that the logic of science would be the sole domain of application of Peirce's semiotic terminology, some of Peirce's methodological principles (most notably the maxim of pragmaticism, ethics of terminology, and the classification of sciences) and the way how he derived his concept of sign as a triadic relation of the representamen, its object, and its interpretant hints that the legitimate domain of application of Peirce's logical sign is not so wide than many semioticians and metaphysicians (and especially biosemioticians) seem to think.

Peircean semiotics is the most clearly applicable to such cognitive processes that either construct or modify some kind of internal model of the (part of) the life-world of some semiotic agent. Such semiotic agent must be at least in principle capable of self-reflection and intentional self-modification of these processes, even if these abilities were not (or even never) actually used. However, humans seem to have meaningful cognitive processes that are non-representational (no object) and which do not directly modify any internal model of the world but the world itself. Especially many biosemiotic agents do not seem to have any updatable internal model of the world at all but be still capable of self-functional world-construction.

It can be argued that instead of trials to generalize the Peircean logical concept of sign, it would be more reasonable to search for other, perhaps less rich, concepts of sign and meaning besides of that logical one. Cognitive psychology or Husserlian phenomenology may be of help here, but also Peirce's classification of sciences gives one hint for the starting point. For Peirce, logic was a theoretical philosophical normative science, "the theory of self-controlled, or deliberate, thought" (EP 2:260, 1903), but besides logic there is also other normative sciences, esthetics and practics/ethics. Especially practics is here in interest – a science of self-controlled conduct, which should in generally be conceptually independent on logic. In Peirce's own few descriptions of the subject matter of practics, the logical signs are nevertheless in use when human action is self-controlledly guided – there are little inquiries (thought-experiments) that are used to anticipate the effects of action or its plan before it is actually executed. The positive content of the practics is nevertheless in its normative characters. While logic has only one (truth about

the object), practics have many, whether the result of action really correspond the expectation or not. This expectation or the 'idea' that is tried to 'materialize' in the action functions as another kind of sign that mediates transition of one state of the agent to another one. Such concept of non-representational action-guiding sign might be needed in semiotic modelling of perceptual processes, creative interpretation, or any practical purpose-oriented action besides the logical concept of sign.

Recognizing Affordances in Event Profiles

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The present model argues that Index is the representational tool driving recognition of event templates. As such, an essential semiotic device underlies recognition of event affordances, given Index's means to capture elemental role shifts (West 2013, forthcoming). Inherent in attentional signs is the means to represent spatial and temporal relations across slices of behavior aggregates -- tracing the relevance of participant roles. Accordingly, via gaze, body pointing, pronouns, and verb types, Index traces the relational components which define events (active, self-initiated happenings giving exchanges or passive receiverships). Index detects structural arrangements and alterations – individuating distinctive agents as actors, directing energy toward targets for receivership, and identifying experiencers as stabilizers of local Objects in the here and now. A modification of Harris and Kavanaugh's (1993) "naughty teddy task" measures children's event categories. Nine different event categories are observed in which teddy has distinct roles. Children are asked whether teddy is "nice, naughty, or whether someone else is. An alternative option is whether no one is nice/naughty." Findings indicate the degree to which children directionalize features of event profiles, and eventually (via dynamic working memory [Baddeley 2007]) arrive at conclusions from premises.

Inferencing from Indexical scaffolds ultimately entails going beyond grounded experience to represent intermediate and final states of affairs for agents, patients, receivers and experiencers, in light of event types (giving, taking, asking, waiting, liking, sleeping, being thrown). The event structures which Indexes mediate entail cause-effect and less encompassing contributory relations. Index's utility extends beyond application to animate participants; it draws upon Peirce's critical concept of Object and the increased affordances assigned to it when new meaning relations materialize. While apprehending affordances has its foundation in sensorimotor genres of perceiving the latent properties intrinsic to objects in particular contexts (Gibson 1979), social/cultural affordances are constructed upon a host of additional components: knowledge of role slots within event structures, expectations about reactions of particular actors assuming event roles, as well as processing cues which invite change in the regularity of events and participants.

Appreciating affordances in the fullest sense (from directional signs) must ultimately rely upon factors beyond theory of mind. Charting how inferences are revised (Magnani 2009) to resolve ignorance or doubt (Woods 2013; Aliseda 2006), represents a necessary , but often uncharted, cognitive competence whose refinement relies essentially upon representational skills.

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Ten drawer positions expressed in multimodal student texts

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Uppsala University

Research shows that literacy teaching in the early school years generally rewards formal aspects of writing at the expense of content aspects (Liberg et al, 2012). Moreover, according to Marsh (2012) children live and deal with different sorts of texts, be they books, films, games, web sites, stickers, bed linen prints etcetera. In order to focus other aspects of writing than formal ones, a more developed metalanguage regarding content aspects of children's early multimodal writing is much needed.

The purpose of this study is therefore to further explore how students use words and pictures when creating texts, and to develop a metalanguage for the multimodal aspects of these texts. In focus is the question of how students through their drawings position themselves in relation to their texts and potential readers. The expressed subject positions – here called drawer positions – are investigated in multimodal texts, made by students in their first school year. The drawer positions were studied partly in terms of how meaning is expressed in the drawings and partly how the drawn and the written parts of text are related (Westlund, 2013). The theoretical framework is based on an expanded concept of text and a dialogic perspective on language use.

A total of 57 multimodal student texts from two different writing situations were analysed with tools based on a social-semiotic text analysis with a hermeneutic approach. The analysis was mainly carried out with Hopperstad's (2010) categories for analysis of children's drawings, inspired by Halliday's systemic functional grammar and the work of Kress and van Leeuwen (2006). For this study another three analytical categories were added to complement the analysis of interpersonal meaning. The categories used for analysis of the interrelation between drawn and written content, are based on Norman's (2012) review of pictures' relation to written text described in research so far.

The analysis of the student texts resulted in a plethora of different combinations of categories, which subsequently were grouped by principle of familiarity. On the basis of these groups eight drawer positions, of which two had an additional augmentative position, were identified. These are the presenting, contact intermediary (relationship reinforcing), contact impeding (relationship threatening), (re-)assuring, tempting, narrative, descriptive and writing-oriented

drawer positions. In my presentation I intend to further describe and illustrate these ten drawing positions.

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Perceptual meaning in nouns and noun phrases

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Over the centuries of linguistic thought it has occasionally been suggested that nouns are in some way associated with concrete, material objects. While the suggestions have been somewhat vague, relying on the spontaneous sense that nouns are thing-like, and while the association is irrelevant for the morphosyntactic identification of nouns in many languages, one still ought to see there is some merit to the idea. It is sensible, though, at the face of it, without support in basic linguistic facts. On the one hand, nouns are easily associated with concrete objects (tree, sky, water); on the other hand, they may just as well represent abstract objects (love, freedom, interest) and events (revolution, party, death). Properly expounded, however, the idea may assist in bridging the gap between linguistic and perceptual experience; it may take part in an account of how high-level, abstract reasoning emerges from a basic, perceptual understanding of the world. If inconsistencies arise in assuming that nouns are both perceptually and more abstractly constituted, this should not be taken as an effective refutation of the idea, but rather as an incentive for further inquiry, as the inconsistencies may be indicative of an actual process of abstraction, performed in the mind of the speaker. In this light, solving the problem of nouns should be a partial key to the solution of a much greater problem in the cognitive sciences. The same line of thought does, of course, apply to other linguistic units as well. Most evidently, it carries over to noun phrases. While nouns as such are associated with the plain visual presentation of an object, different kinds of noun phrases are associated with different structures of visual presentation ("presentation" is here used as in Husserlian phenomenology). In my talk I will particularly consider Adj + N, N.Gen + N and N + P + N as they appear in Swedish.

Translation in the service of a globalized culture: Towards a model of mass communication

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In the corpus of recent semiotic studies, translation has been equated with culture, it has been included within a broader concept of culture, it has itself included culture as coeval with communication itself. In other words, culture, communication and translation have been used as interchangeable terms or as terms competing with each other for broadness and overarching explanatory power (see Torop, 2002: 593, 2008: 257). If "the history of translation is cultural autocommunication" (Torop's 2011: 29) and all communication is translation, then one of the two terms is definitely redundant. If, however, we are to respect both the everyday use of the terms translation, communication and culture, as well as take into account the stricter definitions and specific insights of scholarly research and analysis, we have to admit to the particularities of all three terms.

Translation is supposed to transfer meaning from one set of codes to another set of codes according to a seminal article of Jakobson (2001 [1959]). In other words, it presupposes two systems of codes that are to an extent organized systems with a relative autonomy. It also presupposes a meaning that can exist in more than one code, one set of codes, in other words a meaning that is supra-lingual (intersemiotic), or that is not intrinsically connected to the signifiers of the code. Whatever we opt for, even if we subscribe to Eco's emphasis on Peirce's statement that meaning, in its primary sense, is a translation of a sign into another sign system of signs (Eco, 2001: 69), translation proves to be a specific type of communication. Culture brings in the dimension of hierarchy as well as the dynamics of the codes.

Our premise is that a model of translation by Sonesson (2012), where he suggests an interpretative moment and a rhetorical moment be examined as separate moments in the communication act of translation, can be used as a model of mass communication in general. Two questions arise: In what ways is translation as an act connected to the conditions of mass communication? How is the intersemiotic moment, as well as the mass cultural visual/verbal nexus, to be understood within this relationship?

We would like to suggest that this translation model is appropriate for propaganda, marketing/advertizement and mass communication studies, since it foregrounds issues such as the intention of the "translator", in this case the creator of the "new message", and the truth content available to the translation process. In

other words, far from "moralizing" the discourse, or from resorting to biosemiotics and the neural genesis of signs, the model touches upon substantial issues of cognitive semiotics, by offering a broadness necessary for the study of communicative processes in a globalized culture.

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Aarhus University

The general question this paper addresses is the use of diagrams in problem-solving. In some problems there is a lack of information and different strategies can be used to solve this. In other problems there is too much information; in this case the solver might apply diagrammatic thinking whereby we refer to cognitive strategies reducing unnecessary information. In this paper we present a specific example of the latter type of problems. On a screen is presented a system of connected cogwheels. Two subjects have to determine which way to turn the first wheel in order to achieve a specific effect while being videotaped and carrying accelerometers on their arms. The general interest of this experiment relies on there being two different types of strategies: one is an "embodied" interaction with the wheels, bodily imitating their direction of movement etc. The other is an abstract disembodied strategy reducing unnecessary information; for instance just counting the wheels. Our interest lies in the phase transition from the embodied to the more disembodied strategy. From an initial unstable use of different strategies the participants shift to either of two strategies: one is a smooth outline of the gears, a reminiscence of the causal strategy that maintain information about size and location of the wheels, the other is pointing with a discrete marking of the wheels. Based on the empirical data we want to determine which parameters might push the participant towards one or the other of the two strategies. Our ultimate goal is to get an idea of the exact role of embodiment in diagrammatical thinking.

7. Poster Session

Multimodality, abduction and iconic semiosis: An investigation of role-playing games

Pedro Atã and João Queiroz

Role-playing Games (RPGs) possess singular semiotic features that favors the investigation of multimodality. The game is composed of a fictional narrative whose protagonists are characters controlled by players, which takes place in a fictional world mediated by a system of rules and conventions. The fictional world implies an infinite virtual universe of possible actions. No single representation system is able to materialize all the possible moves available for the participants. This creates the need to recur to several sign systems simultaneously in order to generate a sense of immersion in the fiction: speech, gestures, drawings, diagrams and tables, mathematical equations and the roll of dice. While players transit fluidly across different media, they participate in the advancement of a fictional narrative. Since neither the fictional world nor the fictional narrative can be materially exhausted by any semiotic system, the mode of play is intrinsically open to the generation of new unpredictable outcomes. We characterize this mode of play as an abductive process based on the multimodal manipulation of iconic signs. Abduction is the type of inference involved in the generation and selection of hypotheses, the only inference capable of introducing new ideas. It is closely related to perception, originating from the observation of a mass of facts and appearing to the mind as a flash-like insight. The icon is the type of sign whose signification is dependent on its materiality, and the only sign capable of revealing new information about its object. We express the view that the particular relation between materiality and fiction in RPGs is a semiotic tool relating multimodality, abductive inference and iconic semiosis, and oriented towards the creation of interactive and immersive experiences.

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The purpose of the work is to explore the language of astrology, which reflects the mode of astrological cognition. The latter is aimed at the study of outer and inner personality reality through semiotic and cognitive presentation of ontological structures.

The semiotic way of presentation in astrology is based on the correlation of the sky natural sign system sky and its iconic reflection in the natal chart as a representation of personality characteristics.

The cognitive way of presentation is the result of generalized reflection of the objective reality based on the natural philosophy world view the ground of which is found in the principles of holism, analogy and synchronicity [Jung 1981] and probabilistic determination. The analogy principle is witnessed in two ways: as macrocosm so microcosm, and as inside so outside. The holism principle is realized in participation (Lévy-Bruhl), which is understood as identity of nature and psyche phenomena which is determined by influence of common energies and cosmic rhythms.

The primary categorization preconditions articulation of elements coinciding with Aristotelian metaphysical categories – warmth, cold, dryness and wet. As the result of their combination there appear astrological powers – Fire, Earth, Air and Water. Another parameter of designation is connected with four turning points of the earth's year (equinox and solstice), reflecting three-measure character of process evolution: impulse – stability – transformation in cardinal, fixed and mutable crosses in the natal chart.

The zodiac sign meaning is derived from meanings of power, cross and quadrant (energy density).

The leading cognitive mechanism forming the language of astrology is the mechanism of analogy among three level elements: the zodiac sign, the house in the horoscope and the planet, such as Sagittarius – Jupiter – 9th house, indicating the direction (sign), scope of application (house), and the energy type (planet). The combination of limited number of elements (12 signs, 12 houses, 10 planets) results in the indefinite number of description of a person's inner and outer reality. The existence of limited elements' number and unlimited number of messages gives common ground to semiotic system of the natural language system and astrological one. The difference can be seen

in the absence of subsign level elements in astrology similar to phonemes (or letters) of the natural language.

The main semantic mechanisms of sense actualization on the text level are transition from the categorical generalization level to the level of denotative meanings in the natal chart and synthesis of the knowledge received.

The research is devoted to the astrological semiotics system in comparison with that of the natural language. Semiotics of astrology comprises several levels: the natural sign system (the sky with the stars); its iconic picture as the natal chart; the semiotic system of symbolic signs, reflecting the interrelations among sky constellations, astrological chart and events here on earth; sign systems of notation; metalinguistic theories, algorithms, computer programs, literature necessary for the chart to be interpreted.

The syntax of the astrological system is multicomponent. On the level of the astrological language it comprises several subsystems: signs, decanates, terms, degrees; elements, crosses, hemispheres, zones and quadrants; planets, their aspects and configurations; houses, significators and so on, which on the level of the astrological language are hierarchically organized. The fundamental syntactical principle of the astrological language is the duality one, which is realized in the numerous astrological oppositions (Sun-Moon, Venus- Mars, Rahu-Ketu, Fire-Water, junction-opposition of planets) and consequently, psychological classifications (extravert-introvert, emotional sensitivity-rationality, self-sufficiency-dependence, freedom-fatality, etc.). The semantics of the astrological system is found in the natal chart interpretation as a result of its translation into the verbal language. It comprises several levels: archaic with archetypes and mythologemas, functional where signs and planets are given roles and characteristics, axiological where the weakness and power, malevolence and beneficence of the planets are defined; characteristics level that is psychological characteristics of the natives; conceptual level the base units of which are verbalized concepts and metaphorical models.

The specific character of the astrological cognitive system is expressed in the natural philosophy worldview in contrast to the scientific paradigm. The main astrological principles are the principles of holism and analogy. The holism principle is realized in two ways: microcosm and macrocosm likeness, and outer and inner likeness. The holism principle is realized as participation (Levy-Bruhl) that is identity of the natural and spiritual as a result of the common energies and cosmic rhythms. This explains the polysemanticism of the sign in the astrological language, which can't be eliminated in the astrological speech because of its correlation with different planes of existence. The paralogical conscience defines the probabilistic character of the logics

where the conclusion is made only with the certain degree of authenticity, as a result ambiguity and alternative character of the astrological forecast. As we can see, astrological language can be used to talk about the person's inner world.

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Body language: verbal and visual signs of surgical operations

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Since the publication of the firsts anatomical treaties during the last half of the fifteenth century, the medicine hasn't stoped feeding a medical imagination reproduced and strengthened in literature and visual arts. Initially revealed in written form, the knowledge of the structure of the human body as long been used by the artits as a source of inspiration for making their own imaginary representations of cutaways or surgical operations. Indeed, they used the anatomical vocabulary as a « pre-text » from which they create their own visual language. Further, creators used photographies, videos and virtual images to show surgical operations in a tangible way, new mediums whose level of realism modified durably the way of perceiving and experimenting these kind of representations.

We know that anatomical literature and surgical images awake the sensory consciousness associated with physical real-life experiences. Researchers in cognitive sciences demonstrated that the verbal and visual signs appear as powerful operators of sensory conversion because they evoke and reactivate sensations stemming from previous experimentations transformed into psychic representations. But do they generate exactly the same reactions? And what can be said about the photographs and the multimedia images?

I propose to analyse in a semio-historic perspective engraved images of ancient anatomical treaties, painted portraits of doctors (Tulp and Samuel D. Cross) proceeding to public « scientifically » dissections, photos of Orlan's series of plastic surgery operations (or performances) and video frames extracted from crime drama television series showing dissected « fictive » bodies (CSI :LA and Hannibal). My objective is to compare the psychic and sensory impact between verbal and visual signs, moreover between time periods and media. By evaluated the sensori-motor complex that they underlie, I want to see how we can related different levels of fascination and tolerance according to the variety of media in which are represented the images of surgical operations.

Painting as a grammatical metaphor: A cognitive linguistic approach to the study of Miró

Hsin-Yen Chen and I-wen Su
National Taiwan University

This study explores grammatical metaphors in paintings. As Jakobson (1960) nicely puts it, art can be viewed as a site of aesthetic visualization of the 'poetic' in language. In studies of language, as the power of examining verbal metaphors demonstrated by Lakoff & Johnson's Conceptual Metaphor Theory (1980), the importance of studying non-verbal metaphors has been highlighted by Forceville's multimodal studies. However, limited cognition-based research on the understanding of the link between linguistics and visual art is available, as a visual semiotic-based approach is usually adopted. The current study therefore offers a possible bridging between the linguistic and the visual, as well as between cognitive linguistics and visual semiotics. An ideal sample subject was chosen as our starting-point for such a language-art comparison. We noticed that the art component of Spanish Surrealist artist Miró (1893-1983) gradually evolved into a composition of a set of regular meaning-bearing symbols, a feature that is not found in other artists' work so far. Given that there are recurrent patterns in Miró's artistic symbols, we would like to investigate the "grammar" in his paintings, that is, how his art symbols are arranged structurally.

To find out, we studied Miró's matured symbolic paintings created from 1940 to 1970 by reading the non-verbal images and the semantic content suggested by painting titles. Finally, we analyzed the selected paintings based on the iconic mappings rules proposed by Hiraga (2004). We found that iconic grammatical metaphors, such as SIMILARITY OF MEANING IS SIMILARITY OF FORM, MORE CONTENT IS MORE FORM, and MARKED MEANING IS MARKED FORM, are the cognitive principles prevalent in these paintings. The result supports a semiotic nature of Miró's art components and hints at a text-like nature of his painting templates. From an interdisciplinary perspective, the current multimodal study also makes clear the existence of iconic grammatical metaphors as evidenced in Miró's later paintings. In this way, the current study demonstrates how cognitive linguistics could contribute to the description and explanation of artistic practices involving language.

An embodied cognition approach to distinguishing pictures, diagrams, and sentences to inform design

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Ontario College of Art and Design University

Right now you are reading a sentence. Earlier, you might have been looking at a realistic picture, such as a photograph, or an outline drawing in a set of instructions. If you are a programmer, you work with sentence-like structures, such as code, or a system diagram. These are all graphic representations. To varying degrees, the effectiveness of every graphic representation relies on its ability to convey the designer's intended meaning and elicit the intended reaction from its audience.

However, the design of graphic representations, even in technical domains such as visual programming language design or interactive information visualization, currently relies heavily on general principles based solely on practice, intuition, and informal measures of effectiveness from the applied art and craft of design, as opposed to scientific analysis or theory (Moody, 2009; Ramadas, 2009). There is an increasing demand for a scientific understanding of design and its evaluation from stakeholders (who seek evidence for effectiveness; Carpendale, 2008; Fekete, J. D., van Wijk, J., Stasko, J., and North, C., 2008) and designers (who seek to advance their field; Norman, 2010). This project responds to this demand by offering a perceptual cognitive model to inform the design of graphic displays. The central premise behind this theoretical model is that, because both the creation of graphic displays and their perception are literally embodied experiences, a 'science' of graphics should start with the physical body. The model was thus developed with an embodiment orientation (e.g., Barsalou, 2009), specifically based on how graphics are perceptually and cognitively processed.

In my research (Burton & Coppin, 2012; Coppin, 2014), I found that graphic representations are constituted of two properties, pictorial and symbolic information, that emerge through two interrelated aspects of perception. In sighted individuals, for example, every graphic representation makes use of biologically grounded capabilities to 'pick up' visual sensation (i.e., light hitting the retina; cf. Gibson, 1978), which are processed in relation to culturally-learned capabilities (i.e., writing; cf. Goodman, 1976). I observed how graphic representations – such as pictures, diagrams, and sentences – are "naturally selected" (i.e., during different phases of design or problem solving; cf. Kirsh, 2009; Simon, 1996). From these observations, I developed a model

that distinguishes and predicts the effectiveness of pictures, diagrams, and sentences, in terms of how object relations and attributes are pictorially or symbolically represented, relative to the functional roles and contexts of those representations, contexts, and in some cases, individual perceptual-cognitive differences among perceivers (Coppin, 2014).

This model is a step toward a science of visual information design that could lead to evaluation techniques for critical information systems theories for inclusive design, and ergonomically designed software programming tools.

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Recruiting illustration-inspired caricature and 20th century futurism to inspire 'perceptually optimized' depictions of blood flow dynamics.

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Ontario College of Art and Design University

Most flow visualizations are animated over time. This poster embraces the limitations of the poster's 2D surface to enable the audience to 'step outside of time' to show a '4D structure' (a 3D structure over time; see Figure 1). This approach takes a cue from the rich history of biomedical illustration, sequential art, futurist art movements, and the visual vocabularies and conventions of radiology and vascular surgery.
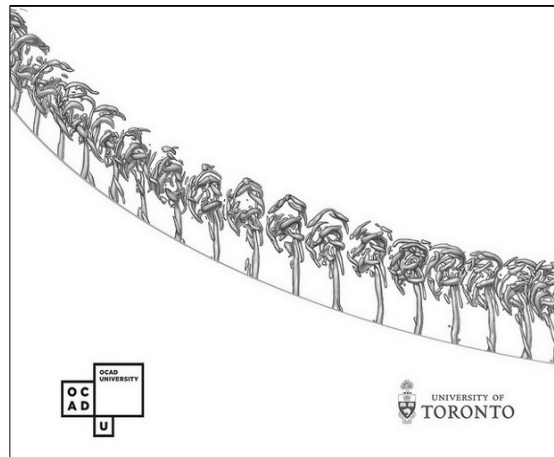
Figure 1

A brain aneurysm is a balloon-like defect of the blood vessel wall (Figure 2, upper left), which, if it ruptures, usually causes death or serious disability. Roughly 5% of adults harbor aneurysms, and because brain scanning is performed more and more frequently, many unruptured but potentially life-threatening aneurysms are being discovered. The dilemma is that the annual risk of rupture is low (~1%), often lower than the risks of treating the aneurysm. It is exactly this high mortality vs. low rupture risk rate that demands precise patient-specific assessment from the clinicians.
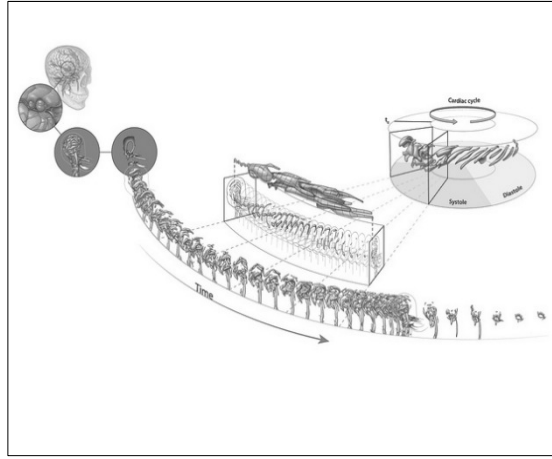
Figure 2

It is impossible to measure the aneurysm wall thickness in order to evaluate directly the risk of rupture. Instead, it is thought that wall thinning or damage can be inferred from the frictional forces exerted by flowing blood on the aneurysm wall. Because these forces cannot be resolved by medical imaging, a popular approach is to perform 'patient-specific' computational fluid dynamic (CFD) simulations based on the three-dimensional aneurysm geometry derived from routine clinical imaging. There is, however, still much debate in the literature about what constitutes 'unhealthy' forces.

Because the flows that give rise to these forces are so complex, it is difficult to understand and communicate them using conventional engineering flow visualizations. We have therefore assembled a unique team of biomedical engineers, artists and designers to develop more effective ways of communicating, both to ourselves and to the clinic, these 'four-dimensional' flows using the principles of biomedical illustration and the perceptual-cognitive properties of information visualization.

The poster presents (and elaborates on) three layers that amplify different aspects of flow within a cardiac cycle (see Figure 2): An outer ring uses an illustration-inspired approach to show the intricate evolution of the CFD-derived vortex cores during a particular phase of the cardiac cycle. The next ring in isolates selected vortex cores on stacked individual frames, with inter-frame details implied by the structures floating above. Finally, the inner ring caricatures the evolving 4D structures in order to visualize them over the entire cardiac cycle.

The semiotics of institutional reality

Alvaro Corral

Universidad Jorge Tadeo Lozano

In recent years, the question of the conditions for the emergence of social institutional reality has been discussed again, specially by John Searle (1995, 2010). Searle thinks that in order to built social reality, human beings need three elements: The assignment of function, collective intentionality and constitutive rules. In my paper I will specially broaden the notion of „assignment of function" as a uniquely human ability, by which only human beings can transform the status of reality in order to make a new reality, an „institutional" one. Only by virtue of this „semiotic ability", a piece of paper can be transformed, for example, in money and as such recognized with an assigned value by the other members of society. This process of symbolization is not, as Searle thinks, the consequence of a mature linguistic ability. As language itself is an institutional reality, I will argue that the process of symbolization is rather the consequence of a „semiotic ability" evolved in the phylogenetic history of our species and it is something we can experience too in the ontogenetic development of children in the first years of life. In the past two decades, authors like Merlin, Zlatev, Hutto, Tomasello and Gallagher, to mention only the most important, have given some powerful insights to this and to related problems, but the question of how meaning emerges, how meaning can be given to something, and how do we so effortlessly interpret meaning, remains obscure. My thesis is that the emergence of meaning is the consequence of an enactive and embodied exercise with other members of society. This human semiotic ability rises in the inter subjective exchange between more or less normal individuals, like in play, in conversation and so on; so that the configuration of language, and the coming out of symbolization, as a requisite for the construction of the social institutional world, is an inter-subjective affair with at least two faces, neither of which can be separated from each other, if we want to comprehend the phenomenon of the emergence of symbols and meaning adequately

Using cognitive semiotics to study human-computer interaction: An application to hypermedia navigation and personal information management

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In this presentation, I introduce a semio-cognitive framework for the study of human-computer interaction. This theoretical framework poses that (1) cognition is essentially an activity of manipulation of mental and material representations, and that (2) information technologies provide their users with representational media (or sign systems) that each support specific cognitive operations. I present this framework though its use in the analysis of data collected in two field studies, on hypermedia navigation and on personal information management (PIM) practices. The analyzed data consists in verbal protocols of technology users describing their activity. In hypermedia navigation, I examine how users of an educational hypermedia construct knowledge by building conceptual integration networks that integrate its informational contents, its technical structure, and the semiotic properties of its interface. This analysis also reveals how the user's conceptual model of their interaction with the hyperdocument is structured by conceptual metaphors (Lakoff & Johnson, 1980, 1999) of either navigation or object manipulation. This model affects the user's browsing activity, which in turn influences their comprehension of the knowledge domain presented by the hyperdocument.

In PIM (Jones, 2008), I observe how researchers organize their collections of texts and bibliographic references into specialized software tools by either filing them into folders or tagging them. My analyses document how the informants exploit the techno-semiotic properties of folders and tags to create, modify and coordinate external representations that make the conceptual organization of their collections perceptible and actionable, thereby structuring their informational activity. Again, the informants' conceptual models of the two functionalities (folders and tags), relying on two different metaphors (filing the object in a container vs applying a tag on the object) plays a key role in determining what work-related categories each is chosen to reify.

Drawing on both cases, I argue that such semio-cognitive analyses of user behavior and discourse allow to deconstruct (1) how the users' activity is

shaped both by their conceptual models of the technological artifact, which rely on multilayer (Collard & Fastrez, 2010) conceptual integration networks (Fauconnier & Turner, 2002; Imaz & Benyon, 2007), and by the techno-semiotic properties of the artifact, which act as material anchors for these conceptual integrations (Hutchins, 2005), and (2) how this affects the outcomes of the informational activity that the artifact supports. Based on this semio-cognitive conceptual framework, these analyses of human-computer interaction can yield valuable recommendations informing the (re)design of novel information technologies.

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Colors and tones are of basic importance in our everyday life. As they are surrounding us at all times they continuously convey meaning. Often, their semiotics are consciously used, as it is the case in advertising or safety signals. Hue is known to influence emotions (Hemphill, 1996; Valdez & Mehrabian, 1994), and it seems to be automatically linked to specific cognitive associations (e. g. Moller, Elliot, & Maier, 2009). For instance, red is frequently associated with negative emotions (Moller u. a., 2009), while green and blue may have more positive connotations (Hemphill, 1996). On the acoustic side, high pitch is experienced more positively than low pitch (Collier & Hubbard, 2001).

Though, despite the fact that colors and tones often co-occur and are also much consciously combined, as for example, in alarm signals (e. g. an ambulance), semiotic cross-modal correspondences between colors and tones have not been investigated until now.

The aim of our questionnaire study was to examine both the universality and the specificity of emotional and semantic associations with four chromatic colors and tones. Concurrently, this study was also the first to focus semiotic correspondences between colors and tones.

For this purpose, participants indicated emotions and associations with four basic colors (red, yellow, blue and green) and four sinus tones of different pitch (475 Hz, 700 Hz, 1500 Hz, 2500 Hz) in a standardized situation.

With regard to the colors, the results indicated a polarized rating of red evoking both negative and positive emotions, whereas green had mainly positive connotations. Blue was associated negatively and yellow neutrally.

In the matter of pitch, high tones elicited negative emotions, while low pitch was perceived positively – opposing previous evidence.

Since both red and high pitch evoked in part comparable patterns of emotions and semantic associations, our results suggest that they feature some overlapping congruent psychological qualities. The same acceptance can be valid for the effects of green and low pitch. This effect can be used as a basis for a better understanding of symbolic concepts and for further investigations of how they are formed in infancy.

This study gives strong first hints of convergent semiotics of colors and tones on a broad multifaceted basis of manifold emotions and associations. These results suggest that cross-modal emotional and semiotic congruencies between

colors and tones exist and that they need to be considered as a strong perceptual vigor in our everyday lives.

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Complex dynamics of a blend: Dissipation at work in Ortega y Gasset's conceptual organization of human

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In this paper we will investigate the degree of online structural emergence out of salient conceptualization processes constructing human. We will scrutinize related ensuing Spanish lexicalizalizations that provide new structure to this category as innovatively used by the Spanish philosopher José Ortega y Gasset; we will focus on the analysis of the form dehumanization as used in enunciations like the title of his highly influential text La deshumanización del arte (1925).

Ortega y Gasset was the first Spanish philosopher that thought of man as a situated cognitive agent ("Yo soy yo y mi circunstancia" / "I am myself and my circumstances", 1914). This event frame (Fillmore 1982, Talmy 2000) triggered at the beginning of the XXth century novel conceptual structurings (Prigogine & Stengers 1987) that coherently evolved in many of his essays. Remarkably, they activated a reconceptualization of such entities as culture, art or society that affected artful Modernist innovations.

We will outline temporal components of this human frame of reference in the light of blending dynamics in the cognitive theoretical framework of Conceptual Integration Theory (CIT). We will show a specific time-based use of "deshumanización" ("dehumanization") as projected onto a blended space that opens up a conceptual emergence of meanings in the domains of culture, art and society.

From a new dynamicist perspective of Cognitive Poetics (Guerra 2011, 2013), we consider these processes as dissipative structurings (Prigogine & Stengers 1984, Guerra 1992, 2001) where local blended spaces (Turner & Fauconnier 2002) act as "creative voids", spaces of communicative crisis from which the global system self-organizes opening onto increasing complexity. This is a new way of approaching cognitive creativity in terms of entropy, specifically neguentropy (Schrödinger 1944, Prigogine & Stengers 1984, Guerra 1992).

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Emotional profiles of emergency phone callers

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With the advancement of cognitive science, the research on the psychology of emotions has become the subject of many studies. The affect-related physiological changes in human body, that have an impact on respiration, phonation and articulation, determine the vocalization character and produce emotion-specific patterns of acoustic parameters of a speech signal. Emotions, the inherent paralinguistic component of verbal communication, can be therefore considered as a semiotic resource for meaning making in situational context. They can indicate speaker's state and intentions, which seems particularly important in the situational context of emergency notifications.

Under the ongoing project of Signal Processing Group (Department of Electronics, AGH University of Science and Technology), biometric and psycho-sociological portraits of speakers calling an emergency number are created. The proper recognition of callers' emotions can contribute to immediate and accurate reaction of emergency services, as well as efficient threat detection and neutralization.

For the purposes of the project, a corpus of archived emergency calls recordings was prepared. The corpus consists of approximately 3300 different calls recordings of the total length in excess of 45 hours. All of the recordings

were anonymized to eliminate any personal data. At the stage of recordings preparation, each one was labeled with tags of emotions types and their arousal (0-4 scale) on the basis of listeners' perception. It was observed that the basic emotions usually appear in complex groups or configurations, related to the situational context, which reveals the meaning potential emerging from human emotions.

The authors of this poster propose to create and visualize the emotional profiles of people calling an emergency number. The analyses of emotions' occurrences include the study of emotions' relations within a specific phone call, as well as statistics and distribution of the emotions in the emergency phone calls corpora. These studies gave the possibility to identify the profiles most commonly reported. Each profile has its own graphical representation which provides easy-to-read information on the type and intensity of each basic emotion included in a profile. Profiles are visualized in correspondence to the most popular emotion models (VAD diagram, Plutchick's model). Some new models are also proposed. Moreover, the situational context of an identified emotional profile was analyzed and described to present the connection between emotions form and their meaning.

An attempt to automatically create emotional profiles of emergency phone callers was made. Each profile was described by mathematical models consisting of acoustic parameters (energy, time and pitch-related features and spectral features) correlated to the distinguished complex emotional states. These parameters can be regarded as vocal code to communicate affective states. Automatic profile determination during an emergency phone call would fulfil the overall phone call characterization.

Uexküll's concept of Umwelt from a perspective of enactivism

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The concept of Umwelt introduced by Jakob von Uexküll is under consideration from the standpoint of the modern conception of enactive cognition in the paper. Umwelt is specific environment to which a living creature is adapted and which is built by it and, in turn, builds this very creature. According to J. von Uexküll, Umwelt is constructed by selection of meaningful and valuable content and by drawing it into the living world of an

organism; environment is not simply the world of things but rather the world of behavioral acts; cognition is, as a matter of fact, identical with life and can be treated as extraction of meanings from environment; different living organisms (different biological species) live in different cognitive, perceptual and living worlds. The concept of Umwelt carries profound senses and is of great significance for the modern advances in cognitive semiotics and in cognitive science in general. It is shown in the paper that the concept of Umwelt can be taken as a premise for development of the whole range of epistemological notions, such as the connection of cognition with action, activity and embodiment of perception, construction in the process of cognition, enactivism. The foundation stones for the conception of enactive and embodied cognition were laid by Francisco Varela and his colleagues and co-authors. They demonstrated that the perceptual and mental processes are bound up with the "architecture" of body of a living organism. Therefore, nonlinear and circular connecting links between an agent of cognition and environment constructed by it can be metaphorically called a nonlinear cobweb of cognition. Cognition can be considered as autopoietic activity because it directed to the search of elements that are missed, it longs for completing integral structures. Some peculiar properties of cognition as autopoietic activity are discussed in the paper, on the one hand, in the light of the theory of complexity (dynamics of emergent properties of an embodied agent of cognition, openness of an organism as a cognitive system as a condition of its self-organization and its operational closeness as a condition of maintenance of its identity, nonlinearity of local and global links in individual cognitive acts, autopoiesis as self-productionof an organism as a cognitive system, etc.), and on the other hand, in the light of Uexküll's concept of Umwelt in all its methodological power. Besides, Uexküll's concept of Umwelt is brought into correlation with the conception of Lebenswelt elaborated by E. Husserl.

How does language affect spatial memory: Insights from L1 German and Spanish data

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Cross-linguistic research conducted in the last two decades has evidenced widespread variation in spatial categorization across languages (e.g., Bloom et al., 1996; Bowerman, 1996; Levinson, 2003). A question of central interest is whether these linguistic differences change the way spatial events are perceived and remembered by speakers of different languages. Studies addressing this question have found results that imply negative (Bosse & Papafragou, 2010; Coventry et al., 2010, Gennari et al., 2002), as well as positive answers (Pederson et al., 1998; Feist & Gentner, 2007), though some of these results have been contested (e.g. Gallistel, 2002; Li & Gleitman, 2002). These mixed results call for further work to specify the precise factors that affect language influence in non-linguistic cognitive processes.

In this study we focus on cross-linguistic differences in the expression of placement events in German and Spanish, and we examine whether these cross-linguistic differences have an effect on German and Spanish speakers' immediate memory. Placement events are events in which an agent causes an object to move to a location (e.g., putting a cup on a table), and as such they are examples of caused motion (Talmy, 1985, 2000). We hypothesized that German native speakers, with their language distinction between a vertical (stellen) and horizontal (legen) placed object, are more sensitive to changes in these spatial relations than Spanish L1 speakers, who have a single verb (poner) for both. More specifically, we expected the German speakers to recognize alterations in the spatial relations at hand more often than speakers of Spanish do, possibly displaying different reaction times when probed. To test this hypothesis, participants performed a similarity judgment task with priming procedure (as in Coventry et al., 2010). First, participants were asked whether a sentence containing a placement verb presented with a picture, matched the picture or not (prime trials). A second picture was then presented (without an accompanying sentence) that either displayed the same or different (gradually manipulated) horizontal/vertical position of the placed object than the first (prime) picture. Participants were asked to indicate whether the pictures were the same or different. If language during the encoding of a visual image sharpens the ability to detect changes in visual features, we expected to find different results for native speakers of German versus Spanish in measures of

(a) accuracy and (b) reaction times. The results of the study will be discussed in relation to previous methodologies and findings in the area. In addition, we discuss the possibilities of experimenting with this methodology with L2 learners.

Cognitive semiotics mapping the concepts of ekspressija, ekspressivnyj, and ekspressivnost' in the Russian scholarly discourse and cultural practices

Albina Kunikeeva

In a historical overview covering the period from the end of 18th Century to the beginning of the 21th Century, from the age of aesthetic humanism to post-humanism, I explore the Russian concepts of èkspressija, èkspressivnyj, èkspressivnost', how they were introduced and further elaborated through intercultural influences from Western European languages (notably French and English) and how their meanings have evolved due to socio-cultural, ideological, discursive, and idiosyncratic transformations of meaning in the Russian context.

I will discuss the cognitive particularities of the uses of the concepts of èkspressija, èkspressivnyj, èkspressivnost' and their meanings in different spheres of culture: fine arts (painting, sculpture, music, theater and cinema), rhetoric, psychology, philosophy, genetics, linguistics, stylistics, literary criticism, biology, and medicine, analyzing works by K.Vossler, Ch. Bally, J. Baudouin de Courtenay, S. Volkonski, G. Shpet, M. Bakhtin, V. Lossev, N. Zhinkin, and V. Iampolski etc..

I put particular emphasis upon the content of meanings of these concepts seen as the result of interpretation, i.e. on specific forms of meaning-making by human beings. The Russian words are built on roots and metaphors inherited from the Latin prototype expressio and modified through usage in the modern languages. In my presentation I will investigate these modifications and try to answer the question how these concepts are understood in the Russian culture and how their meanings correlate with modern cognitive semiotic studies of verbal and non-verbal behavior.

The influence of multimodality on the interpretation of affective epistemic states

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Affective epistemic states (AESs) are human states that involve emotion, cognition and perception (Allwood, 2012). In order to understand and perceive affective-epistemic states, people have to interpret verbal and non-verbal, vocal and gestural behavior. In this study, we used 14 different short recordings of two people who are meeting for the first time, as stimulus in a crowd sourcing study. The recordings were displayed in three different modes: Audio, Video+Audio and video. 93 participants took part in the experiment. We focused on five AESs: nervousness, interest, shyness, thoughtfulness, and insecurity. The data shows that some behaviors and vocal sounds are more likely to be perceived as signs of a particular AES when they are displayed in a certain mode, rather than in another. Some particular behaviors and sounds can be strongly related to particular AESs, but for others the interpretations can vary, depending on the mode with which they are exposed. Nervousness is easier to recognize in Video+Audio mode than in Video only and Audio only modes. Insecurity is easier to perceive in the Video+Audio and Video only modes than in Audio only mode. Thoughtfulness is quite hard to perceive, when it is displayed in Audio only mode. Interest is attributed in Video+Audio mode as well as Audio only mode. Interest got a very high number of attributions in the Audio only mode, indicating that the voice plays an important role for its interpretation. Shyness is slightly easier to perceive when it is displayed in the Video only mode than in the Video+Audio mode. Since shyness can be considered as a cause of nervousness, there are some similarities between shyness and nervousness. As a general conclusion, we can say that some AESs are easier to perceive in unimodal visual or auditory modality, while other AESs are easier to perceive when they are displayed multimodally, audio-visually. Thus, the interpretation of affective-epistemic states seems to be differentially sensitive to the mode in which they are displayed.

The conceptual sign as a support for pictorial representation in education

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The process of learning in order to become, and to respond sufficiently to the complexities of the Self, is unlikely to occur without educational guidance (Biesta & Miedema, 2002; Biesta, 1995, 2005, 2009). Aesthetic guidance in pictorial representation enables us to reach goals beyond aesthetic formalism (Polkinghorne, 1983; Ventimiglia, 2005), and thus achieve the educational functions described by Biesta (2009), namely qualification, socialization, and subjectification. I argue that Peirce's notions of meaning-making with signs refer to the wholeness of icon, body and mind. This means that Piaget and Vygotsky's theories could easily have included the *visual semiotic sign*, and that the whole personality is engaged in learning through co-operation, thereby substantiating Peirce's notion of a sign being *icon, index and symbol* all in one moment but to different degrees and levels of complexity (CP 2 227; Habermas, 1990; Sonesson, 2000; Bergman, 2004; Kress, 2010, p. 65; Jappy, 2013 p. 113) could be a contribution to the dialogue and understanding of the quality of meaning-making in educational aesthetic communication. Admitting that there may be more or fewer categories from other, equally valid vantage points (Sonesson, 2009), my methodology is still inspired by Charles Sanders Peirce's pragmaticistic semiotics and triadic transdisciplinary theory where the *interpretant* relation between the child and the teacher is in focus. Understanding that Peirce's semiotics, the *science of signs* differs from two-valued logic and thus very well may incorporate feeling and aesthetics, it was still necessary to reconstruct the Peircian sign for an actual appliance to the area of pictorial action and representation in practice. Malmström (2011a, 2011b, 2013b, 2014, submitted) demonstrates how teachers' questions may be adapted to children's different processes of orientation to sign-mindedness – from the differentiation of Self from others as fundamental to more advanced, socially- shared sign meaning. My findings show that teachers' questioning (to support children's constructions of meaning in order to realize themselves) may be reachable at different levels of *hermeneutic* understanding of the interpretant. This connects to the importance of relating to children in first person (Sonesson, 2009), the teacher's listening to the child in context focusing on the first-person experiential aspect of reality and therefore in a cultural intersubjective meaning. The teachers and students were overwhelmed by the

children's thinking and knowledge and were stimulated to improve the way in which they respond to and meet the children in dialogical meaning-making. This scientific understanding from a *wide view on the concept of text* with equal epistemological status of language and pictorial representation as semiotic resources could have consequences for the field of aesthetic learning processes in teacher education and in everyday pre-school pedagogy in the future.

A negentropic approach to hybrid semiotic resources: The architectural and lingusitic production of Ludwig Wittgenstein and Adolf Loos

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University of Las Palmas de Gran Canaria

In this paper we will analyze, within the framework of the negentropy theory (Schrödinger 1944; Prigogine & Stengers 1984; Hayles 1991), the main causes and effects of the "asceticism" and the "anti-ornamental impulse" that arises during the proto-modern architectural period —and becomes subsequently a key feature of the International Style, after being assumed by the Deutscher Werkbund;   later   Bauhaus. Basing our research on hybrid semiotic resources, we will tackle the work of two authors: Ludwig Wittgenstein and Adolf Loos. We propose a cognitive common ground for discussion between their architectural and linguistic production, particularly, using two of their most famous buildings: Palais Stonborough and Haus am Michaelerplatz, and two of their most relevant texts: Tractatus (1921) and Ornament and Crime (1910).

We will see how Wittgenstein strives for reviewing, in a process called "improvement", the expressive and functional units that had traditionally configured the house in order to show logic in them. By pairing up concepts logic-simplicity, logic-asceticism and logic-lack of ornament, Wittgenstein gives rise to a new aesthetics founded upon the idea of objectivity in formal language, in a process that involves the partial loss of structure of the paired concepts mentioned above that activates higher degrees of order in the whole semiotic system (Guerra 1992, 2001). The way these units are finally redesigned displays a flow of information transferring from the set of paradigms that proto-modern architecture praxis had been progressively associated with the idea of avant-garde —pursuing to foster a brand new architectural language, already present for first time in Adolf Loos' projects— to the Palais. As we will explain, the new wittgensteinian aesthetics is characterized by its "asceticism", which results in more entropy eventually.

Our hypothesis is that "asceticism" (Wittgenstein) and "lack of ornament" (Loos) viewed as entropic components of an open hybrid semiotic system (text-house) create spaces of conceptual contradictions into the authors hybrid work. We will see how these concepts are dynamized by negentropic

mechanisms. We will present discourse ambivalence in Adolf Loos as an example, analyzing the architect's linguistic production.

We conclude that the architectural and linguistic production of Ludwig Wittgenstein and Adolf Loos —key figures in the proto-modern architectonic scene— are hybrid semiotic resources involved in a negentropic resilience processes aiming to reach lower degrees of uncertainty.

Exploring the implications of cognitive semiosis: An embodied-cognition analysis of the physical experience of mother tongue

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Whether it is interpreted as an aggression of one's national identity, which language comes to symbolise, or a threat to one's cultural integrity, the perceived trespass of the Other into one's mother tongue gives rise not only to semiosic processes tinged with concepts of violence and rape – from outright analogies of forced penetration to risqué witticisms – but also to violent physical reactions and defence mechanisms.

I propose to examine the cognitive process involving the emergence of this embodied social sign, using two very distinct cases.

1. One of the leading metaphors in 20th-century translation studies discourse is based on a sexual theme whereby the mother tongue is assigned the role of a symbolic mother subjected to the rape of the Foreign. While this theme is far from new and as also been used in a national-identity context, it nevertheless reveals a very real embodied experience of linguistic identity.

2. In February 2014, Coca-Cola aired an advertisement during the US Super Bowl, showing different people singing the US anthem "America the Beautiful" in different languages. This elicited an immediate negative response on Twitter and other social media; people of all ages voiced strong outrage ("...the USA language is English... not all this foreign shit") about this perceived attack on a beloved text representing their cultural integrity. The first example originates from an intellectual, academic semiosic endeavour while the second emerges from a popular semiosic circumstance. One entails a long and carefully thought-out process while the other entails an instant, spontaneous response by 'the masses'. Yet both reveal a similar phenomenon: a "gut" reaction, a conceptualisation of the reaction in terms of socially unacceptable embodied experience, to what is experienced as a sign of violence suffered by the mother tongue through the intrusion of the foreign. Turning experiences into semiosic constructs by linking them to other embodied (bodily) experiences is thus the point of interest in this poster. It will argue that the ability to trace the semiotisation of experience contributes to our understanding of the emergence of social reality.

First symbol uses by early hominins and by human infants: An integrative new hypothesis

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A central but unanswered question in the evolution of communication is when and how did any group of primates first begin to use symbols. Here we propose that the first significant use of symbols by any species and group occurred by identifying and sharing found symbols, which in their diversity symbolically refer to multiple domains. Shells may have patterns referring to faces of monkeys or people. Rocks similarly may have patterns referring to vulva, penises, lions, snakes, faces, and so on. The key point is that some members of a species that had never made any symbols would discover, in naturally available patterns in nature, examples that would evoke in their minds reference to a conspecific, a crocodile, a fish, a lion, a breast, a bird, or whatever, and that once they drew the attention of others then shared symbolic reference would occur. In this manner a key "Catch-22" difficulty is overcome--an individual who has never made a symbol of any kind, and whose skills in signed or spoken language are absent or very limited, is able to use natural patterns as the gateway to significant symbolic communication using a variety of externally available patterns. Once extensive symbol use was achieved in this manner the symbolic behavior would then be an important contributor to the further co-evolution of the brain and multiple modes of communication.

This found symbol hypothesis is supported by converging information from two lines of experimental inquiry on symbol acquisition, first by chimpanzees and gorillas, and second by children under the age of 27 mos. Recent genetic work on evolution, particularly on brain size and brain development, and multiple recent archaeological finds on early objects with probable symbolic significance (included on the poster as illustrations) are integrated with the causal experimental work on symbol acquisition.

In total eight lines of research are newly integrated to support the found symbol hypothesis on when and how symbolic behavior arose and to make novel, testable predictions concerning likely future archaeological finds and future results of experimental studies.

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Protolanguage: Work in progress

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Human beings today have the ability to use language, but the common ancestor of chimpanzees and humans probably did not. Starting from this consideration, evolutionary linguists and researchers from various disciplines attempted to explain how to bridge the gap between a non-linguistic progenitor and our linguistic species. In this direction, it has become frequent among much scholars to invoke the notion of a protolanguage as a stable intermediary stage in the evolution of language. With his work, Bickerton (1990) first developed the idea that the earliest stages of language evolution involved a largely structureless kind of primordial language, introducing the notion of a hypothetical stage of language evolution interposed between the ancestral systems of communication and full developed language: exactly protolanguage. Because of the significance of the argument, the debate is jazzed up by numerous disagreements. A first dispute is represented by the work of some researchers (i.e. Noam Chomsky, Bernd Heine and Tania Kuteva) who have expressed serious doubts about the existence of protolanguage, in contrast with who hypothesize that protolanguage occurred as an intermediate stage between the speechless state of our remote ancestors and modern language. Moreover, the last two decades of speculations on the phylogenetic evolution of language have been especially marked by the debate over whether this proceeded gradually or abruptly from the primordial language. Some authors (among which the same Bickerton, 1998) have proposed that true language evolved in a single step, according to a catastrophic view that take a strong position against the gradualist approaches submitted by such researchers as Arbib (2002, 2005), Lieberman (2002) and Wray (1998, 2002).

With Studdert-Kennedy (2005), "we study evolution to understand the present as much as the past, about which we shall be forever uncertain".
The aim of this contribution is primarily to underline the relevance of the notion of protolanguage in a study focused to language's origins; furthermore, according to Arbib (2005), we want to stand off the positions for which there was some single magic mutation or change of brain or body structure that created the capacity for language as humans know it today. Ultimately, by emphasizing the holistic nature of protolanguage, we want to suggest that primordial utterances has to be evaluated along the same line as discourse.

Semiotic foundations of consciousness functions

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Elements of consciousness in the manner of cultural-historical theory of L. S. Vygotsky, such as image, significance and personal meaning, are considered. For connection them into complete structure the concept of sign from semiotic is used. Its formal definition is given. In result image, significance and personal meaning are considered as components of the sign and the sign is included in model of the world of human subject. Some self-organization procedures on a set of signs are considered. In result arise relationships and scripts on the sets of images, significances and personal meanings. Semiotic network is formally defined. On this basis, there is a new way of describing the model of the world which has human subject. A formal description of the various types of model of the world, including mythological, common-sense and rational, is given. On the basis of sign mediation models of some functions of consciousness are built, including goal setting function.

Cognitive semiotics of mental disorders

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Mental disorders are edge phenomena of human mental life. From the point of view of psychology and psychiatry, mental disorders are studied in order to be cured. However, conceptualization of their origins is still far from comprehensive. Psychiatry and neurolobiology are able (to some extent) influence severity of mental disorders and accounts of symptoms are available, but it seems that this approach has difficulties with theoretising origins of these symptoms. The presented paper aims to outline possibilities of cognitive semiotics for the study of mental disorders. Cognitive semiotics offer interdisciplinary approach that includes semiotical analysis of meaning-making and sign production on the one hand, and neurobiological perspective on the other. Thus the symptoms of mental disorders can be described with regard both to their sign nature and to their neural correlates. This approach is further demostrated on schizophrenia. Hallucinations, as one of the major symptoms of schizophrenia, are specific by their indexicality, rather they being 'misinterpretations of the inner speech'. The paper further describes indexical character of hallucinations and their similarities or differences with other cognitive features (memory, imagination, perception). The indexicality of hallucinations is compared with neural structures in the brain. In summary, the aim of the presentation is to show how the approach of cognitive semiotics can bring about new concepts in the study of mental disorders and schizophrenia specifically.

An approach to software from the standpoint of semiotics, patterns and features

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In this contribution we propose to study the relationship between semiotics and software through the notions of patterns and features. Our purpose is to explore theoretical and methodological approaches that might provide insights for the analysis and design of cultural software applications.

In general terms, software applications are understood as "a set of formal instructions, or, algorithms, a logical score that can be translated into a computer program and executed by a machine. It also includes associated documentation concerned with the operation of a data processing system (e.g. compilers, library routines, manuals, and circuit diagrams)" [3]. The result of the translation into a computer program has been observed by Andersen as the computer-based sign, comprising three classes of features: handling (actions by the user), permanent ((graphical) states), and transient (transformations of states) [2]. In most of the systems, the user experiences a combination of the three features, something we can call computing signs: commands, UI conventions, navigational structures, architectures and infrastructures, algorithms and combinations of them, etc.

The importance to look at cognitive sciences for the analysis and design of software applications resides in an understanding of systems as tools for thought, for augmenting human intellect, and for modifying the communicative process. Besides grounding the exploration of new computing signs on user-friendly paradigms, we believe we should also consider the historical flow of tool-making, techniques, technologies, art and science. Indeed, our software applications are reflections of how we reasoned to solve a problem and how the solution was abstracted and implemented to others. In other words, software applications can be seen as patterns of features. An exemplary study of patterns is Alexander's trilogy on architectural and urban patterns [1]. More recently, another example is Seaman's pattern studies: "meaning arises as a by-product of pattern reinforcement, pattern differentiation, pattern abstraction and pattern recombination" [4]. Patterns are not only an access to time and space, but also to political and ideological implementations. At this point, we call to the notion of features, and more specifically visual features [5], as the manifest representation of space, time, politics and ideology in the form of computing signs. Visual features constitute

an important case because much of the design in software applications has dealt with simulating human senses and experiences, however we know the lifeworld is broader and more complex.

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The implementation of biosemiosis in a naturalized framework: Between causality and multiple realizability

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Even though semiosis is supposed to represent a principle that brings, from a biosemiotic perspective, a general ground for the action of signs, its precise individuation may cause a number of problems for different competing theories of semiotics. This presentation will attempt to shed some light on the issues that come from describing semiosis as outside of the scope of a naturalized metaphysics while also providing arguments for reducing metaphysical devices in the elaboration of an ontology of semiosis. In order to achieve this, a contrast between semiosis as a causal law and as a multiply realizable natural element will be made. The Sebeok thesis (Kull et al. 2008: 43) that life and semiosis are coextensive is an important guide to consider the validity of certain prefixed varieties of semiosis, but when dealing with basic conceptual assumptions such as the level in which the Peircean interpretant can be taken to mean either an actual or a potential element of semiotic triadicity, one may do well in circumscribing said notions to a specific naturalized ground. In this sense, the last part of this presentation will attempt to provide a concept of implementation of semiosis—that is, the possible buildup of conditions that sustains the existence of semiosis—that follows the previous assertions regarding the naturalized project of biosemiotics (Vehkavaara 2002). More extensively, the project of cognitive semiotics as described by Sonesson (2012) may provide a fertile ground for a cohesive understanding of the properties of base biosemiotic concepts towards more developed sign systems while retaining the perceptual aspect of semiosis.

Education policies for standardization of knowledge in education in Colombia: A semiotic analysis

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Universidad Piloto de Colombia

The present paper is a semiotic analysis to the discourses generated in Education Policies in Colombia around tests measuring quality in secondary education. This work is the result of a research process that is being carried out by Network Reading and writing in higher education REDLEES - ASCUN, involving over 14 universities in Colombia . The paper evidence one of the diagnoses made to the educational phenomenon caused by the various regulatory policies and measuring quality in education. The theoretical framework is focused to the development of methodologies from discourse analysis of semiotics, in which one looks at the proposals developed by Margariños (2008), Apel (2009) and Eco (1977). Similarly, the theoretical framework developed systemic apparatus that revolves around the processes of meaning, discourse ethics, and social construction of interpretive imagination by which to explain the theories developed by Hallyday (1982) became necessary, Habermas (2004) and Apel (1991) . The methodology used is semiotics whereby an explanatory process was with respect to the attributions, substitutions and semiotic exceedances can be developed from the educational testing. In turn, we conducted a comprehensive process, after the methodological analysis, thus criticizing the effects generated by the problemic phenomenon, which in this case is related to the institution of standardized tests to measure proposal was developed quality. In turn discussed how this situation generates conflicting dynamics of interpretation in various academic contexts in Colombia. In conclusion, what is sought is to give a critical contribution to an educational phenomenon of Colombia , from a semiotic methodology, leading to the consolidation of systemic - functional processes in the various research in education linguistic analysis, and moreover, those involving the teaching of reading and writing.

Function of iconicity in semantics: A case study of metaphor structure in Farsi

Mehdi Sabzevari
Payame Noor University

The study of 'iconicity' has a long tradition among philosophers and researchers. This concept is taken to be opposite of 'arbitrariness'. The importance of this concept- as a semiotic concept- has been improved in the contemporary researches in semiotics, and consequently in the study of language as system of signs, and it includes different linguistic areas like semantics. Different cases in language studies have been proved to be explained or to be affected by iconicity principle. In those cases, there is certain iconic relation between form and meaning in the structural and conceptual level. In iconicity studies, diagrammatic iconicity is especially important in explaining linguistic phenomena such as metaphor. Heiman(1985)proposes two aspects of diagrammatic iconicity ,namely, isomorphism and motivation which explain the formation of metaphors and reason(s) behind it. This paper -with a short review of literature on iconicity, and presenting some cases in this area- will investigate the function and application of 'iconicity' as a semiotic principle in analyzing and explaining Farsi's metaphors structure and formation as a semantic category.

Iconicity of absence In "The Patient Stone" by Sadeq Chubak

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University of Tehran

The iconicity of form and concept has been frequently one of the important functions of language as well as literature. If the theme of a work created based on the absence or lack of a main element, this absence has to be represented in the form as well. So the topic of this paper is how iconicity of absence works in the form and meaning of a novel written by an Iranian author, Sadegh Chubak. In other words, silence is a meaningful absence which may leave a trace in a text in order to be reconstructed an untold story by the reader. So if an element is removed from the text intentionally due to a discursive function, its trace can make a number of new interpretations, so the function of iconicity could be considered as creation of an untold fictional content as well as "Mimesis-lost-meaning-gained" (lack of iconicity in a condition it could exist) in the text.

In this paper, it is supposed to study the structure of "The Patient Stone", as the number and system of the chapterizing, presence and absence of the characters which narrate the story through a monologue and at the same time the use of multivocality, the title of the novel, the prefix and all other parts of the novel have been reflexed in the form and content through the iconical and diagrammatical iconicity to increase the meaning of the story by silence.

The purpose is to show how non-iconicity between the names of the characters and their acts could play a role to increase the unmentioned meaning, and also how the absence of the main character, Gohar, in the form (not being the narrator of any chapters) and in the meaning (being murdered) could help the reader for having a different interpretation and finally how pretext, paratext and intertext could be in iconic or diagrammatic relation with the text to propose a new interpretation and also create a well structured novel. The results show that the absence of Gohar signify the absence of a value has been lost in the society which is reached to a dead end.

The signifier, signified & stance: A study on the happy/sad emoticon as emotionizers

Teri Schamp-Bjerede
Lund University

On-line communication has exploded over the past decade. From bulletin boards, to email to blogs, the advantages are many and using this type of instantaneous communication that is available to everyone and at any time is only limited to what you wish to say.

Stance studies in language investigate how interlocutors position themselves with their utterances in a dialogic interaction. This synchronic study employs a construction of stance based on DuBois's evaluation - position – alignment framework (2007). Here emoticon signifiers, termed emotionizers, :) and :(are studied as to their use as positive and negative signified emotions in online posts, and how they are employed as emotional intensifiers and downtoners, of stance in lieu of words. The results will show that these emotionizers help individual user's create clarity in their posts, where ambiguity is possible, e.g. idioms, slang, and shortened meanings, etc.

Gesture production: How to define and notate gestures in discourse

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Gestures in broad sense have been in the focus of attention for many decades now. There is non-verbal semiotics which has a closer look at them both as they are and in their interaction with speech (see e.g. Kreidlin 2001, Language and Gesture 2000). There are many interdisciplinary areas where gestures are studied together with prosody (e.g. Sukhova 2004), within the discourse framework (e.g. Nikolaeva 2011), and as lexicographical units (e.g. Pereverzeva 2013) and undoubtedly, it has been done all over the world, though Russian contribution into the field is somewhat underestimated (to overcome that see the Reference).

This paper aims at investigating gesture production and different ways of describing it through the modern lenses: as it is done by the leading researchers in field. The ultimate goal is to find the most uni-versal and convenient method of "extracting" gestures in broad sense from the multimodal communication and of notating them which can be applied easily within all scientific branches. It may seem that it is not of great interest as there have been years since the investigators started studying the theme (see, e.g. Birdwhistell 1970 and others). However, the task remains topical nowadays as all researchers have their own attitude towards the subject matter and it brings about such diversity of descriptions that it impedes understanding and causes confusion (see Goldin-Meadow 2014).

Kreidlin 2001 argues that 1) there are phases of production of ANY gesture. They are excursion, peak and recursion; 2) there are active and passive organs of gesture production. Body and its parts have form, size, structure (function) and orientation without which it is impossible to describe bodily objects in semiotic terms (Kreidlin, Pereverzeva 2013). Gestures also have a whole range of characteristics such as amplitude, intensity, velocity and direction (cf.: Sukhova 2004 and Annotation System from D. McNeill Lab), thus gestures may be prominent or non-prominent as they go from the initial position of organs to the position where the gesture is of some intensity and on to the state when the gesture is very intense, the organs are at their maximal position. The extracting and the notation of these positions are extremely dif-ficult if there are no clear-cut characteristics and parameters to follow. Nevertheless, they are these attrib-utes which seem to be crucial when one

would like to give a lexicographical description of gestures (Pereverzeva 2013); when one is ascribing gestures (behaviours) to computer agents (Kotov 2010); when one is giving typological descriptions to interactions of gestures and grammatical categories (Grishina 2012) and so on.

Multidisciplinarity has given rise to many interesting research areas but it also challenges scholars to think of a comprehensive and convenient set of notions and tools ready for use. This study may con-tribute to joint efforts in this direction.

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Ernst Cassirer, mythical narrative and modern fiction

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I am studying mythic structures in four modern historical novels by the Swedish contemporary author Sigrid Combüchen. Consequently I am putting Ernst Cassirer's cultural semiotics, his philosophy of symbolic forms, to the test, complemented with a few ideas by Claude Lévi-Strauss and Hans Blumenberg. Lévi-Strauss defines the structural law of myth as consisting of all its versions; none alone is the "true" version. He seeks to show, not how humans think in myths, but how myths operate in their minds. Blumenberg's focus on myth and metaphor may be different from Cassirer's but his dependence on Cassirer's guiding principles is unmistakable. As philosophers of myths they both extend Kant's transcendental question to questions of meaning. There is also an inner connection between Cassirer's symbolic forms and what Peirce calls semiotics. Both were initially led to their theories by reflections onthe logic of relations, focusing not on things but on functions.

Cassirer questions the function of "(arte)facts", or "concrete, sensory signs composed by mental energies" (symbols), but meaning cannot be separated from expressions, competence and performance, ways of having a "world". The versatility also demands questions for unity (structural form). Cassirer investigates such structures of human experience to find out their meaning. According to him there are three main roads for humans to create meaning: by language, myth and by technology. With added specification they branch off in other roads, such as history, biology and mathematics, presumably even literature. Myth is a symbolic form grounded in an original mode of perception. Myth represents the fundamental insecurity of living in an unpredictable world hovering between the two extremes "despair and esthetic play" (Blumenberg), which in Cassirer's more all-embracing summary of cultural forms means that they are "an organon of our self-knowledge, an indispensible instrument for building up our human universe."

Three characteristics define mythical thought: It is grounded in an original mode of perception. It cannot be explained as an invention. It manifests itself in action. Thus, in my perspective, mythic narrative in (post)modern fiction is best equipped with contributions where the author features strong emotions and hypnagogic images, utilizing melodrama, clans, family, blood relations, holy acts and terror. As analyst you might have to kill your own emotions by deconstructing myth and language from complexities of

narrative content, before reviving the dead matter of sensation by acts of empathy and questions for the meaning.

Human robot interactions: what role does this inquiry play in cognitive semiotics?

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Université de Limoges

Some currents of Semiotics have sought approaches to understanding meaning by reducing the sign to its arbitrary structure. Doing this allowed for the creation of easily duplicated and conventional models that could then be applied to provide analysis that, for lack of better words, proved nothing about meaning. Contrary to this, Cognitive Semiotics seeks to demonstrate the experience of the sign to then elaborate on potential structures. This has given birth to an approach that scientifically tends to illuminate semiosis and highlights the role of linguistic isomorphosism. Taking our lead from Hjemslev's discovery on absences and heteromorphs, we can take the linguistic discoveries onto a social surface and evaluate social interactions along the same lines.

Classic Semiotics would be equally interested in these interactions; however strategies at evaluating them would be programmatic and deterministic. Cognitive Semiotics, on the other hand, would allow for a privileged unknown to be semiotically appreciated and would provide new explanations on the social discourse role of attributes of conversation. Some examples of this include: accidental, surprising, missing, or interactive situations that set the conditions of most interaction.

This paper will be hoisted by the former contributions of Benveniste, Coquet and Klinkenberg and will underline the need to integrate the experience of the sign in any sign theory development. We are particularly inclined to consider Cognitive Semiotics' principles to question social interaction to further develop our semiotics of robotics as it continues to investigate the realm of human-robot interaction. Robots, in and of themselves, can only be programmed with mechanical properties and artificial intelligence (limited to algorithmic properties). Why not then provide the robot's interaction with all of the sensibilities of human interaction, including such things as gaps, accidents, surprises, etc.?

Doing so would allow an understanding of how to render the robot's behaviour more sensitive to human interaction and, subsequently, allow for a more profound understanding of the role of such human attributes in terms of overall human interaction. Our interests lie in discovering and uncovering some of the elements of signification in interaction.

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