

Report

Rutgers-Siena Joint Workshop on *Mind and Culture*

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The first Rutgers-Siena Joint Workshop on *Mind and Culture* took place at the International Conference Centre of the Certosa di Pontignano on June 1st and 2nd, 2009. The workshop was organized by the Doctoral School of Cognitive Sciences of the University of Siena and the Rutgers University Center for Cognitive Sciences (RUCCS) with the partnership of the Institute of Human Sciences (SUM) of Florence, the Santa Chiara High School, and the Inter-University Center for Experimental Economics.

The programme consisted of two days, in which professors of cognitive science and their Ph.D students from both Rutgers and Siena University gave lectures or presented papers about their research topics.

On the first day, Jerry Fodor (Rutgers University) opened the workshop by speaking about *Prospects for a causal theory of reference*. He criticized Kripke's (1980) causal theory of reference by claiming that it does not provide a naturalistic approach to language and reference. Fodor considers Kripke's conception as a version of associationism, indeed unable to explain the intentionality and the content of mental states. According to Fodor's psychosemantic theory, instead, the meaning of an object is a representation of that object in our mind. Therefore, there is a causal connection between thoughts in our mind and the objects in the world. This theory is coherent with a naturalistic approach to cognitive faculties, grounded on the two hypotheses of the language of thought (Fodor 1975) and the modularity of mind (Fodor 1983).

In his talk on *Latest news from the laboratory: It's indexes and the way down*, Zenon Pylyshyn (Rutgers) accused the computational theory of the mind of lacking an explanation about the representational content of computations. How mental representations are connected to what they represent? The computational theory of mind does not specify the causal mechanism that explains how the representational tokens of things acquire their content. In the case of solving geometry problems in perception, for example, we label lines or vertices to specify the individuals to which they refer. However, causal connection *per se* does not imply conceptualization. According to Quine, Strawson and others, you cannot track individuals without sortal concepts; moreover, you cannot pick out individuals with only concepts. Compare this with Kripke's distinction between properties that fix the referent of a proper name and the referent itself. Is there something special about location? The only content that non-conceptual representation can have is the demonstrative content.

A lecture by Massimo Piattelli Palmarini (University of Arizona), co-authored with Fodor, on *What Darwin got wrong* followed. Palmarini remarked that Darwin's theory of evolution does not make sense of the chromosomes number difference across species. The platypus, for example, an animal with both mammal and reptilian characteristics, has 52 chromosomes versus the 46 chromosomes of the human species. Analogously, salamanders have much more chromosomes than apes. These differences in the chromosome number are paradoxical if we assume that, according to Darwin, more evolved species should have a more complex DNA,



that is, more chromosomes. This sheds a doubt about the criteria according to which we judge the grade of evolution of species.

Sandro Nannini (University of Siena) gave a lecture on *Why is Einstein's relativity theory counter-intuitive? A naturalistic approach to the relation between real time and time intuition*. His aim was to see whether it is possible to assess Einstein's relativity theory in the light of the strong intuition that time is not relative to an observer. Such "realism" about time is shared both by the common-sense view and by many cosmological models under the concept of 'cosmic time' (e.g., P. Davies). Nannini argued that the intuition of time depends on a brain mechanism that brings about the mental construction of phenomenal time. He added that we cannot avoid this mechanism to work. However, this does not imply that phenomenal time mirrors an alleged unique and objective real time. On the contrary Einstein's relativity theory, combined with neurological theories about time perception, explains why we human beings perceive time as mind-independent although it is as a matter of fact mind-dependent.

Adriana Belletti and Luigi Rizzi (University of Siena) gave a lecture on *The cartography of syntactic structures: locality and delimitation effects*. The notion of syntactic complexity has played a central role in the study of several aspects of language intended as a cognitive capacity. Belletti and Rizzi were particularly interested in the dimension of complexity which arises in constructions involving A-bar movement (relatives clauses, questions, etc.), and which manifests itself in both adult grammar performance, and child language acquisition. By reporting experimental studies on the comprehension and production of subject and object relative clauses in children, they showed how the selective delay of certain object relatives is predicted by an intervention approach – i.e., an approach according to which an element which intervenes between the elements involved in a local relation, for instance between a moved element and its trace, and bears a certain similarity to such elements, may disrupt the local relation, or make it hard to process. Moreover, they illustrated some strategies that the child resorts to in order to avoid the complex configuration, avoiding intervention.

Marco Gori's (University of Siena) lecture was entitled *On the birth of cognitive stages: complexity issues*. Gori claimed that Jean Piaget's studies about cognitive development inspire important advances in machine learning. Piaget's genetic-evolutionary approach identified four universal stages, or periods, of development in child learning abilities, where each stage is self-contained and builds upon the previous one. Children firstly develop sensorimotor and preoperational skills, in which the perceptual interactions with the environment dominate the learning process. Then, they develop concrete and formal operational skills, in which they start to think logically and to rely on abstract thought. By referring to Piaget's developmental framework, we can think of learning processes as a physical process that we can try to capture by providing physical laws that explain the variations in the development. Like for physical laws, where variational principles ensure grace and lead to capture the simplicity and elegance of natural behaviour, in cognitive science variational principles give rise to kernel machines that provide an effective model of sub-symbolic tasks like those related to sensorimotor and pre-operational stages in children. In the end, we can keep the same variational framework to impose a semantic-based regularization to relate semantic attributes so as to capture higher levels of cognition.

In his lecture *Cognitive economics in the lab: the power of labels*, Innocenti (University of Siena) claimed that problem solving about decision-making under uncertainty is environment-dependent. In fact, he showed that including within experimental designs contextual clues, such as "label" or "virtual simulations", makes laboratory tasks more familiar. Therefore, the goal to mould context-free experiments is not only elusive, but also inappropriate to investigate cognitive processes. To support this view, he presented an experiment on travel



mode choices, in which subjects acquire *ex-post* information not only through their own experience, but also through external information on actual travel times of all travel modes. He concluded that virtual experiments combine the internal validity of controlled laboratory experiments with the external validity of field experiments.

On the second day, Ernst Lepore (Rutgers) gave the first lecture, *On agreement*. He noted that contextualism is very important in epistemology, metaphysics, and ethics. Such a view is shared by philosophers, linguists, and cognitive scientists. On the contrary, context insensitivity seems to imply both minimalism and relativism. Therefore, a use of context sensitive expressions must be accurate. Structural semantic theories do not provide an account of the conditions under which sentences are true, because they lack relations between expressions and the world. Therefore, many philosophers and linguists endorse model-theoretic semantics, which do not share the same deficit.

Brian McLaughlin (Rutgers) gave a lecture on *Existential feelings and monothematic delusions*. He professed to be sceptical about the prospect of explaining psychological laws starting from Fodor and Pylyshyn's (1988) cognitive architecture for mind and language, which is created to support the systematicity of the mind. He argued against them that systematicity of the mind can be obtained without assuming conceptual abilities and systematicity laws. Furthermore, he claimed that there is not an adequate definition of systematicity in thought and language. Natural languages are not systematic at all. This poses an end to the debate about a scheme in natural language.

In her lecture, *Descartes and qualia*, Raffaella De Rosa (Rutgers University) presented the Standard View (SV) on Descartes' sensations, according to which sensations lack intrinsic intentionality because they appear as purely qualitative features of experience (or *qualia*). Accordingly to SV, in perceiving, for example, the colour red, we are merely experiencing the subjective feel of redness rather than perceiving the property of a body. The aim of the lecture was then to establish that the textual evidence offered in support of SV fail to prove that Descartes held SV. Indeed, De Rosa argued that there are textual and theoretical reasons for believing that Descartes held the negation of SV. *Qualia* are not Descartes' legacy.

Sosa (Texas University) talked about *The varieties of content*. In the talk, he argued that Burge's extension to belief of the sort of externalism that Putnam took in the twin-earth examples is vitiated by a presupposition about the relation between *de dicto* belief ascription and belief content. Burge, in effect, takes our differential willingness to make the same *de dicto* ascriptions to reflect our view that subjects in his examples do not share belief content. However, Sosa argued that we have good reasons to doubt that move. He tried to find a general principle ("Ascription") governing belief ascription that would block making the same ascriptions but without guaranteeing that subjects do not share belief contents (our use of indexicals in belief ascription – which Burge tries to differentiate from his cases – is covered by Ascription as a special case). A general background theme, throughout (though not made explicit or discussed directly), is that the nature of linguistic content, including the semantics of words used in belief ascriptions, is very different from the nature of mental content, such as the content of beliefs.

Usberti (University of Siena) gave the last lecture of the Workshop on *Williamson's arguments against luminosity*. He examined the two versions of Williamson's *Knowledge and Its Limits* (2002) argument against the epistemic transparency of mental states. He questioned the principle, which concerns the assumption of the first version of the argument, that our discrimination capacities are limited. The second version of Williamson's argument relies on a principle about reliability to which a counterexample has been provided by Selim Berker. Usberti defended this counterexample not in terms of a relation of constitutive dependence of certain conditions on beliefs (as in Berker's paper), but in terms of the (absolute) reliability of



certain belief-forming methods.

The workshop was accompanied with talks provided by Ph.D students from Rutgers University and University of Siena. On the first day, the Ph.D students who gave a speech were Giuliano Bocci (*On the insertion and interpretation of intonational events*), Sarah E. Murray (*Evidentials as not-at-issue assertion*), Irene Franco (*Syntactic visibility of discourse related properties: the case of Scandinavian embedded V2*), Carlotta Pavese (*Propositional attitude reports and the puzzle of substitution failure*) and Stefano Guidi (*Probing the structure of a frame using goodness-of-fit*). On the second day, talks were given by Sascia Pavan (*Indeterminacy and truth-functional connectives*), William Starr (*Conditionals, questions and content*), Luca Tranchini (*Proofs and refutations: new directions in proof-theoretic semantics*) and Antonino Freno (*Hybrid random fields for scalable statistical learning*).