

The Evolution of Cognition

Peter Gärdenfors

Jeudi 15 mai - 14h

CAUSAL COGNITION AND EARLY TECHNOLOGIES

Salle des Actes, École normale supérieure
45 rue d'Ulm, 75005 Paris

Remise du Prix Jean-Nicod et cocktail après la conférence

Vendredi 16 mai - 14h

INTERSUBJECTIVITY AND COOPERATION

Salle des Actes, École normale supérieure
45 rue d'Ulm, 75005 Paris

Lundi 19 mai - 14h

THE EVOLUTION OF TEACHING

Salle des Actes, École normale supérieure
45 rue d'Ulm, 75005 Paris

Mercredi 21 mai - 14h

FROM PANTOMIME TO LANGUAGE

Salle des Actes, École normale supérieure
45 rue d'Ulm, 75005 Paris

Organisation
Frédérique de Vignemont

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philosophie cognitive

Conférences Jean Nicod de

L'esprit humain, son organisation, sa nature, ses relations avec le corps et avec le monde sont depuis toujours parmi les thèmes centraux de la philosophie. La psychologie contemporaine elle-même a pris naissance au sein de la philosophie. Elle s'est émancipée, mais l'émergence des sciences cognitives consacre d'une certaine façon le retour de la philosophie dans ce champ de recherche. Les développements de l'informatique et des neurosciences, en jetant une nouvelle lumière sur les phénomènes mentaux, ont eu pour effet de relancer le débat philosophique. La « philosophie de l'esprit » est ainsi plus florissante que jamais. Ce retour n'a rien d'une régression, car la philosophie dont il est question est en phase avec la recherche scientifique, informée par elle et en constante interaction avec elle.

Les Conférences Jean-Nicod visent à promouvoir les recherches philosophiques se rapportant à la cognition et à faire connaître en France les travaux réalisés à l'étranger dans ce domaine. Le conférencier présente ses recherches au cours d'un cycle de conférences qu'il rassemble ensuite en un livre.

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cycle
2025

Peter Gärdenfors

The Evolution of Cognition

Peter Gärdenfors

After a PhD in theoretical Philosophy at Lund University, Peter Gärdenfors became Associate Professor in theoretical philosophy and then Professor in Cognitive Science at Lund University. He was also adjunct Professor at University of Technology Sydney and since 2019, he is Senior Research Associate with the Palaeo-Research Institute at the University of Johannesburg. He has worked extensively in philosophy of science, in decision theory, as well as on belief revision and nonmonotonic reasoning. His main current research interests include concept formation using based on geometrical and topological models of conceptual spaces, cognitive semantics, human-robot interaction, and the evolution of human cognition. He is a member of the Royal Swedish Academy of Letters, History and Antiquities, of the Royal Swedish Academy of Science, and of the Royal Swedish Academy of Engineering Sciences. He was also a member of the committee for the Nobel Prize in Economic Sciences.

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The Evolution of Cognition

Jeudi 15 mai

CAUSAL COGNITION AND EARLY TECHNOLOGIES

How to investigate the evolution of cognition? This raises important methodological considerations, and in particular we need to consider the role of changes in ecology.

Consider the evolution of causal thinking. It can be decomposed into several stages. The first stages, involving bodily movements as causes, are common between human and non-human animals. By contrast, reasoning from effects to causes, such as inferring the presence of an animal from its track, is almost never found in non-human animals, whereas it is ubiquitous in humans. Reasoning about inanimate causes also seems very limited in non-human animals, while humans can exploit physical and chemical causes. A main thesis is that an increasing emphasis on technical engagement made some hominins capable of reasoning about the forces involved in causal processes. The causal thinking required for Stone Age hunting technologies such as throwing spears, bow hunting and the use of poisoned arrows is analyzed. The technologies serve as evidence for the evolutionary expansion of causal cognition

Vendredi 16 mai

INTERSUBJECTIVITY AND COOPERATION

Intersubjectivity (theory of mind) is not a unitary capacity. We can distinguish five domains of intersubjectivity: emotion, desire, attention, intention, and belief, which I will illustrate with examples in children and non-human animals. I will then focus on the different forms of cooperation, considering those present in non-human animals and those unique to humans, including cooperation about future goals, indirect reciprocity, teaching, and conventions. These forms are analyzed with respect to their cognitive and communicative prerequisites.

The capacity to plan for future needs, combined with more developed cooperative skills, opened up for cooperation towards future goals. Such cooperation requires complex intersubjectivity. Sharing intentions and beliefs about the future requires communication about what is not present in the current environment. Indirect reciprocity depends on reputation mechanisms. I will analyze the communicative requirements for such mechanisms.

Lundi 19 mai

THE EVOLUTION OF TEACHING

During the evolution of Homo sapiens we also became Homo docens—the teaching animal. Teaching is not a unitary phenomenon. We can classify the different forms of teaching along the following lines: (i) evaluative feedback, (ii) drawing attention, (iii) demonstration and pantomime, (iv) communicating concepts, (v) explaining relations between concepts, and (vi) narrating. Only drawing attention and giving evaluative feedback is found in non-human animals. Humans draw attention by pointing, but this capacity is almost absent in other animals. A seemingly unique human capacity is teaching by demonstration, as illustrated by the Oldowan technology. Next stage is communicating concepts as a way of teaching causal connections, which is found in the Acheulean technology requires this form. Up to this stage, symbolic language is not required. Once a (proto-)language is in place, further forms of teaching, such as explaining relations between concepts and narrating, become available.

Mercredi 21 mai

FROM PANTOMIME TO LANGUAGE

This lecture builds on the view that teaching in hominin societies is an important factor in the evolution of language (rather than language opening up for teaching). First, I will analyze differences between demonstration and pantomime. An important factor is that a pantomime can be detached, that is, it can refer to entities that are not present or to other moments of time. I shall then introduce a distinction between pantomime for teaching and for communication and analyze six factors—communicative sign function, degree of detachment, pragmatic form, represented action, perspective, and degree of pretense – which all suggest that pantomime for teaching is evolutionarily older. I will present a recent experiment that supports the distinction between the two types of pantomime. By conventionalization, pantomime for communication then gradually evolved into protolanguage involving a combination of gestures and vocalizations. After making some remarks on the evolution of grammar and its functions, I will defend a fundamental thesis: sentences typically express events.