

# WORKSHOP SERIES IN COGNITIVE SCIENCE

**Grands Colloques initiés par l'Académie 5 de l'IDEX UCA-JEDI**

Avec le soutien de l'Axé Sciences Cognitives & Computation

## The Mind's Spatialization in Humans and Non-humans

### Workshop

Nice, MSHS Sud-Est

Spatialization is the process by which spatial information is added by the cognitive system to process information (not necessarily spatial beforehand), often resulting in what is called a mental line. One of the first examples in the literature comes from Galton (1880) who reported that 5% of the individuals he interviewed naturally linked verbal information to space, for example by picturing numbers at very precise spatial locations. This privileged link between space and verbal information seems to have been naturally used even earlier in what the anthropologist Harwood (1976) described as myth spatialization, where spatial locations function as a mnemonic device for the recall of a myth (e.g., Australian aborigines or the Tobriand culture). Today spatialization and the spatial biases that come with it offer a vibrant realm of research which territory crosses various disciplines and domains. In numerical cognition and since the discovery of the SNARC effect (Dehaene et al., 1993), numerous studies have confirmed that numbers are also processed spatially along the famous mental number line. Spatialization is also used by mnemonists when employing the venerable loci method (Yates, 1966) invented 2500 years ago. Research in human development seems to suggest that spatialization starts very early in life, as seven-month old babies show preferences to increasing numeral sequences only if small numbers are associated to the left and larger to the right (de Hevia et al., 2014). In animal cognition, spatialization is an important and hot topic, as shown from the reaction of the scientific community after the discovery that 3-day chicks naturally link small numerals to the left and larger ones to the right (Rugani et al., 2015). Although spatialization seems to possess an innate dimension, its direction appears to be also culturally determined and linked to the direction of reading/writing (Guida et al., 2018). On the whole, spatialization is thought to start as an innate phenomenon, but for humans a cultural layer is subsequently added (McCrink & de Hevia, 2018). The debate is whether the cultural effect finally takes precedence over the innate determinism, or whether both effects are cumulative (if yes, in what proportion?).

Given this productive field of research, this workshop brings together researchers from around the globe and from various subdisciplines that have a common interest in spatialization. Our aim is to promote interactions and future collaborations, which outcome could shed a new light on spatialization and related topics.

**See Schedule on next page**

12 JUILLET - SALLE PLATE REZ-DE-CHAUSSÉE

**Inscription obligatoire**

# Schedule

**9:00-9:15** Welcome Title

**9:15-9:45** Operating on the Mental Whiteboard (Elger Abrahamse) (**Basque Center on Cognition, Brain and Language, Spain**)

**9:45-10:30 Keynote** From number to space: Insights from naïve, young minds (Rosa Rugani) (**University of Padova, Italy ; University of Pennsylvania, PA, USA**)

**10:30-11:00** CAFE

**11:00-11:30** Visuospatial bootstrapping: When spatialization supports verbal working memory and verbal learning (Steve Darling) (**Queen Margaret University, UK**)

**11:30-12:00** Spatial numerical associations in preschoolers and adults (Catherine Thevenot) (**Université de Lausanne, Switzerland**)

**12:00-13:30** Lunch & **POSTER SESSION**

**13:30-14:00** Two ways humans relate number and space from birth (Lola de Hevia) (**Paris Descartes and CNRS, France**)

**14:00-14:30** Spatialization of order in working memory: What are the roles of visuo-spatial and linguistic experience? (Jean-Phillipe van Dijck) (**Ghent University, Belgium**)

**14:30-15:15 Keynote** Spatial Biases in Early Childhood: Reconciling Innate and Cultural Influences on Cognition (Koleen McCrink) (**Barnard College-Columbia University, NY, USA**)

**15:15-16:00** Coffee Break

**16:00-16:30** Spatial-Numerical Associations – how universal and prevalent they are, and do they relate to math skill level? (Krzysztof Cipora) (**University of Tuebingen, Germany**)

**16:30-17:00** The development of spatialization in preschool and primary school children (Fabien Mathy, Frédéric Besson, Alessandro Guida) (**Université Rennes 2, Université Côte d'Azur**)

**17:00-17:30** Farewell

## Inscription obligatoire

En raison du plan Vigipirate attentat et des normes en vigueur dans notre établissement l'inscription à cet événement est obligatoire. Toute personne non identifiée sur un listing d'inscription se verra refuser l'accès à la conférence ; vous devrez être en mesure de justifier votre identité. Pour vous inscrire merci d'envoyer avant la veille vos nom, prénom, adresse e-mail et structure/organisme à [sylvie.coly-grenard@unice.fr](mailto:sylvie.coly-grenard@unice.fr).