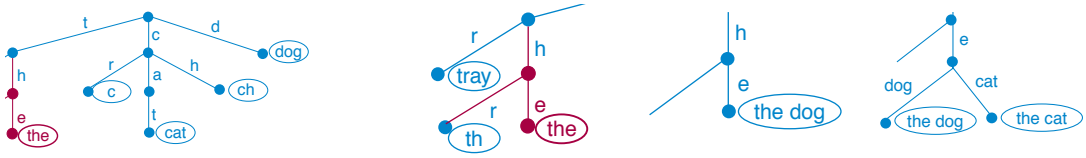
UNIVERSITÉ CÔTE D'AZUR | NeuroMod | Axe Sciences Cognitives & Computation | mshs Maison des Sciences de l'Homme et de la Société • Sud-Est

MSHS

AXE 1 SCIENCES COGNITIVES ET COMPUTATION & INSTITUT NEUROMOD



Cognitive Training and Cognitive Architectures

Mini-Cours par Fernand Gobet

London School of Economics

Does cognitive training work? **Mercredi 29 Janvier 10-12**

Chess players, musicians and video-game players tend to be more intelligent than individuals not engaged in these activities. It has thus been proposed than practising these activities improves cognitive ability and fosters educational achievements. Similar claims have been made with respect to other activities such as working memory training and brain training. This talk will review several meta-analyses performed to address these claims. It will also discuss the results of a second-order meta-analysis (a meta-meta-analysis) that examines all these domains simultaneously. The results are very consistent across domains: whilst there is evidence for near transfer (i.e. transfer to similar tasks), there is very little evidence for far transfer (i.e., transfer of a set of skills between domains only weakly related to each other). When placebo effects and publication biases are controlled for, the overall effect size for far transfer is essentially zero. These results cast serious doubts on the effectiveness of cognitive training for improving overall cognitive ability. They are also theoretically important: they support theories of learning and expertise such as chunking and template theories that emphasise domain-specific knowledge, and strongly suggest that the lack of generalisation of skills acquired by training is an invariant of human cognition.

The CHREST cognitive architecture **Vendredi 31 Janvier 10-12**

This presentation will provide an introduction to the CHREST cognitive architecture and will show how this architecture can account for a number of empirical data on the development of expertise and the acquisition of language. First, the components of the model will be presented, with a focus on its learning mechanisms, which are based on the notion of *chunking*. Then experiments on expertise in chess will be discussed, and it will be shown that computer simulations with CHREST can explain several key results. Simulations will also show that the architecture explains data on the development of language (e.g. acquisition of syntactic structures). Finally, the presentation will highlight the characteristics of CHREST allowing it to explain these empirical data. These characteristics include the idea of self-organisation, the emphasis on bounded rationality, the presence of a perception-learning-perception cycle, and the use of inputs representative of the domain to be learned.

SALLE Plate - MSHS, Avenue des diables bleus

* L'inscription à cet événement est obligatoire. Pour vous inscrire merci d'envoyer avant la veille vos nom, prénom, adresse e-mail et structure/organisme à sylvie.coly-grenard@unice.fr