

Moving to higher grounds: The role of the motor system in low- and high-level cognition

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In the present talk I will present recent work from our group that stresses the central role of the motor system in perceptual and higher-order cognitive processes. First, the coupling between perception and action will be discussed, by showing how action intentions influence the processing of visual information. In addition, the selection of action-relevant information was found to extend beyond a perceptual level to a semantic level. Recent studies indicate that the intention to use an object in a meaningful fashion (e.g. grasping a cup to drink) involves the selective retrieval of action semantic information. The nature of action semantic representations will be discussed in more detail, by showing that our semantic knowledge about the prototypical use of objects is likely supported by functional motor activation. As we gradually move from basic perception-action coupling to higher-order cognitive processes, we will focus on the role of motor resonance in language processing and in action understanding. The present findings will be framed within an embodied approach to cognition, according to which our cognitive system evolved in order to allow us to interact with the surrounding world.