Cognition I (Room 5 | 10:30 – 12:30)

Talking about what we see: Eye movements in dynamic scenes are not under the control of linguistic stimuli

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As Macnamara (1978) once asked, how can we talk about what we see? We report on a study manipulating realistic dynamic scenes and sentences aiming to understand the interaction between linguistic and visual representations in real-world situations. Specifically, we monitored participants' eye movements as they watched video clips of everyday scenes while listening to short sentences describing these scenes. We manipulated two main variables: (a) verb semantic class with causatives (e.g., break) and perception/psychological verbs (e.g., notice); and (b) the action/motion of the agent in the unfolding event—towards a target object (always the referent of the verb-complement noun), away from it, or neutral (when they remained performing a given activity such as cooking). Scenes and sentences were synchronized such that the verb onset corresponded to the first video frame of the agent motion towards or away from the object. Results show effects of agent motion but weak verb-semantic restrictions: causatives draw attention to potential referents of their grammatical complements faster than perception verbs, but only when the agent moves towards the target object. Crucially, we did not find anticipatory verb-driven eye movements toward the target object, contrary to studies using non-naturalistic and static scenes. We propose that linguistic and visual computations in real-world situations occur largely independent of each other during the early moments of perceptual input, but rapidly interact at a central, conceptual system using a common, propositional code. Implications for language use in real world contexts and the so-called 'visual world' experimental paradigm are discussed.