Natalie Sebanz - selected references

1 Kourtis, D., Sebanz, N., & Knoblich, G. (2013). Predictive representation of other people's actions in joint action planning: an EEG study. *Social neuroscience, 8,* 31-42.
Notes: It has been postulated that when people engage in joint actions they form internal representations not only of their part of the joint task but of their co-actors' parts of the task as well. However, empirical evidence for this claim is scarce. By means of high-density electroencephalography, this study investigated whether one represents and simulates the action of an interaction partner when planning to perform a joint action. The results showed that joint action planning compared with individual action planning resulted in amplitude modulations of the frontal P3a and parietal P3b event-related potentials, which are associated with stimulus classification, updating of representations, and decision-making. Moreover, there was evidence for anticipatory motor simulation of the partner's action in the amplitude and peak latency of the late, motor part of the Contingent Negative Variation, which was correlated with joint action performance. Our results provide evidence that when people engage in joint tasks, they represent in advance each other's actions in order to facilitate coordination

2 Sebanz, N. & Knoblich, G. (2009). Prediction in joint action: what, when, and where. *Top.Cogn Sci., 1,* 353-367.
Notes: Drawing on recent findings in the cognitive and neurosciences, this article discusses how people manage to predict each other's actions, which is fundamental for joint action. We explore how a common coding of perceived and performed actions may allow actors to predict the what, when, and where of others' actions. The "what" aspect refers to predictions about the kind of action the other will perform and to the intention that drives the action. The "when" aspect is critical for all joint actions requiring close temporal coordination. The "where" aspect is important for the online coordination of actions because actors need to effectively distribute a common space. We argue that although common coding of perceived and performed actions alone is not sufficient to enable one to engage in joint action, it provides a representational platform for integrating the actions of self and other. The final part of the paper considers links between lower-level processes like action simulation and higher-level processes like verbal communication and mental state attribution that have previously been at the focus of joint action research

3 Sebanz, N., Rebbechi, D., Knoblich, G., Prinz, W., & Frith, C. D. (2007). Is it really my turn? An event-related fMRI study of task sharing. *Social neuroscience, 2,* 81-95.
Notes: Acting together with others is a fundamental human ability. This raises the possibility that we take others' actions into account whenever somebody acts around us. Event-related fMRI was used to identify brain regions responsive to changes in cognitive processing when one and the same

go-nogo task is performed alone or together with a co-actor performing a complementary task. Reaction times showed that participants integrated the potential action of their co-actor in their own action planning. Increased activation in ventral premotor cortex was found when participants acted upon stimuli referring to their own action alternative, but only when their partner performed a complementary task. This suggests that knowing about the potential actions of a partner increases the relevance of stimuli referring to oneself. Acting in the presence of a co-actor was also associated with increased orbitofrontal activation, indicating that participants monitored their performance more closely to make sure it really was their turn. These results suggest that our default mode is to interact with others
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4 Sebanz, N., Knoblich, G., Prinz, W., & Wascher, E. (2006). Twin peaks: an ERP study of action planning and control in co-acting individuals. *Journal of Cognitive Neuroscience, 18,* 859-870.
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Previous studies have shown that perceiving another's actions activates corresponding representations in an observer's action system. The present study investigated how performing a task with another person affects action planning and control. Reaction times (RTs) and event-related potentials were measured while participants performed a go/no-go task alone and with another person. Three effects of acting together were observed. First, RTs were slowed when individuals had to respond to a stimulus referring to the other's action, suggesting that an action selection conflict occurred. Second, at frontal sites, a stimulus referring to the other's action elicited a similar electrophysiological response as a stimulus referring to one's own action. Finally, on no-go trials, P300 amplitude was significantly larger in a group setting, indicating that an action was suppressed. These findings provide evidence that individuals acting in a social context form shared action representations

5 Sebanz, N., Bekkering, H., & Knoblich, G. (2006). Joint action: bodies and minds moving together. *Trends in Cognitive Sciences, 10,* 70-76.
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The ability to coordinate our actions with those of others is crucial for our success as individuals and as a species. Progress in understanding the cognitive and neural processes involved in joint action has been slow and sparse, because cognitive neuroscientists have predominantly studied individual minds and brains in isolation. However, in recent years, major advances have been made by investigating perception and action in social context. In this article we outline how studies on joint attention, action observation, task sharing, action coordination and agency contribute to the

understanding of the cognitive and neural processes supporting joint action. Several mechanisms are proposed that allow individuals to share representations, to predict actions, and to integrate predicted effects of own and others' actions