1060-92-239   **Daniel Martí***, 4 Washington Pl, New York, NY 10003, and **Heather Dean**, **John Rinzel** and **Bijan Pesaran**. *A model of two interacting accumulators for reach and saccade reaction time behavior.* Preliminary report.

During coordinated eye-hand movements, saccade and reach reaction times (RTs) are correlated. We have explored the relationship between RTs and coordination in a dual RT task with monkeys where the responses made with eye and hand movements were separated by a random interval (stimulus onset asynchrony, SOA). The study shows that correlations of saccade and reach RT are high and positive at short SOAs, and drop quickly as the SOA increases to a few hundred milliseconds. Also, mean saccade RT decrease for short SOAs, suggesting a facilitation of saccades by reaches when they are cued nearly simultaneously. We propose a phenomenological model of RT based on two mutually coupled accumulators, each of which is associated with a particular movement. Each accumulator triggers a response when it hits a prescribed threshold and is ultimately thought to be encoded in the firing activity of a neuronal population involved in the planning of the associated movement. We consider several biologically plausible mechanisms of interaction between neuronal populations and analyze their behavioral outcomes. The analysis shows that a model with mutual excitation and asymmetric coupling accounts best for the dependencies on SOA of the low-order moments of the RT distributions. (Received March 30, 2010)