

Kornblum's (1973) time estimation paradigm, together with the so-called "race model," provides an appealing alternative for measuring the "cutoff" which separates "true" RTs from anticipatory RTs. However, the race model is not precise enough to reveal the relation of the signal intensity and the "cutoff." Accordingly, we extend Kornblum's model, with an emphasis on the measure of the "cutoff."

The core of the race model is the assumption of an independent race between the estimation process and the detection process. However, no systematic study of this assumption has been conducted. The implication of the independent race assumption suggests the following two tests: (i) for the same signal intensity, the signal-induced latency distribution should be invariant across different estimation conditions (Experiment 1); (ii) for the same estimation interval, the estimation-induced latency distribution should be invariant across different signal intensity conditions (Experiment 2). A parametric methods is used to analyze the data and the results are in agreement with the independence assumption. The RT data from Experiment 2 are also used to verify our modified model about the effect of the signal intensity on (a) the "cutoff" and (b) the derived signal initiated RT. The data analysis shows a good profit.