

SUPPLEMENTARY DISCUSSIONS

I. *A Road Not Taken: Relative and Absolute Tension Between Affect and Probability* *Joshua M. Epstein. December 2013.*

As discussed in connection with Plato's Charioteer, Affect (V) and Probability (P) can conflict *relative to* the action threshold τ (with one above it and the other below), but since both are nonnegative, neither can depress disposition *absolutely* given a value for the other. But this is neither problematic nor difficult to explore. Specifically, decompose τ into sub-thresholds τ_v and τ_p that sum to τ . For a single agent, the Action criterion was $D = V + P > \tau$. Obviously, if $\tau = \tau_v + \tau_p$, the Action criterion can be re-written in the form:

$$D = (V - \tau_v) + (P - \tau_p) > 0.$$

The parenthesized terms may be thought of as *net_V* and *net_P*. And these *do* admit four possible sign arrangements (notably one positive and one negative). But *Action* will be the same under any pairs such that $\tau_v + \tau_p = \tau$, of which there are an infinitude, including (it might be noted) the meaningless case in which the positions of τ_v and τ_p above are simply transposed. Notice, by the way, that if the sub-thresholds happen to be equal with $\tau_v = \tau_p = T$, we obtain exactly the condition derived in connection with the Charioteer, namely, $V + P > 2T$.

Since their introduction would have increased the number of model parameters by one per agent, and since their introduction is, in the above sense, *immaterial to agent behavior* (i.e., Action), sub-thresholds for V and P were, "a road not taken," to borrow from Robert Frost. However, for those wishing to experiment with sub-thresholds and positive and negative *net* terms, or to verify numerically that all pairs summing to τ induce the same Action, a "Sub_Thresholds" Applet is provided on this Website.

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