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**Abstract title:**

Think then act or act then think?

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There is a common belief, verbalized by Ralph Waldo Emerson in his Essays from 1841, that "The ancestor of every action is a thought". On the other hand, as noted by social psychologist David Myers: "If social psychology has taught us anything during the last 25 years, it is that we are likely not only to think ourselves into a way of acting but also to act ourselves into a way of thinking.". Indeed, it has been shown in many social experiments that attitudes are frequently poor predictors of behaviors, and it is often that behaviors determine attitudes. This startling conclusion inspired us to introduce a new agent-based model of opinion dynamics in which binary opinions of each agent can be measured and described regarding both pre- and post-influence at both of two levels, public and private, vis-à-vis the influence source. The model combines ideas introduced within the q-voter model with noise, proposed by physicists, with the descriptive, four-dimensional model of social response, formulated by social psychologists. We investigate two versions of the same model that differ only by the updating order: an opinion on the public level is updated before an opinion on the private level or vice versa. We show how the results on the macroscopic scale depend on this order. The main finding of this paper is that both models produce the same outcome if one looks only at such a macroscopic variable as the total number of the individuals with positive opinions. However, if also the level of internal harmony (viz., dissonance) is measured, then significant, qualitative differences are seen between these two versions of the model. All results were obtained simultaneously within Monte Carlo simulations and analytical calculations. We discuss the importance of our studies and findings from three points of view: the theory of phase transitions, agent-based modeling of social systems, and social psychology.

**Literature:**

[1] A. Jędrzejewski, G. Marcjasz, P. R. Nail and K. Sznajd-Weron (2018) Think then act or act then think?, PLoS ONE 13(11): e0206166, <https://doi.org/10.1371/journal.pone.0206166>

[2] A. Jędrzejewski and K. Sznajd–Weron (2019) Statistical Physics Of Opinion Formation: Is it a SPOOF?, *Comptes Rendus Physique*, Special issue: From statistical physics to social sciences, <https://doi.org/10.1016/j.crhy.2019.05.002>