

Title: Formation and revision of systems of beliefs: a decision-theoretic model of the motivated brain

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The current world faces a multitude of problems, both social and economic, that are a result of information-processing behavior of individuals. Especially since COVID-19 pandemic: political polarization, disinformation, abundance of conspiracy theories, informational warfare and many more issues are now important problems, their increased prevalence (or at least its perception) stemming at least partially from new opportunities for communication and amplification of such voices by algorithms. Each of those problems can be characterized as originating in how individuals form their systems of beliefs, how they act on new data and revise their beliefs.

One persistent observation is, that people seem to be mostly aware of many facts or official communication debunking, or even plainly contradicting their beliefs, they just do not care. This is not a new phenomenon: in fact, psychological literature is long aware of the fact, that people have a so-called 'motivated brain', meaning the information processing mechanism that first asks what the person *wants* to believe, and only then finding a *rationalisation* of their belief based on known facts.

Such formulation of this problem, with motivated brain as a central mechanism in the information-processing mechanism of individuals, opens the door to economic (or more precisely: decision-theoretic) approach to the problem of belief formation and revision, opening the possibility of obtaining stronger results that can guide policy in terms of fighting the aforementioned issues.