

Narrative epidemics: How ideas spread, compete, and fade

Laboratory name: Econophysics Lab

Internship location: Econophysics Lab, CFM, 23 rue de l'Université, Paris

Supervision: Michael Benzaquen and Jean-Philippe Bouchaud

Email: michael.benzaquen@cfm.com

Project at a Glance

Why do some narratives suddenly invade public attention, persist for weeks or years, and then disappear, while most never take off? This project will develop a quantitative theory of narrative dynamics inspired by epidemiology and statistical physics. Narratives will be treated as competing contagions spreading through a population with finite attention, so that the success of one narrative necessarily limits the space available to others. Large textual datasets will be used to reconstruct empirical narrative trajectories and calibrate a low-dimensional macroscopic model. A further theoretical objective will be to investigate whether this effective dynamics can be derived from a microscopic interacting-agent model, for instance a Random Field Ising Model (RFIM)-type description combining heterogeneous individual preferences and social imitation.

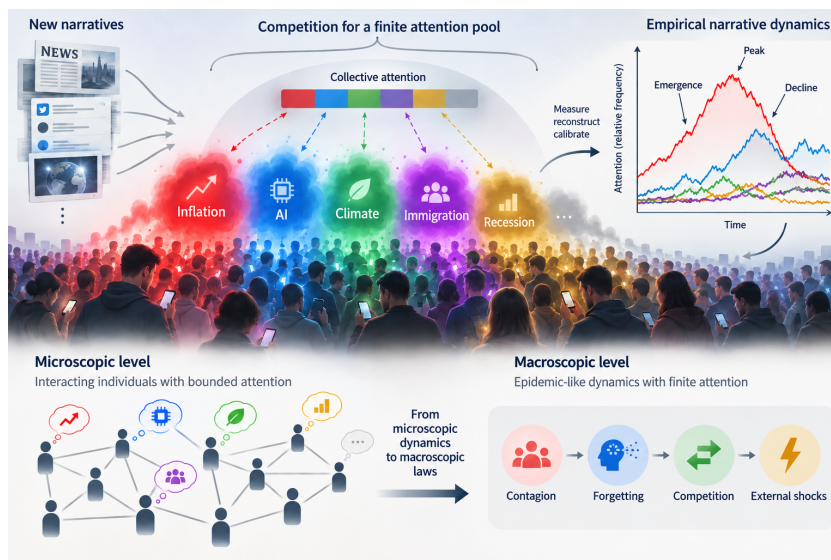


Figure 1: Narratives emerge, spread and compete for a finite pool of collective attention. Image generated by ChatGPT.

Project Description

Narratives are shared stories through which people interpret economic and social events, which may or may not spread through a population in a way reminiscent of epidemics. Some remain confined to small communities, others rapidly become widespread, while even highly successful narratives eventually lose momentum and disappear. This epidemiological analogy lies at the heart of Shiller's programme of *narrative economics* [1]: economic behaviour may depend not only on fundamentals and incentives, but also on contagious stories that propagate across society.

Human attention, however, is a scarce resource: individuals can actively engage with only a limited number of ideas. Likewise, society as a whole seems to be able to sustain only a finite number of highly salient narratives at any given time. A newly emerging narrative must therefore compete with those already occupying collective attention. The first objective of the project will be to formulate a minimal macroscopic model for the ecology of narratives. A simple starting point could combine contagion, spontaneous decay and competition for a finite attention pool. More general interacting epidemic or Lotka–Volterra-like models could allow narratives to reinforce, inhibit or replace one another. The precise form of the effective dynamics will itself be part of the research. Such models naturally raise a number of questions. What controls whether a narrative becomes endemic or disappears? Can a finite attention capacity generate the highly unequal distribution of narrative popularity observed empirically? How many successful narratives can coexist? What determines their lifetime and turnover rate? Can one define an effective reproduction number for a narrative? Are large waves of collective attention primarily triggered by external events, or can they arise endogenously through social amplification

and competition? These questions can be confronted with data. Narrative trajectories could be reconstructed from large corpora of news and online discussions using combinations of phrase tracking, semantic embeddings and topic-clustering methods. Possible datasets include GDELT, historical news archives, Google Trends and the MemeTracker corpus. Particular attention could be given to economically relevant narratives (inflation, recession, technological change or financial crises) while testing whether similar statistical regularities hold across broader social and cultural domains. The empirical part of the project would thus quantify key observables analogous to those studied in epidemiology and ecology: narrative birth rates, initial growth rates, peak prevalence, lifetimes, extinction hazards, replacement events, diversity and concentration of collective attention. The resulting trajectories could then be used to infer the parameters of the effective model and test whether a small set of dynamical mechanisms can reproduce the observed distributions of popularity, persistence and turnover.

A second part of the project would ask whether the macroscopic phenomenology can be microfounded from interacting individual decisions. Each agent could have heterogeneous intrinsic affinities for different narratives, represented by random individual fields, while being influenced by the narratives adopted by neighbouring agents. In an RFIM-type formulation, the effective preference of a given individual for a given narrative would contain both an idiosyncratic component and a social component, and an exogenous field representing external information. Finite attention would constrain the number of narratives simultaneously retained by an individual. Memory and reinforcement effects may additionally generate endogenous persistence or trapping in particular narratives, as in models of history-dependent choice [5]. For multiple competing narratives, this naturally suggests extensions of the RFIM toward multi-state or Potts-like models. Random-field and discrete-choice models with social interactions are particularly appealing here because they combine heterogeneity and social imitation, and can generate both smooth changes in collective behaviour and abrupt social cascades [6, 7, 8]. One of the central theoretical questions would therefore be whether coarse-graining such a microscopic model produces the epidemic-like equations inferred from data, and how their effective contagion and extinction parameters depend on imitation strength, heterogeneity, network structure and attention capacity.

Let's stress that our aim here is not to build a black-box natural-language model predicting which particular story will become popular. Natural-language processing would mainly serve as a measurement tool. The objective is instead to identify simple and potentially universal laws governing how narratives are born, propagate, compete for attention and eventually disappear.

References

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