



## Minireview

# Setting the agenda: Different strategies of a Mass Media in a model of cultural dissemination



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## ABSTRACT

Day by day, people exchange opinions about news with relatives, friends, and coworkers. In most cases, they get informed about a given issue by reading newspapers, listening to the radio, or watching TV, i.e., through a Mass Media (MM). However, the importance of a given new can be stimulated by the Media by assigning newspaper's pages or time in TV programs. In this sense, we say that the Media has the power to "set the agenda", i.e., it decides which new is important and which is not. On the other hand, the Media can know people's concerns through, for instance, websites or blogs where they express their opinions, and then it can use this information in order to be more appealing to an increasing number of people. In this work, we study different scenarios in an agent-based model of cultural dissemination, in which a given Mass Media has a specific purpose: To set a particular topic of discussion and impose its point of view to as many social agents as it can. We model this by making the Media has a fixed feature, representing its point of view in the topic of discussion, while it tries to attract new consumers, by taking advantage of feedback mechanisms, represented by adaptive features. We explore different strategies that the Media can adopt in order to increase the affinity with potential consumers and then the probability to be successful in imposing this particular topic.

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## Contents

1. Introduction.....	379
1.1. Previous works.....	379
1.2. Our contribution.....	380
2. The model.....	380
2.1. The Axelrod model.....	380
2.1.1. The population.....	381
2.1.2. The Mass Media.....	381
2.1.3. Dynamics.....	381
2.2. Observables.....	381
3. Results.....	382
3.1. Equilibrium properties.....	382
3.2. Dynamical properties of collective states for different strategies.....	384

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3.3.	Optimal combination of strategies .....	385
3.3.1.	Temporal combinations .....	385
3.3.2.	Structural combinations.....	386
4.	Conclusions.....	386
	Acknowledgments .....	387
Appendix A.	Microscopic description of NF strategy.....	387
Appendix B.	Dependence on $F$ and $N$ .....	388
	References.....	389

## 1. Introduction

Many times, people get involved in discussions about certain issues that do not arise only from their own daily experiences, in the sense that these seem to behoove the social group to which they belong, such as discussions about their country's macro economy, regional elections, etc. Due to the complexity and variety of those issues, and in many cases the remoteness with the situation, people resort to Mass Media in order to get informed about these ones and to know the opinion of specialists in these topics. People become interested in these issues because the Media is supposed to reflect the interests and concerns of their social environment.

Following Giddens [1], we find several theoretical approaches to the role of a Mass Media in the field of sociology. A Media seen as social stabilizer, which keeps and reflects the dominant culture, is the basis of the functionalism theory. As Giddens says, several reasons lead sociologists to move away from this approach: One of them is that the functions mentioned above appear wholly positive. In contrast to functionalism, the conflict theory sees the Media as a less benign force within society: It is a powerful agent whose ideology justifies or legitimizes the interests of the owner group of the Media. The ideology of a Media can be explicit, as for instance, in the editorial line of many newspapers, but in most cases it is implicit in the TV time or newspaper's pages that the Media spends to discuss a particular issue. The imposing of a topic in public opinion is what is called "to set the agenda", widely analyzed by McCombs [2,3]. As it can be read in Ref. [3], "*the press*) may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about". However, during the coverage of a given issue, the Media can suggest its point of view to the audience.

We analyze this idea in an agent-based model of cultural dissemination (the Axelrod's model [4], see Section 2), where each individual is characterized by a set of features representing its cultural profile, who interact proportionally to their degree of similarity (Homophily). Specifically, in this work, we analyze the case where a Mass Media has a given purpose: It is interested in "setting the agenda", i.e. make the largest amount of agents discuss about a given topic, as for instance, a particular policy issue, and impose its point of view. To pursue this goal, in our model the *MM* is able to modify the topic of discussion in each feature following different strategies. This acts as a feedback mechanism in order to be more appealing to the majority of the agents and increase the probability of interaction with them, in line with the reported in Ref. [5] where individuals sharing common attributes tend to be more similar.

In this work, we interpret each agent's value of a given feature as the main interest in this particular topic, as for instance, its favorite sport or its opinion about a policy issue. The Axelrod's model is very well suited to study the influence of a *MM* over a given population because each feature could be naturally interpreted as the section of a given newspaper. For instance the New York Times present the following sections: World, US, Politics, N.Y, Business, Opinion, Technology, Sports, Health, Science, Arts, Fashion and Style, and Food.

### 1.1. Previous works

Previous works in this topic basically follow two approaches: a fixed Mass Media, whose cultural state is constant in time and represents a Media who has no feedback with the population, and a fully adaptive Mass Media, which varies its cultural state adopting the most popular trait in each feature.

From a social point of view, a constant Mass Media represents a Media who imposes the topic of discussion in all features regardless the society concerning. From the physical point of view, it acts as an external constant vector field who drives the states of the agents. This modeling approach was followed in Refs. [6,7]. In the first one, the authors studied the combined dependence of the stationary states with the number of traits per feature ( $Q$ ) and the probability of interaction with the *MM* ( $B$ ). They counter-intuitively found that the Mass Media induces cultural diversity when the interaction parameter  $B$  is above certain threshold. In the second work, the combined effects of a fixed *MM* and a cultural drift (modeled as random perturbations) were analyzed. They also included an extra feature which makes the interaction between the *MM* and the agents always possible. An interesting twist was followed in Ref. [8] where the Mass Media is characterized by two parameters: a non-null overlap with all agents and a confidence value of its information. The first parameter is related to the concept of "propaganda", by which the *MM* can interact with all agents, included those cases where there is no cultural similarity. The second parameter is intended to model the level of credibility of a *MM* which, according to the authors, is directly related to its level of influence. A similar approach was followed in Ref. [9], where the authors incorporate the influence of the Mass Media as a non-pairwise interactions among agents, following the proposal of Ref. [10] for the Axelrod's Model.

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