

WORKSHOP

MAKING WAVES* – Dissemination Processes in the Media –

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There are new, impossible dialogues – moves
made, heads turned away, muscles stiffed...
Anyway, all I can see is *alertness* rather than
intellectual awareness.

Péter Esterházy, 1994

Abstract: The logistical function has been known and used by scientist more than hundred years for mathematical description of progresses. Different diffusion processes, such as the spread of contagious diseases or innovations show logistical growth as well. On basis of these, we targeted to reveal the signs of logistical growth on some specific area of the daily newspapers. For this purpose first we have chosen the recently most spectacular and well-defined public discussions in Hungary. We examined how the press reacted to the announcement made at Christmas in 2003 in the radio channel called “Radio Tilos”, where one of participant declared that he “would liquidate all Christians”. The evolution in time of the number of articles published reminds us strongly of to typical S curve of the logistic growth. It turned out that publishing occurred in several waves, mainly in three well-differentiated categories. We try to apply the logistic function on these categories. By using the logistic fit we could measure the state of emergency in the daily press.

Keywords: logistic curve, diffusion, public discussion

If you peek into a microscope and watch the behavior of bacteria swarming below for enough time, you can observe an interesting, although in this case more or less obvious, phenomenon. While bacteria do not do much, one of their “activities”, which is most important for us, can be readily recognized: they propagate. The little colony slowly grows at first, then, as their number becomes greater, this propagation

* We would like to thank the Hungarian Scientific Research Fund (OTKA) for its support provided under project no. T043655.

necessarily accelerates. You can witness how the Kingdom of Bacteria begins to flourish, with an ever multiplying population, and its growth seems to be unstoppable. Is it really unlimited? An impenetrable obstacle to the world-domination efforts of such bacteria is posed by, if nothing else, the size of the Petri dish that hosts them and the increasing shortage of nutriment. It turns out that the frantic pace cannot be maintained. As the number of bacteria increases, the rate of growth gradually decreases and ultimately halts, with the population of Bacteriumland leveling off at a maximum level where it is sustainable. When the number of bacteria is represented as a function of time, it produces a characteristic, slightly sloped S-shaped curve (see *Figure 1*). This kind of growth has long been formulated in mathematical terms as the so-called logistic growth.

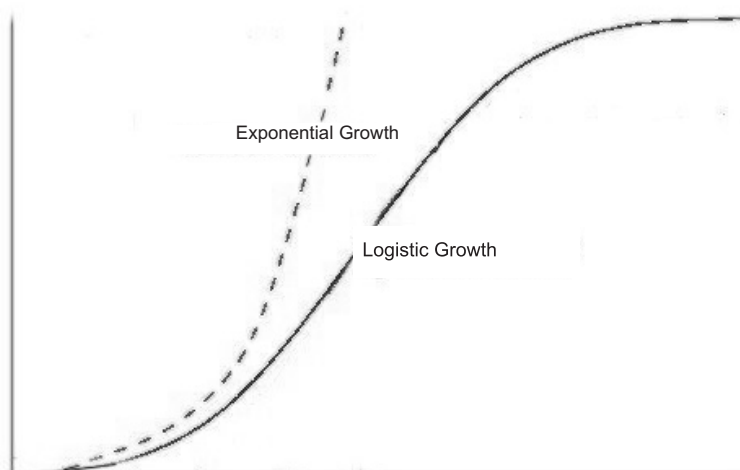


Figure 1. Unlimited Exponential Growth and Logistic Growth Limited by the Carrying Capacity

We can find numerous examples of logistic growth in our own everyday lives, while social scientists may discover such processes mainly during the quantitative dynamical examination of individual or collective behavior (Modis 1992; Rogers 2002). The development of a great variety of creative activities over time, for instance, the work of scientists, musicians or poets, when numerically expressed in some way, often follows this pattern (Marchetti 2002). Similar patterns can be detected in the growth of the number of expeditions launched by Western states in the era of great geographical discoveries, or the number of satellites sent to the moon during the contest for space between the United States and the former Soviet Union, or even the number of acts committed by a terrorist group (Fokasz 1999; Konstandopoulos and Modis 2003). Change in the size of populations which grow within a limited space may

be characterized by logistic growth (Marchetti et al. 1996) and this model can also be detected in the long-term dynamics of energy systems (Marchetti and Nakicenovic 1979; Grübler et al. 1999), the diffusion of innovations (Coleman et al. 1966; Bass 1969; Gruber 2001; Gruber and Verboven 2001a, 2001b) or the worldwide spread of democracy (Modelski and Gardner 1991, 2002).

Many people argue that certain ideas, beliefs and opinions can also be dangerously contagious. What if the spread of such ideas also follows the rule described above? The question is whether logistic growth can also be discovered in how press responses to some, preferably well-outlined, public event change over time.

Media coverage on one of the most spectacular recent political debates in Hungary offers a good case for analysis. We mean the scandal which emerged around the alternative Hungarian niche radio station, called Radio Tilos (Radio “forbidden”) targeting the university student community. Here the authors would like to confirm that they do not wish to take sides in this debate either in favor or against some of the participants. The scope of this study is limited to the initial results of a descriptive empirical analysis. It can be considered a trial, an experimental investigation, which may, however, in its present state, contribute to the interpretation of certain models of communication, and it also involves some hypotheses which are designed to generate a debate. It is the very reason for publishing our findings.

Some details of the affair are important, so we will begin by recalling relevant events. In the evening of December 24 2003, that is, on Christmas Eve, a presenter from Radio Tilos, who was probably under some influence, made a rude remark expressing his willingness to “exterminate all Christians”. This statement immediately triggered enormous reverberations in the media, which were escalated by further statements and events concerning the affair. On January 11 some right-wing organizations held a protest at the Radio station. In the demonstration a member of the Hungarian Writers’ Union made anti-Semitic statements and at the end of the demonstration an Israeli flag was burned. After this affair the Hungarian writer Lajos Parti Nagy announced his resignation from the Hungarian Writers’ Union, which led to a major conflict inside the Union.

On December 25 the first media reports about the problem appeared whose propagated effects could be felt several months later, and thus were covered in the press. The collection of data providing the basis of our computations ended in the first week of April 2004.

In the initial phase of our research the four leading Hungarian dailies of national circulation (and their online versions) were searched through the Internet for articles discussing the Tilos affair. The analyzed materials included all types of publications issued on the theme: news stories, short news items, reports and generally everything which was published on the issue. This initial approach had already brought considerable results, as illustrated in the following figure:

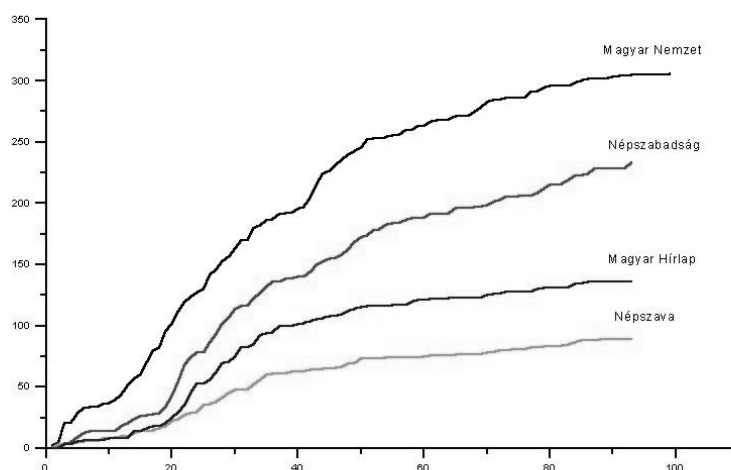


Figure 2. The Number of Articles Discussing the Tilos Affair in the Four Leading Hungarian Dailies of National Circulation [Magyar Nemzet, Népszabadság, Magyar Hírlap, Népszava]

It seemed promising that the change in the number of articles published on the issue did show some similarity to the S-curve of logistic growth; obviously, however, the measurement was very rough in this form and required further refinement. In the following sections only results for the two newspapers which had the largest circulation and also the biggest stake in the affair at that time, the liberal *Népszabadság* and the conservative *Magyar Nemzet*, will be presented, but it should be noted that very similar, although less marked, processes could be observed for the two other dailies, the *Népszava* and the *Magyar Hírlap*, too.

Having refined the criteria for our examination, we found that published articles can be classified under three distinct categories. The first category contains articles which dealt with statements uttered on the radio, responses to these statements from the radio station itself and from actors in public life, related steps taken by the National Radio and Television Commission (ORTT), and comments on these steps. This category was labeled the "*Tilos Affair*". The second set included articles which discussed the fact, reasons and nature of the protest held in front of the Tilos building, speeches held there, and the ramifications of burning an Israeli flag, which reached the police and the courts. This category received the label "*Flag-Burning*". Finally, the last group, which was identified with the label "*Writers' Union*", involved mainly writings on the debates about Lajos Parti Nagy's leaving the Union and its implications.

Consequently, publication activities which can be related to Radio Tilos took place in three waves. The first wave, which includes responses to the statement of Christmas

Eve, set off on December 25 in both newspapers. The next wave of publications, triggered by the protest, began on January 11, and finally they were followed by the wave of publications on the demand facing the presidential committee of the Writers' Union for condemning anti-Semitic statements made by one of its members at the demonstration and responses to this demand.

We attempted to fit the logistic curve to the number of articles in both newspapers for each of the three waves separately. The results are shown in *Figures 3 and 4*.

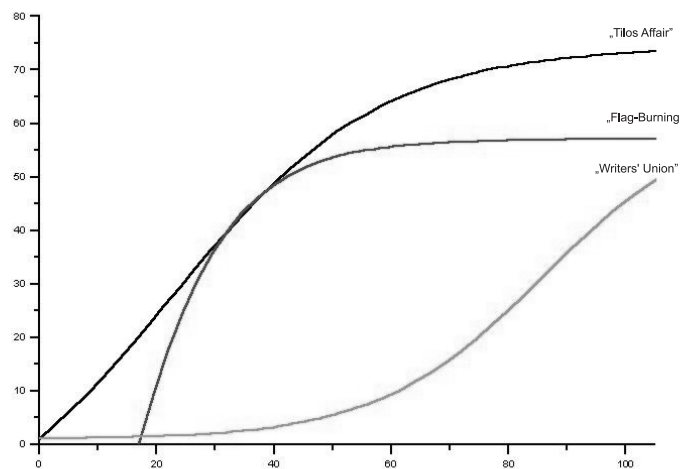


Figure 3. Logistic Curve Fit for *Népszabadság*
[“Tilos Affair”, “Flag-Burning”, “Writers’ Union”]

It is an identical feature in the two figures that news about Radio Tilos are dominant for both newspapers. In this respect, media coverage focused on the “Tilos Affair” till the end. On the other hand, the two figures remarkably differ in structural terms. For *Népszabadság*, there are points in time when the curve for “Flag-Burning” reaches up to that of “Tilos Affair”, while the curve for “Writers’ Union” had approached the two others by the end of the observed period. For *Magyar Nemzet* the whole story was much more about the “Tilos Affair”. The number of articles on the two other themes equals only half of the articles about the radio station.

However, the most unexpected and thus most important result of our study derived from the fact that of the empirically fitted logistic curves, only the graph of “Writers’ Union” showed the anticipated characteristic S-shape. We could conclude, of course, that the curve for “Writers’ Union” is really S-shaped while the curves for the two other themes are actually not. It would be a viable alternative explanation, and we can easily imagine that other logistic-like growth functions such as Gompertz-

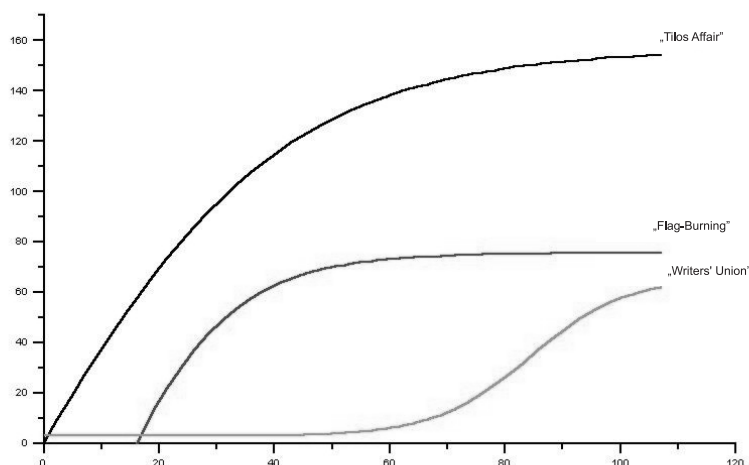


Figure 4. Logistic Curve Fit for *Magyar Nemzet*
[“Tilos Affair”, “Flag-Burning”, “Writers’ Union”]

Bertalanffy- or Mitscherlich-function can capture the publication activities which are related to these themes. However it should be remembered that the logistic function is still one of the most frequent and simple forms of growth and we know that diffusion of information, that is the spread of ideas usually also follows the logistic rule (Geroski 2000). Moreover, in our case, three out of six examined diagrams positively indicate logistic growth; in fact, four of them actually seem to do so, even if they do not include the entire S-curve. Consequently, while we do not wish to imply that there is the definitive evidence of logistic rule, it would be more complicated and difficult to adequately justify the assumption that the two other curves are not logistic.

Therefore at this initial stage of our research we test only the logistic fit and investigate its consequences. So we presume that a characteristic S-shape would be produced for “Writers’ Union”. In the cases of “Tilos Affair”, and “Flag-Burning”, curves are also supposed to follow a logistic path, but accepting the approach of some researchers (Konstandopoulos and Modis 2003; Marchetti 1997) we suppose that only the upper part of the S-curve in question is visible.

This hypothesis has proven to be extremely productive. For if we wanted to have the best fit curves – which is the advantage of applying a mathematical method, since we could measure the accuracy of the fit – we had to assume that in a sense the hotly debated affairs can be interpreted as parts of processes which began much earlier. To help understand this point, the full reconstructed process is shown in *Figures 5 and 6*.

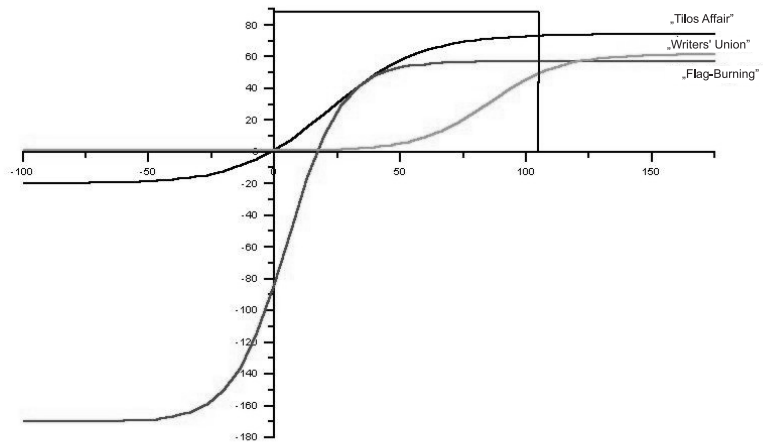


Figure 5. Logistic Reconstruction for *Népszabadság*
 [“Tilos Affair”, “Flag-Burning”, “Writers’ Union”]

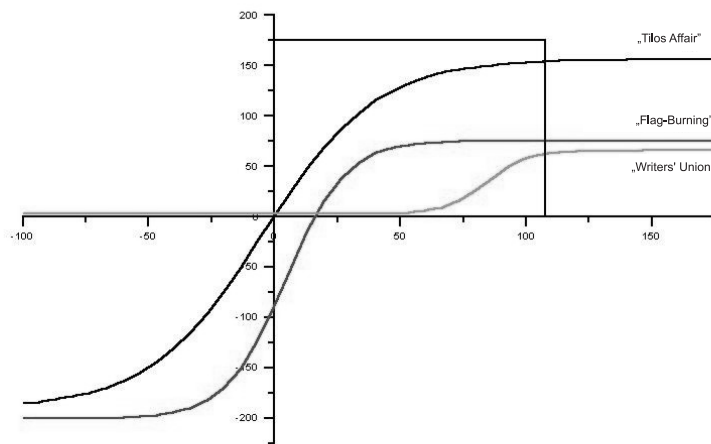


Figure 6. Logistic Reconstruction for *Magyar Nemzet*
 [“Tilos Affair”, “Flag-Burning”, “Writers’ Union”]

The rectangles in the figures represent the time windows in which the monitored events (previously shown in *Figures 3 and 4* above) actually occurred. Apparently, the processes in question are of a much larger scale and time span, in terms of their dynamical characteristics, than the segments included in the time windows.

For instance, in the *Népszabadság* articles the “Tilos Affair” proved to be part of a process which began more than fifty days before the first publication date. Of course, it would be paradoxical to say that the “Tilos Affair” began before the anti-Christian statement could be heard on Radio Tilos. In our opinion, the result tells more about the nature of vehement press responses than about this very fact. It reveals the degree of “alertness”: the readiness of a press product to grab an affair. Seemingly, *Népszabadság* had such a – not too strong – inclination, which was then mobilized by the event in question. Of course, this “not too strong” attribute is to be understood in relative terms. It means that for *Magyar Nemzet* the same response readiness and alertness is much more intense, since its publication activities concerning the “Tilos Affair” can be grasped best through a process which began more than a hundred days earlier.

Vigilance and readiness is inherently more characteristic of *Magyar Nemzet*. It was also found for “Flag-Burning”, where the “launch” of the process preceded the date of the protest by seventy days. However, it is remarkable that this kind of vigilance for “Flag-Burning” is also extremely strong in the *Népszabadság* articles. Here intense reaction is shown by the fact that press response corresponds to a process which began sixty days before the demonstration and then quickly developed, catching up with the graph for the “Tilos Affair” and reaching its carrying capacity hardly more than a month after the scandal broke out. For *Népszabadság* it can be considered the most intense reaction by far. The response is four times more intense than it was in the case of the “Tilos Affair”. Apparently, the best venue for action proved to be the “Tilos Affair” for *Magyar Nemzet*, while it was the “Flag-Burning” for *Népszabadság*.

The diagrams show that the case of the Writers’ Union belonged to a category which is different from those of the two other themes above because this phenomenon developed “in real time”, right before our eyes. It was a new, gradually ripening stream of events which gained pace slowly – it is also supported by the fact that Lajos Parti Nagy declared that he would leave the association, a watershed undoubtedly, more than two weeks after the protest at the Tilos offices. Moreover, the waves raised by his declaration spread gradually, as the first writer to follow him, Péter Nádas, left the organization about a month later. This slowly emerging dynamics is a common feature of publications in *Népszabadság* and *Magyar Nemzet*. The publishing practices of the two newspapers are the most similar in this case. It should be noted that publications concerning the literary round table perfectly fit in the dynamics of the “Writers’ Union” affair.

At this point another question can be raised: To what extent the examined press responses report on the “world” or only about the media itself? It is not absurd to suggest that the events which occurred at one newspaper can be explained, in a considerable part, with the events which took place at the other. We could assume, for instance, that participants mutually take the past and expected future activities into account during their publication activities. However, to model this interaction between

the newspapers would require further measurements. For example, we should know the share of the given theme within the total of articles concerning the internal politics of Hungary, and measurement should also be extended to the number of characters in addition to the number of articles. This study cannot meet all these goals.

Nevertheless, we could do something about our story. Based on the data available as of April 1, we could conclude that the life cycle of press activities which can be associated with Radio Tilos has essentially ended. It stands for both newspapers that in the bacterium kingdoms of “Flag-Burning” and “Tilos Affair” the number of article bacteria stopped to increase around late February and early April, respectively. A slightly different situation developed in the case of the “Writers’ Union”. It could be *predicted*, on the basis of data collected up to *early April* that the increase in the number of articles discussing the affair would stop in the last days of April for *Magyar Nemzet*, while this condition would be reached much later, closer to the end of May, for *Népszabadság*.

Have our predictions proved to be right? To test them, data collection was repeated in mid-June. We could conclude that the prognoses about the “Writers’ Union” were fulfilled just as we expected. For instance, news about the abolition of the literary round table, which put an end to our story and made it full-blown, was issued in late May, or more precisely on May 28.

The stories of the two other themes followed somewhat different paths. At the end of April a new situation was created by the court decision made in the case of Radio Tilos and the related ORTT resolution on the one hand, and the continued lawsuit against the people who set fire to an Israeli flag on the other. These events appeared in *Népszabadság* in only a few news items, which did not affect the general tendency predicted in our study. However, the judicial events of late April provided an occasion for *Magyar Nemzet* to evoke the “Tilos Affair” and keep it on the agenda. Therefore our prognoses have a fate similar to that of weather forecasts: to make sure that they are valid, all we have to do is to assume that nothing unexpected will occur in the meantime...

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