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Theory-Forming in Biblical Studies:
Contributions to an Interdisciplinary Dialogue

In this short essay, I will consider how theory-forming in Biblical Studies is different from theorizing in the natural sciences, make suggestions about the underlying reasons for the differences, and give an example of using naturalistic methods in Biblical Studies.

Although natural sciences use a variety of methods to acquire knowledge about the world, the evaluation of hypotheses can be called a universally applied procedure. Based on available data, scientists put forward hypotheses, and then collect more empirical data (typically through experiments) to test them. Philosophers of science have examined various aspects of this basic scheme (such as inductive reasoning or reliance on paradigms), which we cannot rehearse in any detail in this contribution (cf. Popper 2002 [1934]; Polányi 1958; Kuhn 1962; Lakatos 1978).

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Various ways of theory-forming

In other parts of the academy, however, scholars use other ways of theory-forming which supplement or replace the above-mentioned style of scientific reasoning. Philosophy and mathematics, for example, can be seen as systems of thought based on widely accepted principles that can be changed by a new consensus at any time (and not just under the weight of empirical evidence). Law is also based on the application of widely shared principles but the implications of these principles for particular real-world situations depend on a kind of *ad hoc* reasoning that we call legal interpretation (e.g. Leyh 1992). Various other domains of human life are studied by disciplines that involve interpretation to different degrees – a style of theorizing that is heavily context-dependent and not necessarily verifiable by different observers (especially at different times and places). Whereas in mathematics or the natural sciences, learning a set of rules enables researchers to achieve original results, in the humanities, life experience is part of one's academic toolkit (Mérő 1990). Without further multiplying the examples, we can see that theorizing is domain specific and there are no universal rules of theory-forming in the academy (except for a shared academic ethos and institutional framework).

Biblical texts

The interpretation of biblical texts has played a crucial role in the history of Western theology, and it has often had important ramifications for other cultural domains. The study of sacred texts occupied a

central position in early Christianity, much more so than in the life of most ancient religions. A new style of interpreting the Bible (tied up with the Renaissance interest in ancient culture) contributed substantially to the success of Reformation. Ironically, such intensified interest in biblical texts also led to the questioning of traditional theological views on the Bible itself, with the rejection of the Mosaic authorship of the Pentateuch and the historical truthfulness of the Gospels being two salient examples. Today's academic study of the Bible is divided into branches that sometimes feature very different principles and methods. Such diversity is understandable, given the difficulties of textual reconstruction (which surviving version of a given passage shall we accept as the most authentic?), the enigmatic nature of many texts (how shall we translate a given passage into a modern language?), the scarcity of external information or archeological evidence about the earliest Christian movement, and the impact of scholars' ideological backgrounds on their work (which is more difficult to ignore than is the case in several other fields).

Instead of blaming cultural and historical factors for the methodological and, indeed, ideological heterogeneity of Biblical Studies, I will argue that it is the nature of the subject matter that prevents this branch of academic scholarship (and a number of others, as well) from achieving the kind of overall agreement on goals and theorizing styles seen in the natural sciences. To summarize my argument, *the phenomena which biblical scholars (and many of their colleagues in the humanities) investigate are more complex than the phenomena hitherto explained by natural scientists.* Let me 'unpack' this claim in the following paragraphs.

Complex systems

Complexity means that the whole is more than the sum of its parts (Nicoline and Prigogine 1989; Mainzer 1994). For example, society is more than just the sum of its individuals, i.e. studying individuals will not yield an understanding of society as a whole. Complexity is caused by factors such as heterogeneity (e.g. society is made up of individuals behaving in different ways), by the involvement of adaptive agents (e.g. individuals in society change their behavior in response to changes in the social environment), and interrelated causal structures (e.g. different social formations and institutions mutually influence each other's behavior). Systems displaying such behavior are called dynamic systems. In addition to society, we can mention the ecosystem or the weather as illustrative, everyday examples of such systems.

Scholars have developed various approaches to examine complex phenomena (Chu *et al.* 2003). Using mathematical models, physicists have described the behavior of various laboratory systems, but such tools have had limited applicability to real life phenomena. Another method is agent-based modeling, exemplified by the little model shown in Figure 1 that realistically simulates the behavior of a flock of birds (Parker 1995–2007; Reynolds 1995–2001). Such models are now widely used to study dynamic systems, yet one has to keep in mind that the models represent idealized and often hugely simplified versions of real-life phenomena. What makes real-life systems so difficult to analyze? Two factors have to be mentioned in particular (Chu and others 2003). (1) First, real-life systems show radical openness. In other words, it is very difficult to decide what to include in a model, and omitting a detail may substantially limit the relevance of the

model. (2) Second, elements can be parts of more than one system. For example, a religious agent is also an economic agent. This is called the problem of contextuality. We have to realize that many if not all existentially burning phenomena in the world display these two types of features. Society, ecology, and religiosity are precisely the kinds of dynamic systems that have evaded scholar's attempts to create reliable models of them.

Given this state of affairs, it is understandable that natural scientists regard explanations used in biblical studies, and in the humanities in general, as too weak and *ad hoc*. In these latter disciplines, academics consider naturalistic explanations applied to their domains to be unsatisfactory because of their limited scope and validity (usually stamped as 'reductionist', but that deserves a separate discussion).

Figure 1: Using the Boid model to simulate the flocking of birds.

Network theory

In the final part of my contribution, I will give an example of how systems of theoretical thinking in a broad sense can be used to better understand historical phenomena. Network theory, which is based on mathematical graph theory and has received growing attention in the past few years, offers new ways of modeling various real-life systems (e.g. Dorogovtsev and Mendes 2003). Ecology and sociology are two fields in which networks have been studied for a long time. In both domains (Granovetter 1973; Berlow 1999), so-called weak links have been found to serve to stabilize networks. Weak links are links that we can remove from a network without destroying its structure. For example, if a species feeds on various other species, some links might be removed without destroying the ecological system. When the network is under stress (imagine a natural disaster), weak links help the system survive. One additional benefit of weak links is that they hide diversity, that is, they enable mutations (such as genetic variations in an ecosystem or minority views in a society) to survive. In extreme situations, a great pool of hidden variations might help the emergence of new solutions and ensure the survival of a system (Csermely 2006).

My hypothesis is that the early Church developed a great number of weak links that stabilized it and facilitated its survival in the face of changing circumstances in late antiquity (Czachesz forthcoming). I can see at least three different ways of facilitating and maintaining weak links in the early Church, and it is important to note that we are not speaking of social engineering but rather of a spontaneous development. (1) First, mobility was an important feature of the life of the early Church. From the very beginning, we have information about migrant people, missionaries, apostles and church officials. (2) Second, women received a more important place in the institutional framework of the early Church than they did in most other religions. Women's role becomes especially

significant under stress, when they maintain social networks much more successfully than men. It is quite interesting to compare this with the also dynamically growing but later completely disappearing Mithraism, which was a men's organization. (3) Finally, charity also formed lots of weak links. These links were not essential for the institutional structure of the Church, but added a great number of weak social links.

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