JEWISH AND NON-JEWISH NETWORKS IN THE SPREAD OF EARLY CHRISTIANITY

A CASE OF THE MARCIONATE AND LUKAN CHRISTIANITY

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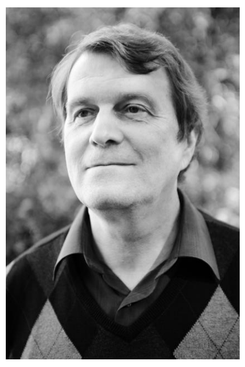
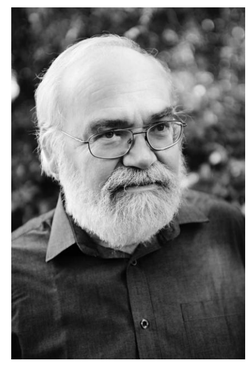


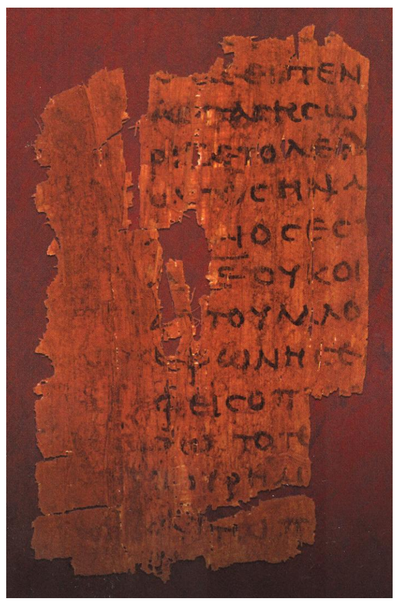


RESEARCH PROBLEM

The influence of Jewish heritage on the spread of early Christianity represents a traditional research issue in the history of Christianity. However, research projects up to now have been mainly aimed at detailed analyses of fragmentary written sources and/or general reconstructions of historical process based on deductive methods. Modeling approaches based on network theory and/or discrete diffusion models can provide a more suitable way how to bridge the gap between the fragmentary historical evidence and the complexity of investigated processes.

The project is focused on the Marcionate and Lukan Christianities as a strictly coded test case dated back to the first half of the 2nd century. Despite weak historical evidence, it is obvious that these two trends, which are assumed to be contemporaneous (Pervo 2006; Tyson 2006), maintained different attitudes to the Jewish heritage and so they probably utilized different (i.e. Jewish and non-Jewish) networks. While the first trend was represented by Marcion who rejected the Jewish heritage and created the first Christian canon (BeDuhn 2013) consisting of his own gospel (*Evangelion*) and a collection of ten Pauline letters (*Apostolikon*). The latter trend, represented by Luke and his writings (*Gospel of Luke* and the *Acts of Apostles*), insisted still on Jewish heritage.

Nuances of Judaizing and de-Judaizing tendencies are intentionally reduced to the Jewish and non-Jewish singular characteristics. It presupposes two crucial types of spreading dynamics which either used the Jewish networks or ignored them.



P69 (P.Oxy 2383), a possible fragment of Marcion's gospel text. Image courtesy of the Egypt Exploration Society and Imagining Papyri Project, Oxford (adapted from BeDuhn 2013).

METHODS

The lack of plausible historical data could be overcome by modeling different trajectories of rising Christianity which were dependent on different connectivity and data flow within Greco-Roman Mediterranean networks (cf. Malkin 2011; Malkin – Constantakopoulou – Panagopoulou, eds. 2009). For Lukan Christianity, which remained open to the Jewish heritage, it is suitable to design models using Jewish Mediterranean networks (Collar 2013) while for Marcionite Christianity, which might use the infrastructure provided by its founder's shipping company, trade maritime networks (Arnaud 2005) could be incorporated.

Critical evaluation of the proposed models can help to solve the question in what extent the spread of early Christianity was influenced by Jewish Mediterranean networks and how other networks could be employed in this process, especially after the collapses of the Jerusalem center in 70 and 135 C.E.

The outlined historical complexity might be investigated on three main levels:

- **mathematical network modeling with a subsequent analysis;**
- **abstract computational network modeling with virtual agents;**
- **computational network modeling against the (fragmentary and indirect) historical data.**

WORK IN PROGRESS

On the strictly reduced historical basis of Marcionite and Lukan Christianity we have constructed a mathematical model of spreading for two modes of Christianity on networks:

- The nodes of the hypothesized network are common for the both modes – they might interact in ancient Mediterranean sites, but their diffusivities between nodes differ – they might spread on different connections, i.e. Jewish and non-Jewish.
- The issue is analyzed within the centralized and decentralized networks which might plausibly represent an ambivalent role of the Jerusalem centrality during the first two centuries of the spread of Christianity.
- The model shows a possibility of emergent phenomena arising just from topology of the underlying network or diffusion rates that might be misinterpreted as intentional ones ("Turing-like instabilities" of diffusion).

FUTURE DIRECTION

The mathematical modeling creates a broader framework for designing the computational models and generates questions that might be addressed to the models themselves.

- A stress on abstract modeling and modeling against the historical data is of great importance because there is no direct archaeological evidence available in the case of earliest Christianity.
- Nevertheless, the computational models based on virtual agents may be related to the networks constructed on the Jewish Mediterranean environment (Collar 2013; cf. Runesson – Binder – Olsson 2010) as well as using maritime and terrestrial routes used in trade (ORBIS).

MATHEMATICAL MODELING

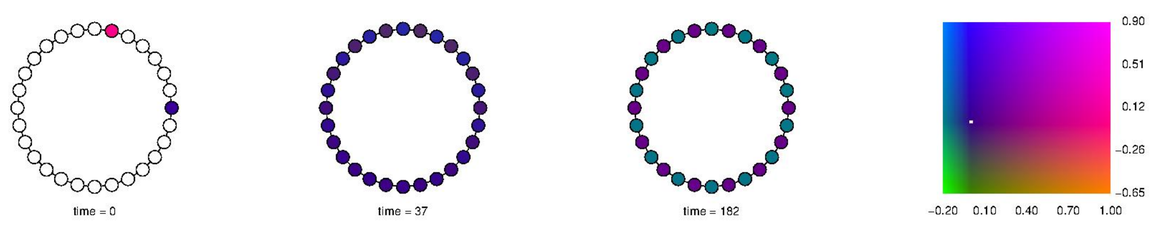
The model applies discrete reaction-diffusion equations on a graph (network).

$$x_i(t+1) = f_i\big(x_i(t), y_i(t)\big) + \sum_j \alpha_{ij}\,\big[f_j\big(x_j(t), y_j(t)\big) \quad f_i\big(x_i(t), y_i(t)\big)\big]$$

$$y_i(t+1) = g_i\big(x_i(t), y_i(t)\big) + \sum_j \beta_{ij}\,\big[g_j\big(x_j(t), y_j(t)\big) \quad g_i\big(x_i(t), y_i(t)\big)\big]$$

t	time
$x_i = x_i(t),\ y_i = y_i(t)$	intensities of the first and the second mode, respectively, at node *i*
$f_i(x_i, y_i),\ g_i(x_i, y_i)$	term quantifying an influence of interacted nodes to the first and to the second one, respectively
$\alpha_{ij},\ \beta_{ij}$	diffusivity (intensity of spreading) of the modes on its connections

The starting point in modeling is one of the simplest nets – the circular (periodic) one:



Abstract pattern of spreading "two modes of Christianity". Initially, it looks like uniform spreading and mixing; but after time, non-homogenities emerge.

SUMMARY

The project reconsiders the influence of the Jewish heritage in the spread of early Christianity throughout the Mediterranean. It is focused on the Marcionate and Lukan Christianities dated back to the first half of the 2nd century. The project tries to design models using Jewish networks for Lukan Christianity, which remained open to the Jewish tradition, and trade maritime networks for Marcionite Christianity, which rejected the Jewish heritage and might use the seafaring infrastructure of its founder. The research is designed as: (a) mathematical network modeling, (b) computational network modeling with virtual agents and (c) is validated using the historical data. Critical evaluation of these models can help to solve the question to what extent the spread of Christianity was influenced by the Jewish networks and how other networks may have been employed in this process.

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