## A contributed talk

## Half a Century of Bioethics and Philosophy of Medicine. A Computational Approach

A standard way in which practitioners of an academic discipline reflect on the development of their disciplines is through "close reading" of selected texts, which is often mediated through their personal experience and academic interests. However, "close reading" as a way to detect general trends is not only not-replicable and suffers from underdetermination by evidence (i.e., different interpretations may be drawn based on the same material), but first of all non-transparent and using arbitrary sampling when working with a large corpus.

In contrast, a different approach – the one we further in our recently published paper (Bystranowski et al. 2022) – takes seriously an epistemological question on how one can justify a belief that, for example, in the 2000s the issue of "enhancement" dominated the debate in bioethics and philosophy of medicine (Dawson 2010). We employ a "distant reading" (Moretti 2013) approach based on topic modeling – a computational text-mining technique aimed at discovering hidden thematic composition in large text corpora. In this study, following similar analyses conducted in other areas of philosophy (Malaterre et al., 2020), we construct a corpus of 19,488 texts published since 1971 in seven leading journals in the field of bioethics and philosophy of medicine. We use the latent Dirichlet allocation (LDA) algorithm to identify 'topics' – sets of words that tend to be used together across documents in the corpus, and then we interpret them, that is, we associate topics with actual, discrete themes discussed in the analyzed collection of texts.

On the basis of inter-topic correlations, we group the content-based topics into 8 clusters, thus providing a

novel, fine-grained intellectual map that represents the diversity of bioethics and philosophy of medicine. Moreover, we conduct a number of diachronic analyses, examining how the 'prominence' of different topics changed across time. This way, we are able to observe distinct patterns in which bioethics and philosophy of medicine were evolving and changing their focus throughout the past half a century. In my talk, I would also like to present some of our follow-up studies, e.g. one in which we analyze scholarly discussions on ethical and regulatory issues stemming from the direct manipulation of the human genome and from other developments in genetic engineering.





Figure 1. Ninety-one content-based topics grouped into eight clusters. Node size reflects a topic's prominence in the corpus, and edge size reflects Pearson's correlation coefficient for a given pair of topics (only correlation coefficients above 0.05 are included in the graph). Gephi's Multigravity ForceAtlas 2 was used for layout rendering. For a high quality version see: https://doi.org/10.1111/bioe.13087