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The Disconnection That Wasn't: Philosophy in Modern Bioethics from a Quantitative Perspective

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Blumenthal-Barby et al. (2022) situate their discussion of philosophy and bioethics in the context of (reportedly) widely held assumption that, when compared to the early days of bioethics, the role of philosophy is now diminished across the field—the assumption we call the *Disconnection Thesis*. This assumption can be summarized, to use authors' own words, by the phrase “philosophy's glory days in bioethics are over.” While in no place of the article did they explicitly endorse the Disconnection Thesis, at least some of the authors had previously endorsed it in print (Savulescu 2015).

Such expressions of collective expert wisdom might be a valuable source of information on the discipline's history, but they should not be accepted uncritically. Given the explosion in the size and scope of bioethical research in recent decades, any scholar's familiarity with the area is necessarily based on selective reading and might be biased. Hence, in this commentary, we examine what kind of more rigorous evidence could corroborate the Disconnection Thesis. In other words, if the role of philosophy in bioethics has been indeed diminishing, what kind of observable patterns should we expect to see?

Drawing on our previous research (Bystranowski, Dranseika, and Żuradzki 2022b), here we focus on two useful perspectives: citation analysis and topic modeling. While the first approach allows us to indirectly measure the level of engagement of bioethicists with philosophical literature (by measuring the proportion of references from articles published in journals in bioethics that cite philosophy journals), the

latter provides a window into the content and argumentative style of bioethical texts.

We do not claim that these two perspectives are the only, or even the most appropriate ones to study empirically the presence of philosophy in bioethics. Other potential approaches would be, for example, analyzing the share of authors affiliated with philosophy departments in bioethics journals and/or the share of philosophy degree-holders among scholars employed at bioethics centers. Hence, we hope that this commentary can help inspire further empirical research in this area.



Let us look at the available evidence. Analyses that follow are based on the corpus of about 20,000 texts published in the 7 leading journals in bioethics (*American Journal of Bioethics*, *Bioethics*, *Hastings Center Report*, *Journal of Medical Ethics*) and philosophy of medicine (*Journal of Medicine and Philosophy*, *Medicine, Health Care and Philosophy*, *Theoretical Medicine and Bioethics*).¹

CITATION ANALYSIS

The citation analysis is based on Web of Science citation data. For all references in our target journals in a given year, we were able to identify the proportion that cited articles published in Philosophy journals (as defined by the National Science Foundation (NSF) journals classification²). As clearly visible in Figure 1, the proportion of citations to philosophy in the four leading bioethics journals has been relatively low

¹See (Bystranowski, Dranseika, and Żuradzki 2022b) for an explanation of how these journals were selected. The partition of the set of journals into bioethics and philosophy of medicine is grounded in topic-correlation-based clustering, for details see (Bystranowski, Dranseika, and Żuradzki 2022a).

²With some manual corrections (we moved *Ethics, Philosophy & Public Affairs*, and *Social Philosophy & Policy* from the category Miscellaneous Social Science to Philosophy, and *Kennedy Institute of Ethics Journal* and *Christian Bioethics* from Philosophy to Health Policy & Services). One should also remember that NSF classifies most philosophy of science journals not in Philosophy, but in the category Science Studies.

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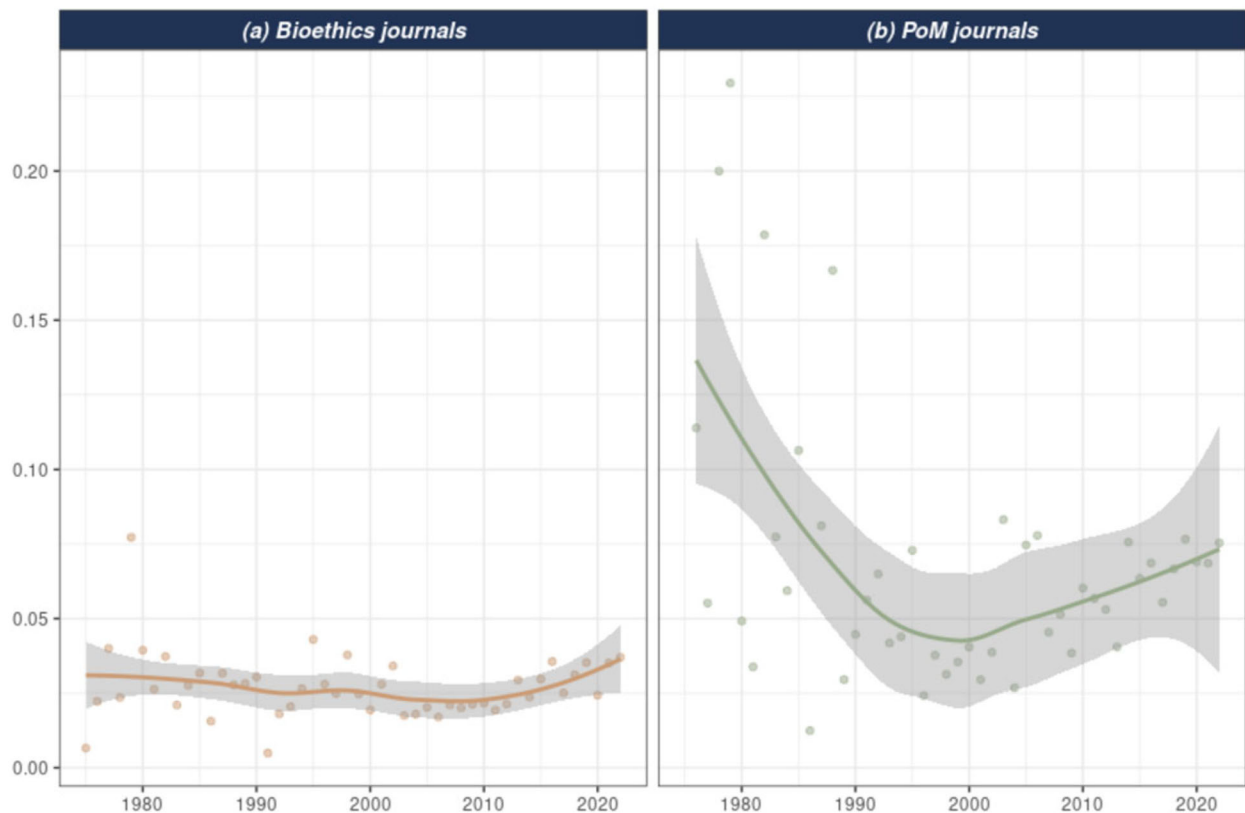


Figure 1. The proportion of the number of references to Philosophy journals to the number of all references to journals in a given year for (a) 4 crucial journals in Bioethics (*American Journal of Bioethics*, *Bioethics*, *Hastings Center Report*, *Journal of Medical Ethics*) and (b) 3 crucial journals in Philosophy of Medicine (*Journal of Medicine and Philosophy*, *Medicine, Health Care and Philosophy*, *Theoretical Medicine and Bioethics*), as identified in Bystranowski, Dranseika, and Żuradzki (2022b). Lines represent locally estimated scatterplot smoothing with 95% confidence intervals. Based on Web of Science citation data and NSF journal classification.

(consistently less than 5% of all citations to journals and consistently below the analogical proportion for the three analyzed philosophy of medicine journals)³ over the last decades but, on the other hand, it has remained very stable, not demonstrating any clear diachronic trend.⁴ Hence, to the extent that the Disconnection Thesis implies that the engagement of bioethicists with philosophical literature used to be high in the early days of bioethics and has diminished since then, our citation analysis provides evidence against it.

TOPIC MODELING ANALYSIS: CONTENT-BASED TOPICS

In our topic model (Bystranowski, Dranseika, and Żuradzki 2022b), we identified 91 content-based topics which we interpreted as denoting distinct areas of

research present in the target journals. While one perhaps cannot define philosophy in terms of specific contents—any question is a fair game to philosophy—nonetheless, some philosophers would find it plausible that some themes—such as metaphysical issues of human identity or the very nature of moral obligations—are paradigmatically “philosophical.” This could be another approach to testing the Disconnection Thesis. One would select a set of paradigmatically philosophical topics and then trace their diachronic development. Measuring correlations between topics’ prominence in a text and the proportion of citations from such a text to Philosophy journals provides⁵ a relatively rigorous way of identifying such topics (see Figure 2). The content-based topics most associated with Philosophy in this sense are: *Abortion: philosophical issues* ($r = .25$), *Doctrine of double effect and act/omission distinction* (or *Omissions*; $r = .20$), *Metaphysics of beginning of life* (or *Embryos: identity*; $r = .18$), *Health and wellbeing* ($r = .15$), *Justice and equality* ($r = .12$), *Principlism debate* ($r = .11$).

³Philosophy is only the fifth most frequently cited NSF category in the four bioethics journals, coming after General & Internal Medicine; Health Policy & Services; Social Sciences, Biomedical; and General Biomedical Research. Philosophy journals most frequently cited in the four bioethics journals are: *Philosophy & Public Affairs*, *Ethics*, *Journal of Philosophy*, *Journal of Applied Philosophy*, and *Social Philosophy & Policy*.

⁴With the linear model providing a null effect of time on the proportion: $B = 0.0001$, $t(46) = 0.93$, $p = .36$.

⁵To conduct such an analysis, we had to match our topic modeling data set with Web of Science records. We managed to match 14,213 records, which represents 73% of the corpus analyzed in Bystranowski, Dranseika, and Żuradzki (2022b).

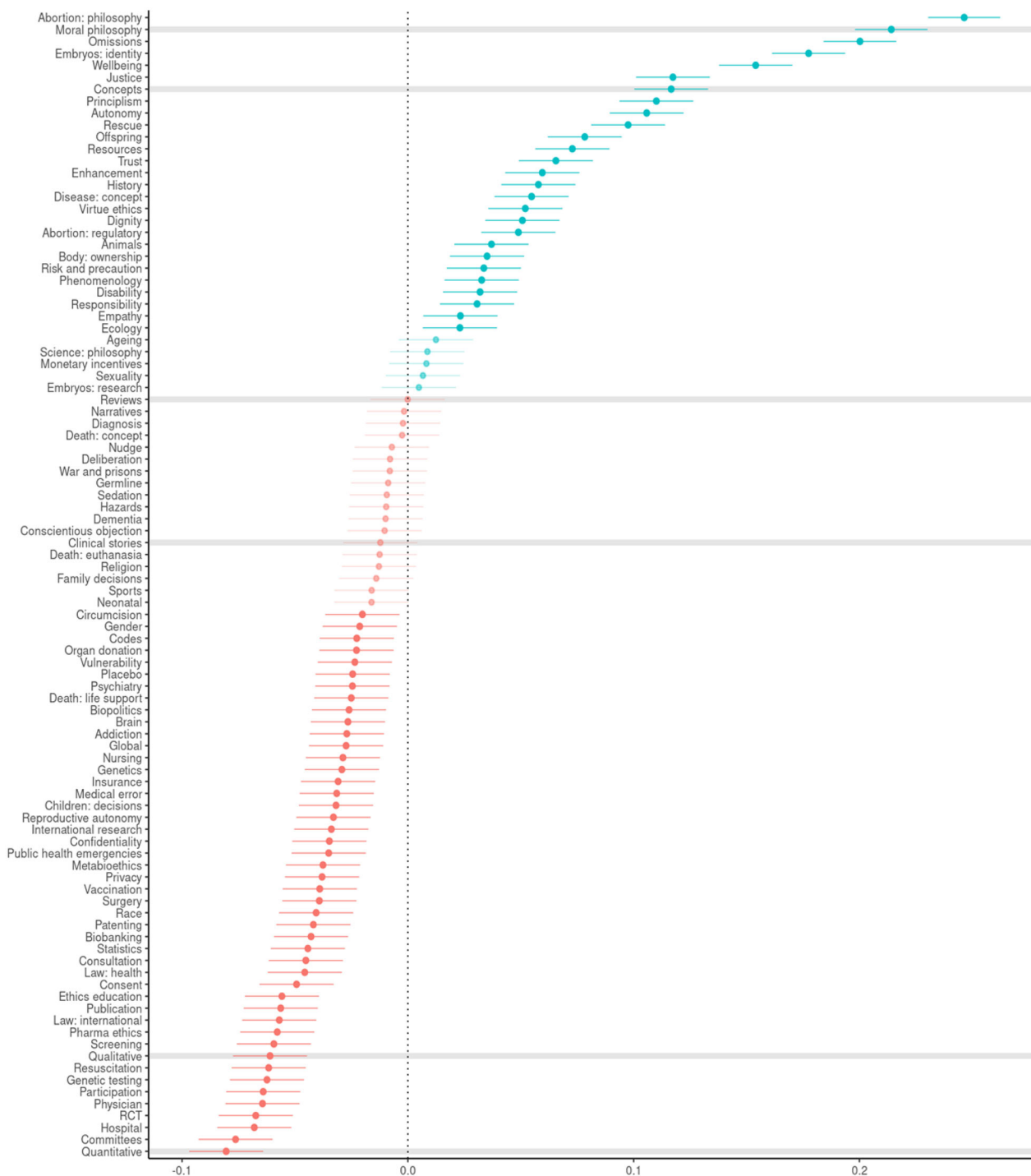


Figure 2. Pearson's coefficients for correlations between the prominence of a given topic in a document (published in one of the 7 leading journals in Bioethics and Philosophy of Medicine) and the proportion of citations from that document to Philosophy journals. Highlighted rows correspond to the 6 “framing topics.” Error bars represent 95% confidence intervals. Opaque dots correspond to coefficients that do not significantly differ from zero. For descriptions of individual topics see Bystranowski, Dranseika, and Żuradzki (2022b).

As shown in Figure 3, there is no sign of decline⁶ of relative prominence of these topics in the subset of the four Bioethics journals (Figure 3b).

⁶What we actually find is evidence of a moderately positive linear trend for each of the five topics: $0.0009 < B_s < 0.0019$, $.001 < p_s < .003$.

TOPIC MODELING ANALYSIS: FRAMING TOPICS

In our topic model, we were also able to identify 6 framing topics (Cohen Priva and Austerweil 2015) that correspond to distinct methodological perspectives and forms of discourse employed in bioethics and philosophy of medicine. Two of those

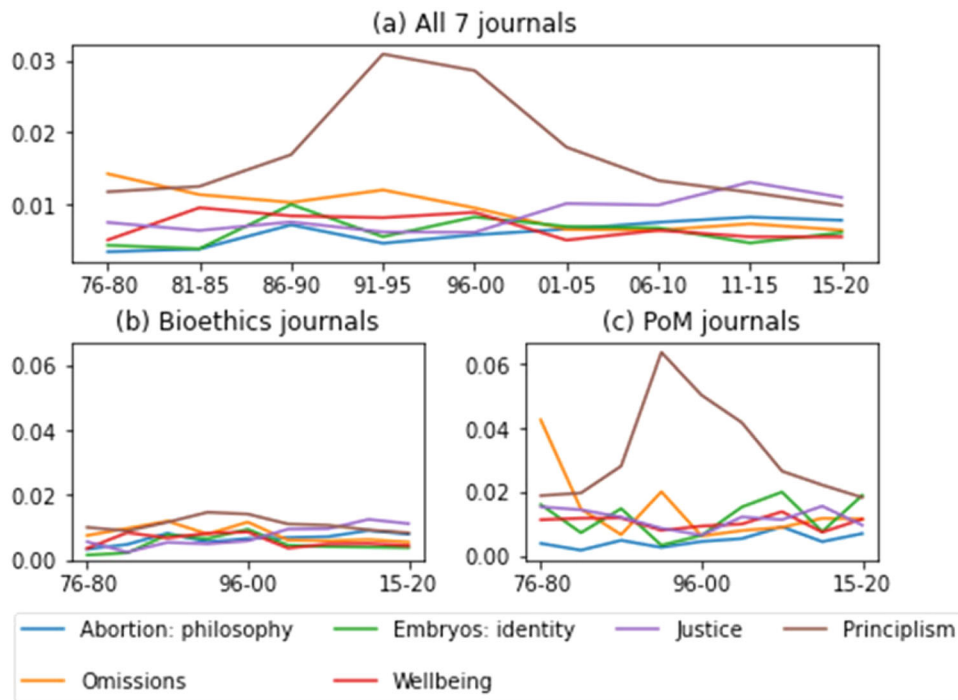


Figure 3. The mean prevalence of the six content-based topics most strongly associated with citing Philosophy journals, across 5-year periods (from 1976 to 2020) in (a) the entire corpus analyzed by Bystranowski, Dranseika, and Żuradzki (2022b); (b) the subset of Bioethics journals; (c) the subset of Philosophy of Medicine journals.

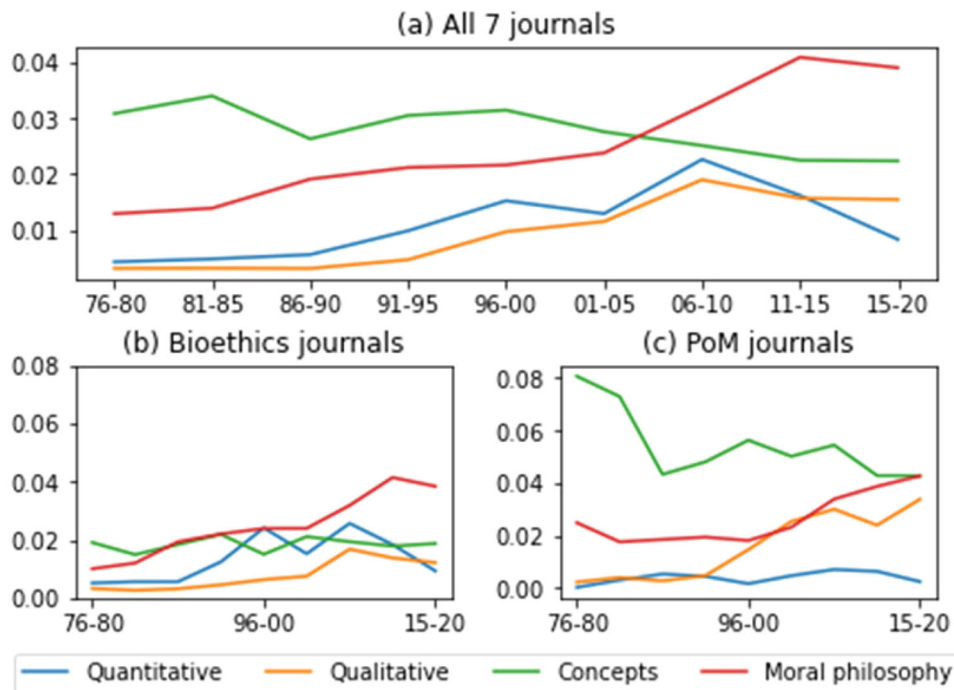


Figure 4. The mean prevalence of four framing topics across 5-year periods (from 1976 to 2020) in (a) the entire corpus analyzed by Bystranowski, Dranseika, and Żuradzki (2022b); (b) the subset of Bioethics journals; (c) the subset of Philosophy of Medicine journals.

“framing topics,” *Definitions of concepts* and *Moral philosophy discourse* appear to represent philosophically-loaded perspectives.⁷ The data presented in Figure 2 provide additional support for the association of these framing topics with philosophy. For both *Moral philosophy discourse* and *Definitions of concepts* correlations between the probability that a given text expresses a given framing topic and the proportion of citations to articles published in journals classified as Philosophy are pronounced (Pearson’s $r = .21$ and $.12$, respectively), making them the second and the seventh topics (out of all the 97 content-based and framing topics) most associated with Philosophy in this respect (see Figure 2).

As can be seen in Figure 4b, the prominence of *Definitions of concepts* has been relatively stable in the four analyzed bioethics journals in the last decades, while *Moral philosophy discourse* has enjoyed a consistent growth.⁸ This suggests some temporal dynamics—but it is the opposite of what the Disconnection Thesis would assume.

CONCLUSION

We have attempted to look at the Disconnection Thesis (i.e., the claim that when compared to the early days of bioethics, the role of philosophy is now diminished across the field) in three different ways: citation analysis, content-based topics, and framing topics in topic modeling. In all three cases, there was no evidence for the Disconnection Thesis. However, perhaps there are better ways to operationalize the claim, such that the operationalization is both empirically tractable and more faithful to the way the claim is generally

understood—we believe that the ball is now in the court of the proponents of the Disconnection Thesis.

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⁷Cohen Priva and Austerweil describe framing topics as topics that “frame content, rather than present the content itself” (2015, 4). *Definitions of concepts* is characterized by the following keywords: “concept,” “definition,” “kind,” “define,” “notion,” “nature,” “criterion,” “account,” “distinction,” “refer.” It seems to be expressive of conceptual analysis and definitional work in philosophy. *Moral philosophy discourse* is characterized by “objection,” “morally,” “relevant,” “kind,” “justify,” “account,” “thing,” “position,” “conclusion.” Given that keywords like “argumentative strategy,” “assume,” “reject,” “counterargument,” “assumption,” “premise,” “justify,” “justified,” “impermissible,” “permissible,” “wrong” are notably associated with this framing topic, we think it is justified to interpret it as expressive of a sort of explicit argumentation from premises to conclusions typical of much of philosophical discourse. While both of these modes of reasoning are familiar from philosophy, perhaps they are not limited to it exclusively.

⁸With the linear model providing a significant effect of time on the topic’s prominence: $B = 0.0055$, $t(7) = 12.8$, $p = .006$.