


THE AIMS OF TYPOLOGIES AND A TYPOLOGY OF METHODS

by Adam J. Chin 

Abstract. Typologies like Ian Barbour's have been widely used—and critiqued—in religion-and-science. Several alternatives have been proposed by, for example, John Haught, Willem Drees, Mikael Stenmark, and Shoaib Ahmed Malik. However, there has been a surprising deficit in discussion of what we wish typologies to do in religion and science in the first place. In this article, I provide a general analysis of typologies in religion-and-science by (1) providing a classification of existing typologies as conclusion- or concept-oriented; (2) showing that typologies are used, or expected to be used, as first-order categorizations of how religion and science are related and as second-order classifications of scholars/scholarly works; (3) discussing several aims which we might want typologies to achieve in their second-order usage; and (4) presenting a new kind of typology focused on the methods used by scholars which achieves those aims in a unique way.

Keywords: Ian Barbour; classification; historicizing; methodology; public values; science and religion; typologies

For decades, participants in religion-and-science have widely employed Ian Barbour's fourfold typology. It structures introductory textbooks (e.g., McGrath 2020), organizes scholarly dialogues (e.g., Copan and Reese 2021), and even shapes the way scholars discuss non-Western religions (e.g., Auckland 2015). The terms Conflict, Independence (sometimes Separation), Dialogue, and Integration (sometimes Harmony) thoroughly permeate the discourse.

But despite its wide presence, many scholars complain of Barbour's typology. It's too restrictive and needs expansion (e.g., Stenmark 2010); it relies on overly rigid notions of "religion" and "science" (Shin 2016); it does not capture the richness of individuals' particular ways of relating religion and science (Cantor and Kenny 2001). But despite all these issues, scholars seem quite happy to make use of the fourfold typology. Alister McGrath's comment is representative: "despite its limitations, the framework set out by Barbour remains helpful as a means of approaching the field of science and religion studies" (McGrath 2020, 12).

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Some have proposed alternative typologies: Haught (1995), Drees (1999), Stenmark (2004, 2010), Malik (2021), and Pear and Malik (2022) for example. But in a sense they are all doing the same kind of thing: they carve out the space of logically possible/plausible ways in which religion and science could be related and place various scholars (and non) into those niches. They are all based on classifying the proposed relationships between religion and science.

On the other hand, there is a conspicuous lack of general discussion about typologies, their use(s), and their aims in religion-and-science. In this article, I aim to fill this gap. Furthermore, I sketch a different *kind* of typology from those “relationship-based” ones currently on offer, based on the *methods* that scholars employ in coming to their conclusions about the religion-science-relationship (RSR) rather than on the particular form of relation the scholars endorse.

I’ll start the first section by reviewing several major typologies, grouping them as conclusion-oriented and concept-oriented. I next examine two major ways in which typologies are actually used in the discipline: as first-order categorizations of how religion and science could themselves be related and as second-order taxonomies of scholars and/or their contributions to the literature. In the third section, I consider what aims/goals we might want a typology to achieve, reviewing those offered by Barbour and proposing three of my own. I then develop a typology of methods and finally argue that this kind of typology achieves the various outlined goals.

TYPES OF TYPOLOGIES

Many alternatives to Barbour’s fourfold typology have been proposed. However, as far as I am aware, there has been (1) no discussion of the different kinds of typologies nor—perhaps more surprisingly—(2) much discussion of the purpose of typologies. In this section, I focus on the first of these topics, and identify two major kinds of typologies: conclusion-oriented and concept-oriented. When assessing the RSR, conclusion-oriented typologies start with religion and science as monolithic entities, directly asking about their relationship. Concept-oriented typologies, on the other hand, nuance the relationship and start with the question, “What aspects of religion and science are we relating”? Despite their differences, both kinds of typologies are relationship-based, that is, they are based on the particular configurations of the relationship between religion and science. (This distinction will be more important when I propose an alternative type of typology below.)

In what follows, I lay out the two major kinds of typologies, citing Barbour and Haught as exemplars of conclusion-oriented and Drees, Stenmark, and Malik as exemplars of concept-oriented typologies.

Conclusion-Oriented Typologies

The most commonly cited typology, Barbour's, is a conclusion-oriented typology. Perhaps most famously enunciated in *Religion and Science* (Barbour 1997), Barbour's typology is constituted by four possible religion-science relations: Conflict, Independence, Dialogue, and Integration. These four views are typically glossed in something like the following manner: Conflict means religion and science are opposed, and only one is legitimate; Independence means they deal with entirely different phenomena/aspects of human life; Dialogue means they pursue similar questions or have similar methodologies; Integration means they can be assimilated for a single purpose (see, e.g., Shin 2016, for a similar characterization).

Haught (1995) also offers a fourfold typology. As with Barbour, his system includes Conflict and Separation (relabelled "Contrast," perhaps so that all the categories begin with C). But the other two categories differ because "I do not find a sufficiently crisp logical distinction between his third and fourth types, 'dialogue' and 'integration'" (p. 9, fn. 1). In their place, Haught provides "Contact" (science and religion have implications for one another and thus ought to adapt as either changes) and "Confirmation" ("religion supports and nourishes the entire scientific enterprise" (Haught 1995, 9).

What is common to both Barbour and Haught's typologies is their orientation toward the *particular relationship* between religion and science: the two relata are in Conflict or Contact, and so on. When applied to particular scholars, the typology focuses exclusively on their general conclusion. In a sense, the character of this kind of typology is holistic: religion and science are related *in toto* or *all at once* in one way or another.

Concept-Oriented Typologies

In contrast to these conclusion-oriented typologies are concept-oriented ones. These focus on how particular aspects of religion and science are related. Thus, when approaching the question, "What is the RSR?" through a concept-oriented typology, one must first ask: "What concepts, 'religion' and 'science,' are we talking about?" One might say that concept-oriented typologies are more fine-grained than conclusion-oriented ones, but more importantly they have different starting points.

Drees offers a ninefold typology in this vein. He begins by canvassing three kinds of "challenges to religion" that have historically been generated by science: those related to new knowledge; ones concerning epistemology, or how we understand knowledge; and challenges regarding "our appreciation of the world" (Drees 1996, 39–41). This trio of challenges is accompanied by three ways of understanding the nature of religion: cognitive, experiential, and as traditions (Drees 1996, 42–43). By crossing the challenges and conceptions, we obtain a nine-member matrix of "areas of discussion in science-and-religion." Scholars who engage in a particular

area of discussion will thus tend to focus on a particular kind of challenge posed by science to a particular conception of religion—though authors can, of course, engage in multiple areas of discussion at once.

Drees' typology cross-cuts conclusion-oriented typologies by slicing along the conceptions of religion (and of science) at play. In fact, Drees claims that Barbour's typology can be found distributed within particular areas of his nine-fold typology (Drees 1996, 45). In that sense, it is more fine-grained than Barbour's and Haught's: religion and science are not related wholesale but along particular dimensions.

An even more sophisticated typology which takes this dimensional approach further is developed by Stenmark (2004) (see also Stenmark 2010). The typology begins with three basic distinctions: religion and science might be entirely separate endeavors, overlap some, or be unified. But Stenmark points out that quite distinct views are wrapped up in the overlap and unity positions: one might think there is more or less overlap, or that science wins in the overlap (scientific expansionism) or that it loses (religious expansionism), or that science may come to totally encompass religion, or that science may instead eventually be just a subset of religion (Stenmark 2004, 251–59).

Furthermore, what are separated/overlapped/unified are not just single things, Science or Religion with capital S and R—they are not monolithic phenomena but complex social practices. To that end, Stenmark outlines a number of dimensions along which one might evaluate the RSR: the social, teleological (i.e., the goals of the practices), epistemological, and theoretical—though importantly this list is not meant to be exhaustive. Moreover, within each dimension are wrapped up a number of subdimensions (though Stenmark does not use that phrase). For instance, when thinking of the teleological dimensions of religion and science, one might think at the community level—what religious congregations or groups of scientists aim at achieving—or at the individual level—what particular religious practitioners or scientists seek. And the degrees of overlap may differ along different dimensions as well: one might be a teleological community-level separatist (or “restrictionist”) but a methodological unitarian (an admittedly rather implausible—though logically possible—position).

In all, Stenmark allows for something on the order of 6^4 possible characterizations of the RSR. Notice that just as with Drees', Stenmark's typology cross-cuts conclusion-oriented typologies: those who might have been labeled Conflict theorists (like biblical literalists), might be classed as scientific or religious expansionists; or historical interactions between Religion and Science which have appeared to represent Conflict or Harmony (e.g., the Galileo Affair), might instead both be categorized as instances of, say, theoretical overlap. Again, what separates Stenmark's typology from conclusion-oriented ones is his focus on the particular conception(s) of religion and science at play.

Operating in a different cultural landscape, Malik also offers a concept-oriented typology, albeit one constrained to the relationship between Islam and human evolution rather than between religion and science more generally. And rather than focusing on different aspects of Muslim/scientific practice, Malik zooms in on particular understandings of scripture and the theory of evolution—it is in fact explicitly unidimensional (Pear and Malik 2022, 632). Thus, Muslim perspectives on evolution are typed according to their understanding of that theory: as entailing that all animals were produced via evolution, that only nonhuman animals were so produced, or that at least Adam (the first human) was not generated by evolution. These groups all believe that Islam and evolution are compatible, in contrast to the “Creationists” who reject the evolutionary origins of any animals whatsoever (Malik 2021, p. 111; Pear and Malik 2022, 632).

This focus on conceptions of evolution is motivated, similar to Drees and Stenmark’s, by a critique of conclusion-oriented typologies as inadequately nuanced. However, rather than expanding to a multidimensional model, Malik specifically proposes a unidimensional system because it (1) “helps avoid confusing and mixing religious and scientific *beliefs* or *attitudes*” and (2) “can clearly demarcate between *what* individuals accept regarding evolution versus *why* they accept or reject evolution” (Pear and Malik 2022, 632; emphasis original). Thus, a concept-oriented typology is thought to be more useful than a conclusion-based one, an idea we will build on later.

USING TYPOLOGIES

I noted earlier that scholars have neither distinguished between the various kinds of typologies on the market, nor talked about the particular uses of typologies. In this section, I show that typologies in religion-and-science are used in (at least) two distinct ways: as classifications of how religion and science are themselves related and as a way of taxonomizing scholars and scholarly contributions. I should note that Loke (2023) actually *does* explicitly recognize these two uses (which he glosses, respectively, as “perceived” vs. “expressed”). But one gets the impression that he takes such a distinction to be unique to his typology (into which the distinction is built) rather than recognizing the two as ways in which any typology can be used.

For my purposes, call the first usage “first-order.” Here, one tries to characterize the space of logically possible RSRs and then sort particular religion-science interactions into that space. For instance, in using Barbour’s typology, one might say the Galileo Affair represents a Conflict between religion and science—or conversely one might understand Newton’s career as exemplifying Integration (e.g., Iliffe 2017). Were

we to use Stenmark's typology instead, we might say that the Galileo Affair represented a period of epistemological overlap.

That typologies are indeed *expected* to have this use is further demonstrated by the critiques launched against them. Consider, for instance, Geoffrey Cantor and Chris Kenny's now-famous critique of Barbour (Cantor and Kenny 2001). As they explain, "The first point to notice is that these [four options] are the only viable alternatives—the only shows in town—and they must therefore cover all cases" (p. 766): Barbour is interpreted as offering a first-order characterization of how religion and science could possibly be related. But, as Cantor and Kenny argue, this typology overessentializes the categories "religion" and "science," presuming that they are diachronically stable concepts. "As historians," they take grave issue with this presumption: "neither science nor religion (nor the conjunction "science and religion") possesses clear historical continuity" (Cantor and Kenny 2001, 771), and thus typologies like Barbour's are ill-founded. Regardless of whether one agrees with Cantor and Kenny's historicizing, they clearly interpret Barbour's typology in a first-order manner: if Barbour were not understood to be specifying the logically possible relations between religion and science, then it would not make sense to problematize the categories "religion" and "science."

Typologies, however, are used in a second way which tends to avoid this "relativistic" critique. In the second-order mode of employment, typologies aim to classify *scholarship* on religion and science as manifesting/representing some particular view of the RSR. That is, rather than focusing on the "actual" RSR itself, these typologies focus on scholars and/or their work *about* the RSR. Thus, using Barbour's typology, we might classify Galileo himself as a proponent of Dialogue (Blackwell 1991) and out White's *History of the Warfare of Science with Theology in Christendom* as endorsing Conflict (White 1896) (though as we will see, this traditional characterization is largely mistaken). Likewise, Stenmark would classify scientific materialists like Richard Dawkins as scientific expansionists rather than as "mere" supporters of Conflict.

This use of typologies actually better matches Barbour's own self-description in *Religion and Science*, for he explicitly admits that "Particular *authors* may not fall neatly under any one heading" (p. 77; my emphasis). He then goes on to sort particular authors according to his headings. In introducing his 3×3 classification scheme, Drees likewise explains, "in practice, most *authors* focus on one area, a single column, or a single row, or at least have a characteristic emphasis there" (Drees 1996, 44; my emphasis). Malik, for his part, explicitly employs his typology to classify Muslim thinkers (Malik 2021, 113).

There is, in fact, a whole industry within the discipline of sorting historical figures into the Barbourian categories. For instance, Arther (2001) tries (and fails) to fit Paul Tillich into the typology; Bigliardi (2012) too

attempts (and fails) to fit a host of Islamic scholars into the categories (though he finds more success with Stenmark's; Bigliardi 2014); Qidwai (2019) does much the same. The examples go on and on.

As before, the critiques also highlight the expectation. For instance, Stenmark presumes the second-order use of typologies in his critique of Barbour: according to Barbour, Dawkins is a Conflict theorist. But Stenmark points out that Dawkins does not think *all* of science is in conflict with *all* of religion. Unlike a true (monistic) Conflict theorist like E. O. Wilson, Dawkins does not think science can totally replace religion—religions are supposed to “help us deal with our existential questions and offer us ethical guidelines,” and since Dawkins does not think science can do the latter, he does not believe science can replace religion (Stenmark 2004, 255–56). Stenmark thus argues that Dawkins is really a proponent of Overlap, not (monistic) Conflict; their magisteria overlap but are not identical. He goes on to demonstrate that other writers similarly fail to fall neatly under Barbour's headings (see also Stenmark 2010). Thus, Barbour's model is inadequate in its second-order usage: it fails to properly categorize participants in the religion-and-science literature.

So typologies are used in (at least) two main ways in the literature: to characterize the space of logically possible RSRs and to classify the scholarship. These uses are possible regardless of whether the typology in question is conclusion-oriented or concept-oriented. In the rest of this article, I will focus on the second-order usage of typologies because it is far more prevalent in the scholarly literature.

THE AIMS OF TYPOLOGIES (IN THEIR SECOND-ORDER USE)

Above, we looked at how typologies are actually used in the literature. Now I turn to what typologies might aim or aspire to do. One of the rare places this much-neglected topic has appeared is in Barbour's self-defense against Cantor and Kenny's critiques. In this section, I review Barbour's aims then outline three other goals we might wish a second-order typology to obtain.

Barbour's Aims

Recall that conclusion-oriented typologies all refer to the same thing: the *conclusions* scholars draw about the RSR. But how is it helpful to classify the scholarship in this fashion, typing scholars and their work by their conclusions? One defense offered by Barbour is that such typologies serve a pedagogical function: “typologies might still be useful in introductory courses... Especially in dealing with contemporary thought students need to be aware of a wide range of alternative views that would be difficult to treat... in the time that is usually available” (Barbour 2002, 347–48). And indeed this is how many introductory textbooks (e.g., McGrath 2020) are in fact structured. Andrew Loke's new fourfold typology is also explicitly

advertised as having significant pedagogical advantages (Loke 2023). But it is important to note that this kind of consciousness-raising aim is more sensible for a typology in its first-order, rather than second-order, use. Yes, explaining to students that, say, Conflict, is not the only configuration of the RSR might be useful. But what about classifying scholars as proponents of Dialogue versus Integration? It is not clear to me that this contributes to raising awareness “of a wider range of alternative views” beyond what they can get from the first-order classification. In any case, once we move past the introductory context, consciousness-raising does not seem a proportionate justification for the widespread appearance of Barbour’s typology in the scholarly literature.

Another, more second-order-focused reason cited by Barbour is that typologies offer maps of the religion-science literature: “... a broad overview of a range of possible relationships can be helpful to readers new to this interdisciplinary field, even though an overview inevitably oversimplifies the complexities of the real world. A guidebook to any territory is not intended as a substitute for firsthand exploration but is intended to help people find their way around” (Barbour 2002, 2023, 348). Likewise Stenmark: “the aim of developing a typology is primarily to give a map which sorts out the main positions regarding how to relate science and religion” (Stenmark 2004, 262). True enough; the literature is vast and a guidebook/map would surely be useful. But just because one can trace the territory along certain contours does not mean the resultant sketch will provide relevant aid. What I find peculiarly missing is any explanation of how exactly slotting scholars into categories like “Conflict” or “Separation” is actually useful for the reader. In a sense, conclusion-oriented typologies are almost trivially true: yes, Dawkins is indeed a Conflict theorist and Gould embraces Separation—we can get all that on the first page (or sooner). But what can a scholar (or a lay reader) do with that kind of information? It is not clear. (I will return to this cartographic aim later.)

Barbour draws a more sophisticated justification for typologies from the social scientific literature. Citing Weber and others, he explains that classification schemes are useful for highlighting the complexity of individual cases, for only very rarely will particular cases fall perfectly into the scholarly categories. Typologies thus help us compare individual cases by approximation to the idealized category (Barbour 2002, 348). I think this is an admirable aim, but unfortunately this is not how typologies, at least in the religion-and-science literature, are actually used. They are far more commonly used to *eliminate* nuanced differences—as in the case of scientific atheists and biblical literalists in Barbour’s own system. Be that as it may, I think Barbour is right that typologies should aim to clarify the unique contributions and views of particular authors and how they relate to others. Based on the critiques given of Barbour’s typology (as with Malik’s above), I would suspect that concept-oriented typologists believe their typologies obtain this goal better.

The above aims are ones which I take any scholar would wish a typology to achieve. I must acknowledge, however, Barbour's overarching aim in presenting his typology: to advocate for Integration. The point of laying out Conflict, Separation, and Dialogue, and in that order, is didactic; it enables Barbour to highlight the issues facing the first characterizations of the RSR and thus build a case for Integration. Drees glosses the purport of the typology slightly differently, as a way of representing alternatives to Conflict in an increasingly secular world (Drees 2010, 1). Richard Olson likewise takes this to be an important use of Barbour's typology, and explicitly explains that a major reason for proposing typologies is their use in countering/defusing a simplistic form of Conflict which has great hold on popular imaginations (Olson 2011). I have chosen to leave out these kinds of aims, however, because they are partisan. Since typologies are analytic tools used by scholars across the spectrum of first-order positions regarding the RSR, I limit discussion to those aims that can be recognized by scholars no matter their particular view of the RSR.

Three Other Aims

I now consider three other aims we might wish a typology to achieve in its second-order usage: (1) illuminating ways in which contributions do/do not effectively engage with one another, (2) explaining why particular pieces of scholarship receive more public uptake, and (3) providing a useful guide for a public readership based on their values/reasons for interest in the RSR.

Illuminate Effective Engagement. The religion-and-science literature is notoriously rife with authors talking past one another. As such, we might want a typology to help identify when scholars are doing so—a development of Barbour's third goal above. Concept-oriented typologies seem especially well-suited to doing this. By calling attention to the concepts at play, they can help us see when particular authors are effectively engaging with one another—and when they are not.

Consider, for instance, the many responses to the Conflict/Warfare theses of Draper and White. Many of the objections stem from assuming Draper and White conceive of religion as a monolithic entity in eternal conflict with science—supposedly they support a general form of Barbour's Conflict (e.g., Numbers and Hardin 2018). This is perhaps understandable in the case of Draper who titled his book *History of the Conflict between Religion and Science* (1874), but it is a bit more puzzling in the case of White, who writes in the introduction to his *History of the Warfare Between Science and Christian Theology*, “[Draper] regarded the struggle as one between Science and Religion. I believed then, and am convinced now, that it was a struggle between Science and *Dogmatic Theology*” (White 1896 Introduction; my emphasis).

Recent scholarship has in fact shown that neither Draper nor White endorsed any general form of Conflict between religion and science; instead, they had more nuanced conceptions of religion, focusing on particular traditions (Catholicism in Draper) or aspects (dogmatic theology in White). As James Ungureanu points out, this is ironic given that “the actual conflict Draper and White envisioned is remarkably similar to how such historians have sought to redefine the idea of ‘warfare’ or ‘conflict’ between science and Christianity as one *within* religion” (Ungureanu 2019, 13; emphasis original). Thus, recognizing the particular conceptions of religion Draper and White had in mind threatens to disrupt many historical objections raised against the two. For instance, the rather common practice of pointing to religious scientists (past and present) as problem cases for Draper and White’s Conflict thesis loses its teeth once it’s realized that they object not to Religion in general but instead to one particular form/aspect of it.

Had scholars instead thought of Draper and White through the lens of a concept- rather than conclusion-oriented typology, perhaps they would have avoided this mischaracterization and thus engaged more fruitfully with the actual arguments of these nineteenth-century figures. By calling our attention to the particular concepts in use, concept-oriented typologies help us understand when different scholarly works are actually relevant to one another’s theses—something we might miss by focusing on the conclusions reached.

Explain Public Uptake. Historians have recently raised a puzzle: why do certain works on the RSR receive more public uptake than others? Ronald Numbers, for instance, laments that, “Four or more decades of revisionist (anti-Conflict-Thesis) scholarship has not trickled down very far into popular culture, especially in North America and Western Europe” (Numbers 2019). Olson also explicitly desires that typologies be able to answer this question, criticizing conclusion-oriented typologies because “they offer no help in trying to figure out why certain patterns of interaction dominate within particular groups at particular times and places, nor do they suggest how the dominant patterns change over time in any culture” (Olson 2011, 70–71).

To explain why particular works, especially those supporting Conflict, have a stronger hold on the public imagination, a number of explanations have been proposed. One is rhetorical: many of the works supporting the Conflict thesis are polemical, and polemics sell. But rhetoric by itself cannot explain why particular works outcompete others—one can find polemics almost everywhere in the religion-and-science literature.

So rhetoric alone cannot be the full story; the content itself must also be relevant. In this vein, several scholars have suggested that particular religion-science narratives (especially Conflict) play into larger public/political social narratives, and because of this cozy connection they are absorbed and perpetuated (Harrison 2015; Numbers 2019) of society.

This narrative-oriented focus is derived from conclusion-oriented typologies: such a taxonomy provides the categories by which we distinguish the narratives. So, contra Olson, conclusion-oriented typologies can achieve this goal.

A more nuanced view is provided by concept-oriented typologies: perhaps the understanding of religion/science offered by more popular authors is simply more consonant with the conceptions held by the public. Thus, maybe Dawkins is so popular because he speaks to a form of religion and a form of science that is easily accepted—whereas a work like Harrison's *The Territories of Science and Religion* (2015) gets much less publicity because it explicitly tries to explode the everyday concepts of religion and science.

Guide the Public. A third feature we might wish a typology to provide is a useful guide to the (vast) literature for the public—an elaboration of Barbour and others' "map" aim. Concept-oriented typologies can provide such a map. The main idea behind this guidance is simple: it is likely that the works which will be most relevant to readers will be those employing understandings of religion and science similar to those of the reader. The typology highlights the particular conceptions of religion and science in a particular work, so we can sort through the literature to find what is likely relevant for our reader. The guidance scheme would then look like this: "If you conceive of religion in way X, and science in way Y, then read works A, B, C..."

Imagine, for example, a freshman biology major visiting their professor in office hours. They explain that they grew up an Evangelical Christian but have recently heard there is some kind of conflict between religion and science—in particular biology—and they are concerned: "Can I flourish as a Christian biologist?" Supposing the professor would like to help this student on their journey, and supposing she would like to direct the student to the literature rather than try to convince them of some particular view directly, how should she form her recommendations? According to the guide offered by concept-oriented typologies, she should proceed by considering how this student conceives of religion and science, or asking, "What conception(s) of religion and science are relevant to your situation?"

Perhaps our student understands religion as a "personal relationship between themselves and God"—along the lines of Drees' "experiential" conceptions of religion. In that case, the guide would recommend biographies like Iliffe (2017) over, say works like Plantinga (2011) which take a much more intellectualized, "cognitive" approach to religion. On the other hand, if our student *is* worried about what appears to them to be a difference in epistemic standards between religion and science, then Plantinga *would* be a better recommendation.

Thus, concept-oriented typologies can be useful to the public: they can be used to generate guides for navigating the vast religion-and-science literature. This is something conclusion-oriented typologies cannot do because they are too coarse-grained. Furthermore, even if such typologies became *more* fine-grained, more nuanced, it is unlikely that the guides they produced would be desirable—confining recommendations to views of the RSR the reader already accepts seems at best stifling, at worst nefarious; presumably typologies ought not generate echo chambers.

A TYPOLOGY OF METHODS

Above, we have seen how the typologies on offer fulfill various goals we might wish typologies to fulfill in their second-order usage. In this section, I propose a new kind of typology, which fulfills those goals in novel ways. This method-oriented typology is based not on the (possible) RSR, but rather on the process by which religion and science are related. It is thus not relationship-based. Importantly, this kind of typology is essentially of second-order use: it classifies scholars and scholarship rather than the “on the ground” RSR.

A method-oriented typology builds on some of the insights behind concept-oriented typologies: it demands greater attention to the ways in which scholars frame their discussion of the RSR. My typology however, focuses on the arguments scholars employ, not the concepts they use.

In what follows, I outline four main methods which are widely used in the religion-and-science literature and with which I believe that literature can be usefully typed: conceptual analysis; (historical) case studies; relativizing; and, very broadly, fieldwork. This is not intended as an exhaustive list of all the logically possible methods scholars may use. Furthermore, authors can, of course, use several (perhaps all) of these methods—both across their careers and within particular works. However, I think many scholars and most scholarly works tend to employ one of these four methods at least a majority of the time.

Two more notes. First, although the methods derive from and are most often used by those housed within particular disciplines, they are by no means limited to those disciplines. For instance, although conceptual analysis may seem distinctly philosophical, it is also used by anthropologists like James Frazer (discussed below). Second, this taxonomy cross-cuts relationship-based typologies like Barbour’s and Stenmark’s: if one so wished, one could classify a scholar who employs the method of case studies as a proponent of (restricted) Conflict (e.g., White 1896), while another supporter of Conflict (restricted in a different way) could make use of conceptual analysis (e.g., Smith 2019).

So, the methods.

Conceptual Analysis

A common way of determining the relation between religion and science is via conceptual analysis, by which I mean the method proceeding as follows: first determine definitions of “religion” and “science” (or particular religions/sciences); then logically deduce their relationship on the basis of those definitions.

Stephen J. Gould, for example, uses this method: science and religion have very different “magisteria.” In fact, those magisteria do not overlap—and thus there can be no conflict, synthesis, or any other kind of interaction between them (Gould 1998). Reaching a very different conclusion using conceptual analysis is Tiddy Smith: religion and science do in fact overlap in their explanatory target (the world and its happenings), but they employ radically different epistemologies—religion makes use of highly individualistic evidence while science respects only intersubjective evidence. Given this, the two inevitably wind up in conflict (Smith 2019).

It should be pointed out that the particular way in which a conceptual analysis is conducted may vary greatly between scholars. One might, like Gould, simply intuit the notions of religion and science *a priori*. On the other hand, one could instead arrive at conceptions of religion and science more empirically. Frazer, for instance, does this in *The Golden Bough*: that religion makes appeal to Wills/agents while science appeals to regular Laws is a conclusion (supposedly) reached by induction over many cases (Frazer 1922, Ch. 4). But regardless of how they determine the definitions of “religion” and “science,” the above authors all arrive at their characterization of the RSR by comparing those definitions. This is the method of conceptual analysis.

Case Studies

Perhaps the most common method employed in the literature is what I’ll call the method of case studies. Here, rather than comparing definitions, one performs a kind of induction over some number of historical episodes of religion-science interaction. The goal is that such an induction will reveal the RSR.

Exemplars of this method go back to the early history of the discipline: the works of Draper and White. In their infamous histories, Draper and White enumerated dozens of historical episodes (some fabricated), on the basis of which they hoped to show that there is some kind of tension between religion and science. Working at a perhaps more modest scale, historians like David Hollinger and Marwa Elshakry have pushed for Harmony on the basis of their studies of twentieth-century Jewish scientists (Hollinger 1996) and the reception of Darwin in Islamic cultures (Elshakry 2013).

These kinds of “positive,” or “constructive” inductive projects can be contrasted with more “negative” projects of a “debunking” nature. Indeed much of the historical work from the past five decades has focused on debunking the narratives of the classic Conflict theorists (Lightman 2019 calls it “myth-busting”). Number’s aptly named edited volume *Galileo Goes to Jail and Other Myths about Science and Religion* (2010) is representative, as are the revisionist accounts of the Galileo Affair by Heilbron (1999) and religious biographies of eminent scientists—like Iliffe (2017)’s *Priest of Nature: The Religious Worlds of Isaac Newton*. In all these cases, particular historical episodes or thinkers are consulted as cases in a broader induction to the RSR.

Relativizing

A related but quite distinct method can be called “relativizing.” While the method of case studies engages with historical actors and their actions, relativizing engages with the concepts used by contemporary scholars. It comes in (at least) two flavors: cultural and historical (i.e., “historicizing”).

The general idea is this: take the modern concepts “religion” and “science” in use today and show (or assert) that they either did/do not exist, or had/have radically different meanings in different times/places. On the basis of this, one argues that one cannot provide a universal and/or diachronically stable characterization of the RSR—any such attempt must either fail or be incredibly local (temporally and/or culturally).

I think the historicizing approach is best exemplified in the work of Peter Harrison, especially in *Territories* (2015), wherein he demonstrates how various sociohistorical contingencies from the sixteenth century till now set the parameters for how the West understands the RSR. Had things turned out differently (e.g., had the Protestant Reformation not happened), had our notions of “science” and “religion” taken slightly different forms, we may not have even been able to conceive of religion and science as being related in one of the four Barbourian ways. Ungureanu’s recent work (Ungureanu 2019) likewise highlights how the notion of conflict between religion and science emerged from a very particular sociohistorical moment in nineteenth-century Victorian England.

On the other hand, a good example of cultural-relativizing is found in Jason Ānanda Josephson’s *The Invention of Religion in Japan* (2012). Josephson contends that prior to the Meiji Restoration and the United States’ forceful “opening” of Japan’s ports, there was no native Japanese conception of religion—or of science. Instead, this concept was invented (quite explicitly) by a number of scholars and political figures in order to appease the foreigners’ demand for “religious freedom.” The moral of the story (if taken to heart) is that we ought not generalize our characterization of the RSR temporally or spatially; the things related are so radically

different (perhaps even nonexistent) in different times and places that we cannot usefully provide a general account of the RSR.

Fieldwork

The final method I consider encompasses a range of methods drawn from the social sciences, and which I broadly call “fieldwork.” This embraces methods such as surveys, interviews, and ethnographies. What distinguishes these methods from the above is their explicit focus on the “everyday,” quotidian experiences of/encounters with “religion” and “science.” The essential idea behind fieldwork is that the proper characterization of the RSR is to be found reflected in the responses or actions of everyday, ordinary scientists and religious folk.

The classic example of this is Leuba (1916)’s survey of those listed in the directory *American Men of Science*. Observing that only 31.6% of the “greater men” among his sample indicated belief in a prayer-granting God, Leuba claimed a basic incompatibility between religion and science. Leuba-esque studies have been repeated several times in the intervening century-plus, with varied interpretations (Larson and Witham 1997). A much more complex form of fieldwork can be found in the work of Elaine Howard Ecklund, sometimes in collaboration with Christopher Scheitle. In addition to surveying hundreds of academic scientists and everyday religious folk, Ecklund has also performed an extensive sleuth of interviews with such scientists and immersed herself in various religious communities across the United States (Ecklund 2010; Ecklund and Scheitle 2018).

HOW A TYPOLOGY OF METHODS ACHIEVES THE AIMS OF TYPOLOGIES

Above, I sketched three goals we might wish typologies to obtain. We saw that conclusion- and concept-oriented typologies achieve these aims to varying degrees in various ways. Here, I revisit those aims and show how a typology of methods obtains them in its own unique way.

Illuminate Effective Engagement

As with concept-oriented typologies, a typology of methods can illuminate how particular works engage, or fail to engage, with one another—and can indicate how to most effectively engage with others. By calling explicit attention to the methods used by scholars, the typology encourages us to address the *arguments* rather than the conclusions found in the works to which we respond. The different methods outlined above clearly employ different kinds of evidence—for instance, the method of case studies does not rely on the first-hand reporting of everyday laypersons, as does fieldwork. To try to use fieldwork-based evidence against a scholar

employing the method of case studies might thus be illegitimate. On the other hand, recognizing the diversity of methods in play could be immensely generative.

Unfortunately, discussion of scholars' methods is generally lacking in the literature. One place where the (possible) dangers of talking past one another due to different methodologies is acknowledged is in Smith (2019). Right at the start, he clarifies that he is speaking of an *epistemic* conflict between religion and science, not an historical one:

... I will argue in the course of this book that the conflict between science and religion is quite real, and further, that the conflict has a clear victor. The methods of science outcompete the methods of religion. I must emphasize from the outset that I do not dispute what has already been said by [historians]: the *historical* relationship between science and religion has been complicated... But this book is not about history. This book is about epistemology: the theory of knowledge. And the questions that this book seeks to answer are primarily about knowledge, not history. (Smith 2019, 1)

The message is clear: he believes it is simply not relevant to bring up historical case studies as objections to his account—religion and science are here understood as particular kinds of intellectual endeavors employing particular kinds of evidence to explain particular, *overlapping* classes of phenomena, and thus are by definition bound to conflict with one another, at least at some point (and in such a way that science will always come out on top).

By drawing our attention to the scholarly methods used in favor of a particular characterization of the RSR, a typology of methods can help determine what kinds of objections will be relevant to particular authors and their works. It can also point to potentially surprising places of disagreement. We see this perhaps most starkly in the case of historicizing and the method of case studies: if we fully embraced the historicizing method and all its implications, then we would not even permit the lumping-together of distinct historical episodes to form the base for a case-studies induction. Oddly, this tension between historicizing and the method of case studies has not, to my knowledge, been acknowledged in the field—and some are quick to endorse both simultaneously (in particular as ways of criticizing the Conflict Thesis; see, e.g., Lightman 2019, 5–6). On the other hand, focusing on methods can also highlight ways in which particular authors should alter their methods to better accommodate/acknowledge their critics.

Explain Public Uptake

We saw above that both conclusion- and concept-oriented typologies provide some traction on the question, “Why do some pieces of scholarship receive more public uptake than others?” A typology of methods

provides an another take on the issue. Parallel to the schema derived from concept-oriented typologies above, the idea is simple: some methods are easier to understand/follow/digest than others. The historicizing method, in particular, is quite complex, and does not lend itself easily to public exposition or uptake. Other methods, however, *are* more liable to absorption by the public. At least some cases of conceptual analysis, for instance, are amenable to sloganization—"Science uses Reason, Religion uses Faith"—which can help their conclusions stick. Likewise, the narrative style employed by some instances of the method of case studies lends itself to public remembrance: who can forget the great struggle between Galileo and the Church or the burning of Bruno?

Notice that this is a distinct way of approaching the issue from that suggested by concept-oriented typologies. Its explanatory power comes from focusing on the way various publics digest information rather than on their particular conceptions of religion and science.

Much work, of course, is still to be done in exploring exactly how this methodological strand of analysis can contribute to resolving the question of public uptake—and surely in the end it is not just method or rhetoric or politics, but a blend of all (and others) which do the explaining. But focusing on how the methods used appeal/fail to appeal to particular publics can offer fruitful insight into the issue.

Guide the Public

A typology of methods' greatest strength, I think, lies in its ability to provide a guide to the public in navigating the literature. We saw above that concept-oriented typologies do this by asking what concepts of religion and/or science the subject has and directing them to literature which employ those same conceptions. In this way concept-oriented typologies can help consumers (scholarly or not) find work that is actually relevant to them. A typology of methods can provide a similar though quite distinct guide.

A methods-oriented guide builds off the idea that different methods are likely to appeal to different readers. Importantly, the consumers of the religion-science literature are incredibly diverse. Readers have many different reasons for delving into the work on the RSR: some seek ways to defend their faith, others seek ways to attack others' faith; some have purely academic interests in the RSR, others a much more personal investment; some are embedded in a particular faith tradition, others are not. And the particular set of circumstances which lead readers (and researchers) to the literature contribute to the kinds of evidence they will find relevant (and convincing). Since different methods employ different kinds of evidence, it follows that the different methods will be more or less equipped to deal with different particular readers' concerns/interests in the RSR. By

isolating what kinds of methods are best suited to which kinds of concerns, a typology of methods can thus help direct members of the public (and scholars!) to those works which would be most relevant to them. Schematically, the guidance would look like this: “Readers with concerns X should read works Y and Z because they use method A.”

This focus on values rather than concepts results in real, pragmatic differences. Recall, for example, the case of the freshman biology student who has grown up in a relatively conservative Evangelical Christian faith community. They are interested in evolutionary biology but have also heard rumors that such science is in deep conflict with their faith—and so they wonder whether they can flourish as both a biologist and a Christian. What kind of guidance could a typology of methods give? It might well be that what concerns this student most is whether they can fit themselves into a narrative of religious biologists. Given that, it would make sense to direct them to the case-study literature, perhaps to the work on Darwin’s reception in Victorian England and in the United States—rather than to historicizing work like Harrison’s, or even conceptual analytic work like Plantinga’s, which our student may find too abstract. Likewise, this kind of student might be interested in how they will be treated as an academic biologist who is also a Christian, in which case fieldwork-esque studies will be the most relevant.

Now consider a case with broader social implications: a politician navigating her, say Muslim, constituents’ opposition to stem cell research. The politician in this case wants to understand the root of the opposition, and thus find ways of defusing it or communicating it to her colleagues. Here, fieldwork studies, like the work done by the Pew foundation or studies of Muslim physicians (Everhart and Hameed 2013), will be more appropriate than historical case studies or conceptual analyses.

Note the difference in how this case is treated by a methods-oriented guide versus a concept-oriented guide. Using the latter, we would ask after the politician’s conceptions of religion and science, or perhaps about their constituents’ notions. But it is easy to see how this might not lead to a result that is actually *useful* for the politician. For suppose that both the politician and her constituents understand religion and science as competing forms of knowledge production about the natural world. We would then suggest that she read works from, say, Smith and Plantinga. But it is not clear how those works would lend themselves to actionable recommendations for the politician’s actual situation: how does it help to know that indeed the methods of science outcompete the methods of religion or that true science is really compatible with true religion? Would this help our politician address or even make sense of her constituent’s concerns? Instead, fieldwork studies which indicate how lay religious folk actually interact with science seem more likely useful—regardless of her own understanding of what religion and science are. Such studies can

give the politician a better sense of what is “really” at issue in Muslim opposition to stem cell research because it builds on actual studies of on-the-ground individuals rather than abstract, idealized concepts.

Again, the question a method-oriented guideline asks is “Why do you care about the RSR?” rather than “How do you understand ‘religion’ and ‘science?’” And in fact asking this latter question is likely *irrelevant* to the politician’s purpose. It *might* be relevant to understand how their constituents conceive of religion and science. However, if the constituency is diverse, with many conceptions of religion and science present, then the recommendations from a concept-oriented guide will quickly get out of hand: read everything!

CONCLUSION

In this article, I have done four main things. First, I proposed a taxonomy of existing (relationship-based) typologies in the religion-and-science literature: some are conclusion-oriented while others are concept-oriented. I then considered the ways in which typologies are used—as first-order classifications of the RSR and as second-order taxonomies of scholars and their works regarding the RSR. This put me in a position to talk about what we might want typologies to do; I reviewed the reasons proposed by Barbour and then outlined three further goals (some of which were elaborations of Barbour’s): (1) highlighting effective scholarly engagement; (2) explaining the public uptake of particular scholarly works; and (3) providing a useful guide—or map—of the literature for the public (and for scholars). Finally, I proposed a different kind of typology, one based on the methods used by scholars in their studies of the RSR, and discussed how this typology achieved the goals I outlined.

I would like to conclude with a few clarifications about my intentions in proposing this typology of methods. First, I do not argue in favor of any one of the particular methods. As discussed above, the different methods have their different uses: depending on one’s reasons for entering into the religion-and-science literature, one will find particular methods more or less relevant. Second, the typology is not meant as a *replacement* for relationship-based typologies, whether they be conclusion-oriented like Barbour’s or concept-oriented like Stenmark’s; these different typologies cross-cut one another and are often mutually compatible. Furthermore, a typology of methods is focused only on classifying scholars (or other authors) and their works. Relationship-based typologies can also be used in the first-order way as a means of categorizing ways in which the RSR could be itself configured. Method-oriented typologies simply cannot do this; they are not typologies of the RSR, but of those who discuss the RSR. In that sense, a typology of methods cannot *replace* relationship-based typologies; their uses are not identical. And I should emphasize that I

think the first-order use of typologies has its place; it has a perfectly legitimate endeavor.

However, given that the second-order use is more prevalent in the literature, I thought it was high time to discuss just what we wanted from such typologies. And I propose a method-oriented typology is one which achieves the outlined goals especially well.

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NOTES

1. Forms of this typology appeared as early as Barbour (1968) and even to some extent Barbour (1966). Furthermore, as pointed out by Berg (2004), in his early writings, Barbour also referred to a fivefold typology borrowed from H. Richard Niebuhr's (1892–1971) *Christ and Culture* (1951), which focused on the *ethical* relationship between religion and science. (Thanks to an anonymous referee for these references.)

2. Barbour's typology is in fact more subtle than this and, in a sense, is really ninefold with four headings. However, the typology is almost always used by scholars in its fourfold form.

3. In a sense, concept-oriented typologies are also conclusion-oriented: ultimately they are used to discuss conclusions about the RSR, even if they are more specific conclusions than those permitted by Barbour-like typologies. Again, the important distinction between these typologies is their starting point: do they go immediately to the relationship itself or begin by clarifying the particular conception(s) under examination?

4. Barbour cites this same line in defense against Cantor and Kenny (Barbour 2002, 347).

5. One might think that, trivially, the second mode of employment is derived from the first: scholars are typed based on their characterization of the religion-science relationship. But this is not necessary; below I present a typology of methods whose second-order usage does not depend on the possible ways in which the RSR could be configured.

6. To be fair, Drees does this in Drees (1996, 67f); thanks to an anonymous referee for this reference.

7. Olson's "dynamic model" does go some way in explaining these processes by focusing our attention on particular subgroups within "Religion" and "Science," and the rhetorical moves members of those subgroups may make in response to competitors. However, this is not so much a feature of Olson's particular typology, but instead a consequence of his recognition that "Religion" and "Science" are not monolithic, but are rather composed of often competing/interacting subcultures.

8. It might be the case that there are other kinds of typologies aside from typologies of methods which are also not relationship-based. In that case, we might understand method-oriented typologies as just one species of a more general class of "relating-based" typologies.

For example, another nonrelationship-based typology might be extracted from Malik's comment that "what *motivates* a participant's position (science, hermeneutics, or metaphysics) can be distinguished from their conclusion as to either the complete or partial acceptance or rejection of common ancestry" (Pear and Malik 2022, 632). One might typologize scholars based on methodological starting point: do they use science, theology, or philosophy? The idea would be that the standards used to evaluate the relationship are drawn from one field or another. This might also be similar to Dree's suggestion that different participants in the field of

religion-science approach the conversation from different contexts, or “frames” (Drees 2010, 1). But it is distinct from the typology of methods proposed in this article, which focuses on particular tools of analysis rather than on more general stances toward evidential standards.

9. Some might find “definitions” too strong. While in some cases I do think that scholars employ full-blown definitions, I only intend a formal characterization of the terms involved.

10. This distinction comes from Storm (2021, 69–71).

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