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Worldviews and Science

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The increasing number of individuals who lack religious faith or self-identify as nonreligious in certain parts of the world necessitates a shift in the science–religion dialogue and a change of some key categories and notions. This shift, I argue, implies the expansion of the science–religion dialogue into a science–worldview dialogue, so the core question becomes the relevance of science for the formation, revision, and rejection of both religious worldviews (such as Buddhism, Christianity, and Islam) and secular worldviews (such as scientific naturalism, liberal naturalism, and secular humanism). I begin by explaining what worldview studies are and why refocusing from science and religions to science and worldviews is important. I then identify the main ways of relating science and worldviews in a new typology and provide examples for each.

As an active participant in the science–religion dialogue, I have been thinking and writing about how to understand and conceptualize the relationship between science and religion in the contemporary world for many years (Stenmark 1995, 2004, 2010, 2022a). In a different context, I have argued for the importance of developing worldview studies to supplement religious studies (Stenmark 2022b).[1] This is because a significant number of individuals, particularly in regions like northern Europe and northern America, no longer identify as religious. Therefore, it is crucial to establish an academic discipline that investigates these individuals' outlooks on life and juxtaposes them with religious ones.

In this article, I argue that the introduction of worldview studies interestingly changes the focus of the science–religion dialogue. One could even say that the core idea is to expand the science–religion dialogue into a science–worldview dialogue. Today, the relevant question is not how science and religion could and should be related but how, on the one hand, science and, on the other, religious or secular worldviews could and should be related. We need to address not a two-way relationship between science and religion but a three-way relationship between science, religious worldviews, and secular worldviews. What is science's relevance for forming and reforming our outlooks on life—whether we want to live religious or secular lives?

In the first section of this article, I explain what worldview studies are and why refocusing from science and religions to science and worldviews is important. In the second section, I identify the main ways of relating science and worldviews in a new typology and provide examples of each.

Worldview Studies

More people than ever before—especially in the northern parts of Europe and America—self-identify as nonreligious and reject religion. They want to live secular rather than religious lives (Inglehart 2021). The most influential theoretical framework, most of the time a merely unstated assumption to understand this latter development, is what I call the *subtraction theory*. It is the hypothesis that we should assume individuals or groups of people who reject religion or do not self-identify as religious abandon what they see as unnecessary, false, or inadequate add-ons to humanity's shared view and way of life. They simply stop holding religious beliefs and participating in religious practices and organizations. They become atheists (a rejection of theism but not much of a positive statement about anything else), agnostics, religious nones, or nonreligious people. One way of stating this view is to say that religious people believe in the supernatural. In contrast, nonreligious people stop doing that and merely believe in the natural—as religious people also do. Religious believers add on beliefs about the supernatural, whereas nonreligious people make do without that add-on; they are nonbelievers and merely left with the views they share with religious believers. We can also adopt a more practice-oriented

understanding of the subtraction theory and say that religious people engage in certain activities. In contrast, nonreligious people stop doing so. As such, they can be adequately described as "religious nones." Self-described nonreligious people are simply marking an absence or standing in opposition to religion. For this reason, many scholars have been inclined to use analytical terms that are primarily negative and talk about nonreligion, religious nones, nonreligious people, or religion's other (Lee 2015; Smith and Cragun 2019; Bullivant 2020). The core idea is that due to the changes we see in society today, we need to add the study of nonreligion to the study of religion due to the changes we see in society today. To religious studies, we must now add nonreligious studies.

I think we should challenge this theoretical framework or assumption and instead explore to what extent the replacement theory can be philosophically and empirically sustained.[2] Replacement theory is the hypothesis that some individuals and groups reject religion but also consciously or unconsciously replace or strive to replace it with an alternative outlook on life. As Charles Taylor (2007, 9) phrases it, they try to develop "immanent construals of human flourishing." They try to come up with an alternative story of why we are here, what makes something good or evil, what provides meaning in life, and how we should live our lives in light of the key features of this alternative story. Self-identifying as nonreligious in this sense is not assumed to be only a matter of being without religion but also a matter of being with something else. For this reason, scholars need to develop analytical terms that are primarily affirmative (or terms of presence, not absence) and talk about "secular worldviews" and "secular people," "secular rituals," "secular faith," and "secular nones" or develop similar categories. The term "secular" is used here not as a synonym for "nonreligious" but as a term that signals the embrace of an alternative worldview (of one kind or another) to the religious ones. Hence, we need to add secular studies, not the study of nonreligion, to religious studies. Consequently, sometimes at least, we have to distinguish between religious and secular worldviews.

The academic study of both religious and secular worldviews, and everything in between, can be called *worldview studies*. Since there are no clear-cut boundaries between religious and secular outlooks on life, it might also be appropriate to sometimes talk about semi-secular or semireligious worldviews (af Burén 2015; Jonbäck and Palmqvist 2024). The objective of worldview studies is not to understand and theorize about just the world's religions but also the secular or semi-secular alternatives emerging in some parts of contemporary society. The idea is that conceptualizing them in worldview terms provides a better understanding and makes comparison with traditional religions more adequate than conceptualizing them in terms of nonreligion or religious nones.

According to the replacement theory, we should assume that even if not all people are religious, most people have a worldview of one kind or another. Of

course, whether or not that is the case is both a conceptual and an empirical question. First, it depends on what we take a worldview to be and, second, whether we can confirm the existence of emerging secular worldviews.

The choice of the term "worldview" might lead one to think that a worldview must be all-embracing. Michael L. Peterson and Dennis R. Venema (2021, 27) say "a worldview provides a comprehensive framework that serves to fit all truths together in a relationship." Alvin Plantinga (2011, ix) writes that "a worldview [is] a sort of total way of looking at ourselves and our world." So, we expect and countenance only those outlooks on life that contain a whole way of looking at ourselves and our world or express our overall view of the nature of reality as worldviews. It is clear that not all people have such a comprehensive worldview. In this sense, there is evidence supporting the subtraction theory. Many, if not most, nonreligious people have not replaced Buddhism, Christianity, or Islam with some similar overarching set of beliefs, values, and practices. Do such people not have a worldview? I assert that we should resist defining and understanding the notion of worldview in such a way as to imply that they do not. Arguably, many Buddhists, Christians, and Muslims do not have a worldview in this sense either because their outlook on life is not even close to containing a comprehensive framework that serves to fit all truths together in a relationship. Hence, the idea that worldviews must be comprehensive should be rejected.

I suggest that we understand a *worldview* to be a constellation of beliefs, values, and attitudes that people, whether consciously or unconsciously, hold and that constitute their basic understanding of who they are, what the world is like, what their place in it is, what they should do to live a good and meaningful life, and what they can say, know, rationally believe, or assume to be true about these things (Stenmark 2022b, 565). By *belief* I mean what people claim, think, or assume to be true about the world and their place therein. One might believe that God exists, that everything that exists is ultimately made of matter, that people have or do not have free will, that we are basically good or evil, or that there is or is not an afterlife. But worldviews also contain different values about what we should do or avoid to live a good life, both on the individual and collective levels. Humanists think human dignity and the values and duties that flow from a commitment to that dignity should shape our worldview. Transhumanists believe that posthuman lives would be better lives: we ought to enhance ourselves. Furthermore, worldviews also include attitudes or stances directed toward the world, other people, or ourselves. It could be said, roughly, that these attitudes express our emotional dispositions toward things, properties, processes, and states of affairs in the world. For instance, many theists do not merely believe that God exists but put their faith or trust in God.

Thereby, two things a worldview contains, among others, are our ontology—what we take to exist and how these things relate to one another and what properties they have—and our epistemology—what we can know,

rationally believe, or merely assume to be true about these things, properties, and relations. A third requisite is that a worldview encompasses our ethical or moral stance—the value commitments we express in thought and action. Alternatively, and more precisely, a worldview contains those parts of our ontology, epistemology, and ethics that are central to understanding and living our lives (Stenmark 2022b, 565). A worldview is best understood as action-oriented. One can say that a worldview's function is primarily to help people deal with their existential concerns, that is, their questions about who they are, why they exist, what the meaning of their life is, and what attitude or stance they should take towards the experiences of death, suffering, guilt, anxiety, love, friendship, forgiveness, and the like. Consequently, not just any of our beliefs, values, or attitudes will do. A worldview contains those beliefs, values, and attitudes that are of particular importance for our self-identity and the things we fundamentally care about in life.

The central idea in worldview theory is that people—whether or not they are religious—express, through their actions and what they say, a particular understanding of what the world is like, what we ourselves are like, what is most important about the world, what our place in it is, and what we must do to live a good life. While a person's understanding might be limited or partial in several ways, it is a worldview if it is still about these important issues in life. Hence, we should not be misled into thinking that worldviews have to be comprehensive: we must allow that they might merely consist of loosely interconnected attitudes, beliefs, and values central to how individuals understand and live their lives. This is so in the same way that we should not assume that religions must be comprehensive to be religions. Like religions, people's worldviews can be more or less articulated, comprehensive, and coherent. Nor should we be misled into thinking that beliefs, values, or attitudes must come first and practice second. The traffic, so to speak, can go both ways: not merely from what is taken to be true or of value to action, but also from how people live their lives to what they thereby take to be true and of value. At times, a worldview must be inferred from an individual's or group's way of engaging with the world.

One problem with using the notion of worldview as an umbrella term to cover both religious and nonreligious people's outlooks on life is that there is a fundamental ambiguity in how the notion is used in contemporary society. On the one hand, people talk about a "scientific worldview," which means the picture of the universe that emerges if we combine the different theories of physics, astronomy, chemistry, biology, psychology, and sociology into a systematic whole. On the other hand, and in line with how the notion is used here, some people make statements about the embeddedness of science *within* a particular worldview, such as Christianity, Islam, or naturalism (Stenmark 2003, 928–29).

If we understand the concept in the second way, as we must in worldview studies, it follows that science alone cannot provide us a worldview, even though science can significantly contribute to forming or revising a worldview.

This is so because this conception entails that science lacks certain features that characterize a worldview. It is a matter of dispute what these features are exactly, but science seems to lack two elements: values and metaphysics. In this sense (and as I have defined it), a worldview tells us who we really are, what the world is ultimately like, and what we should do to live a satisfying life. It gives our life direction and meaning and thus provides us with values. But science essentially gives us facts or non-normative descriptions of reality, not values. It does not tell us how to live or what we should ultimately value in life. If this is correct, science does not qualify as a worldview.

Moreover, no scientific discipline can tell us whether the physical universe is all there is. If scientists make such an assertion, they make a metaphysical rather than a scientific claim. Instead, a view that says that reality consists of God and all that God has made and that we should live a life according to God's will is a worldview. The same is true for a view that says that, ultimately, reality consists of nothing but matter or physical particles in motion and that nothing possesses any moral value. Some advocates of scientism question this, arguing that the boundaries of science can be expanded in such a way that it can offer us both values and metaphysics (Harris 2010; Rosenberg 2011; Wilson 1990). However, this view is highly controversial and lacks scientific consensus.

The discussion about the proper limits of science goes beyond what can be argued for in this article,[3] but let me at least exemplify. Sam Harris thinks science can determine human values. His basic idea is that "questions about values—about meaning, morality, and life's larger purpose—are really questions about the well-being of conscious creatures. Values, therefore, translate into facts that can be scientifically understood" and justified (Harris 2010, 1–2). Moral truths are simply facts about human wellbeing. Science can tell us what human wellbeing is and what kinds of actions promote it. Harris acknowledges that there might be practical problems in doing this, but in principle, science can determine what is morally right and wrong. It is certainly correct that science can inform our moral choices. Given, for instance, that we do not want to jeopardize present human wellbeing or the wellbeing of future generations, science can offer us guidance on how to limit the severe climate changes that threaten our long-term wellbeing. However, an obvious problem with Harris's proposal is that it is unclear why we should take human wellbeing as our fundamental value. How does science know this is the correct value to embrace? Why human wellbeing rather than, say, the wellbeing of Earth's ecosystems? The answer to this value question could not possibly be a scientific finding. Hence, the core value assumption of Harris's "scientific" ethics does not come from science.

Therefore, in the worldview study discourse, we should call Harris, Alex Rosenberg, and Edward O. Wilson's outlook on life a "scientistic" rather than a "scientific" worldview. This use of the analytical term "worldview" is, of

course, compatible with the observation that some individuals think science qualifies as a worldview. Still, we call such a view "scientistic" because it extends upon the current conceptions of what science is and what it provides.

What we gain by using the notion of worldview—rather than the notions of religion and nonreligion—is an analytical category where both religions and secular outlooks on life can be studied in positive or affirmative terms. We also understand that the reason some thinkers have their view about science and religion depends on their prior acceptance of a secular worldview of one kind or another. This is similar to the views of other thinkers that are colored by their prior religious commitments. If essentially everyone has a worldview, then the discussion about science and religion is not between religious believers and "neutrals"—noncommitted people or nonbelievers—but between people who embrace different, sometimes rival, worldviews.

Therefore, we must pay attention to whether one line of reasoning depends on the prior acceptance of a particular worldview in the science–religion debate. We need to distinguish between worldview-transcending and worldview-immanent arguments. A worldview-transcending argument contains premises or reasons that surpass people's different outlooks on life. Their force does not directly depend on whether we accept a Christian, Buddhist, scientistic, or secular-humanist worldview. Worldview-immanent arguments are arguments containing premises or reasons that depend, directly or indirectly, on the acceptance of one particular worldview or a subset of them.

As I have already indicated, I propose that religious people should not be contrasted to nonreligious people or religious nones but to secular people. The outlooks on life that—consciously or unconsciously—the latter embrace or develop in their lives ought not to be called nonreligion but secular worldviews. We can then distinguish between two types of worldviews, while not denying that there are many borderline cases. Specifying the distinction is difficult, but we could say that *religious worldviews* affirm or assume the existence of a transcendent, divine, or spiritual dimension of reality and uphold its importance for understanding and living our lives. However, religious people can understand this dimension of reality differently. *Secular worldviews* deny or doubt the existence of a transcendent, divine, or spiritual dimension of reality and instead maintain or assume that reality has a different makeup, and it is the basic features of this reality that are important for how we should understand and live our lives. However, secular people can understand this alternative outlook on reality differently (Stenmark 2022b, 573–74).

The worldview many reflective atheists in the Western world embrace today contains, roughly, the view that reality is made up entirely of physical particles in fields of forces brought into existence in the Big Bang and reality's tendency to produce increased complexity over time on Earth (and perhaps elsewhere in the universe) is the result of purely unintended causal processes and natural

laws that happen to exist (Clark 2015). It is against this background that we must understand ourselves and how we should live our lives. In this sense, nature is all there is and ever will be. Within philosophy, this secular worldview is often called *naturalism (*de Caro and Macarthur 2004, 2–3). Graham Oppy and N. N. Trakakis (2009, 301) maintain, "Many atheists have been concerned to develop alternative worldviews to the kind of worldviews that are presented in the world's religions; and, in particular, many atheists have been concerned to develop naturalistic worldviews that leave no room for any kind of supernatural entities." Naturalism could be developed in different ways,[4] but two of the most influential are scientism and secular humanism (LeDrew 2016). Advocates of scientism privilege science in all areas of life and are consequently suspicious of everything else. Science alone should guide us in understanding our world and how we should live our lives. Secular humanists, on the other hand, reject the hegemony of science. Instead, they maintain that secular people should be guided by humanism, a belief in human freedom, autonomy, and dignity.[5]

Today, any worldview that aims to be intellectually credible needs to take into account the theories and discoveries of science. However, most major religious worldviews, and certainly Buddhism, Christianity, Confucianism, Islam, Hinduism, Judaism, and Taoism, did not emerge to prominence in a culture as dominated by science (as we today understand its key features) as ours. Therefore, their core conceptions and ideas were not formulated in a scientifically infused culture, and their compatibility and coherence with contemporary science became a natural question. One important exception is the so-called New Spirituality (or "New Age Spirituality").[6] Not surprisingly, its advocates have consciously chosen a scientifically inspired vocabulary to express their religious views. Hence, the language of the New Spirituality frequently contains terms such as "energy," "frequency," "vibration," "dimension," and "quantum," and they even sometimes talk about the science of yoga, reiki healing as a science, or occult sciences. Moreover, the worldview of the New Spirituality is often expressed in educational terms. Sometimes, the gatherings or meetings are described as workshops, lectures, and classes. As James R. Lewis (2007, 211) writes, "Large New Age gatherings such as the Whole Life Expo resemble academic conferences more than they resemble camp meetings." Lastly, perhaps more than in most other religious worldviews, there seems to be a degree of consensus about the need for science and spirituality to come together in some higher, holistic unity, even if they might have different understandings of how to obtain this unity. These ideas of some higher, holistic unity are, of course, not lacking in the other, more traditional religious worldviews. Still, they were essentially formed in a prescientific age, and these historical roots are essential for Christians, Hinduists, and Muslims' self-understanding, for example. It also means their vocabulary is

more "old-fashioned" and less scientifically influenced. On a surface level, at least, this places them in a disadvantaged position compared to more recently developed religious or secular worldview alternatives.

Nancey Murphy tracks the origin of secular worldviews, or what she (as philosophers typically do) calls naturalism, in the Western world to the writing of David Hume's corpus and Baron d'Holbach's *System of Nature* in the second half of the eighteenth century. Naturalistic traditions during the subsequent centuries included the writings of intellectuals like Karl Marx, Sigmund Freud, and Friedrich Nietzsche, as well as contemporary contributors to this tradition, such as Richard Dawkins and Daniel D. Dennett. In Murphy's (2008) terminology, a tradition is essentially a worldview thought of in terms of its historical development. She refers to James Turner's startling claim that disbelief was not a live option in the United States until roughly between 1865 and 1890. Hence, secular worldviews emerge in a scientifically infused culture, some more motivated by theories in social sciences, others more by those in the natural sciences, but also due to changing social conditions (better life expectancy, less loss of children, and better social safety nets), as many sociologists have pointed out. Perhaps we can talk about four emerging subtraditions: the Humean trajectory leading to skepticism, the Freudian trajectory leading to scientism, the Nietzschean trajectory leading to nihilism, and the Marxist trajectory leading to secular humanism.

Not surprisingly, advocates of secular worldviews try to take advantage of outlooks on life being formulated in a scientific age. For instance, evolutionary psychologist Steven Pinker maintains that the worldview that guides the moral and spiritual values of an educated person today is the worldview given to us by science. He writes, "The findings of science entail that the belief systems of all the world's traditional religions and cultures—their theories of the origins of life, humans, and societies—are factually mistaken" (Pinker 2013). It is just that not all people, including many scientists, have understood this yet.

How to Relate Science and Worldviews

How could and should we then think about the relationship between our different (religious or secular) worldviews and science? I suggest that we essentially have six options to choose from when expressing how we see the relationship between our worldview and science today. The relationship concerns the compatibility, coherence, and relevance of science for the particular beliefs, values, and attitudes that, taken together, constitute our worldview. We could embrace one of the following options:

1) Our worldview is entailed by science; it starts from and stops with science.
2) Our worldview privileges science but nevertheless goes beyond science.

3) Our worldview goes beyond science, but science can support or add to its credibility.
4) Our worldview is compatible with science, but that is all we can ask for since science and worldviews do different and unrelated jobs in our lives.
5) Our worldview is incompatible with contemporary science, but as science progresses, it will become clear that our worldview is compatible with, and perhaps even supported by, science.
6) Our worldview is incompatible with science, but that is what we should expect because these commitments go against reason—including scientific reason.

Notice that the way these six alternatives are expressed here is a shorthand version for a more precise statement, which also contains the denial of a central claim of the previous option. So, alternative (2) should be understood in the following way: our worldview is not entailed by science (as in alternative 1). It merely privileges science or is grounded in science but still goes beyond what science can tell us about reality. According to alternative (3), our worldview is neither entailed nor guided by science because its central motives or grounds are obtained from or provided by other sources. Still, there is contact between our worldview and science, so science can support or add to its credibility. Advocates of alternative (4) do not think that science supports or adds to the credibility of their worldview. However, they see nothing problematic about this because science and worldviews do different and unrelated jobs in our lives; they occupy separate domains at a sound distance from each other. Still, they take their worldview to be compatible with and not in conflict with what science teaches us—and this is all we can ask for.

Before I further explore and exemplify the differences between these options, notice that compatibility or consistency is a binary relation—something is either compatible or incompatible with something else. In contrast, support or coherence is a matter of degree. The evidence we have could increase the likelihood of one of our beliefs *p* to a limited extent, or evidence could increase it so much that we would not merely say we believe *p* but know *p*. We have minimal support, maximal support, and everything in between—besides, of course, the possibility of no support. With this in mind, let us go through each option one at a time.

1) The Scientistic View

If the prestige of science could somehow be transferred to a particular worldview, many think its credibility would increase significantly. Therefore, one stance we can embrace is to try to derive our worldview from science alone. Wilfred Sellars and Rosenberg are two examples of people embracing

the first option. Sellers (1963, 173) maintains that "[s]cience is the measure of all things, of what is that it is, and of what is not that it is not." Rosenberg (2011, 8) describes his worldview (the one he proposes we all should share) when he writes: "Being scientistic just means treating science as our exclusive guide to reality, to nature—both our own nature and everything else's." Hence, we can call the worldview that presupposes this one-dimensional or monistic relationship between it and science a scientistic worldview, scientism, or scientific naturalism.[7]

Although advocates of scientism or scientific naturalists share a skeptical attitude towards what is not a proper part of science, they do not all draw the same conclusions on what to think about the nonscientific. This is because scientific naturalists essentially have two options to consider when assessing something that does not appear to be within the purview of science. They could maintain that the practice or phenomenon must be redescribed, reduced, or transformed into science (the naturalization or scientization strategy). Alternatively, they might maintain that it must be explained away by science and treated as fiction; that is, it must either be taken as a helpful but illusory belief or else be abandoned completely (the elimination strategy). They could try to either "naturalize" or "scientize" a phenomenon, that is, turn it into science or reject it if that is not possible.

However, scientific naturalists have differing views on what should be located in the first category and what should be placed in the second. For this reason, a scientistic worldview could be developed in different ways. (Alternatively, we could say there is more than one scientistic worldview.) Let me give one example. The humanities do not appear to be part of the sciences, so how should one, as an advocate of scientism, think about this set of academic disciplines and their outcomes? Do the humanities have a place in such a naturalistic world? Rosenberg is an example of a scientific naturalist who opts for the elimination alternative. He maintains:

> There is only one way to acquire knowledge, and science's way is it. The research program this 'ideology' imposes has no room for purpose, for meaning, for value, or for stories. It cannot therefore accommodate the humanities as disciplines of inquiry, domains of knowledge . . . the humanities are a scientific dead end . . . When it comes to real understanding, the humanities are nothing we have to take seriously, except as symptoms. (Rosenberg 2011, 306–7)

Values, meaning, purpose, love, and beauty, as studied by the humanities, are illusions: they are not within the purview of science and therefore have to be ruled out.

Wilson, on the other hand, would argue that the humanities could and should be transformed or naturalized. He wants to find ways to incorporate

them into a naturalistic or, more exactly, scientistic worldview. Wilson (1999, 9) maintains that the "only way to establish or to refute consilience [between the natural sciences and the humanities] is by the methods developed in the natural sciences . . . [This idea's] best support is no more than an extrapolation of the consistent past success of the natural sciences. Its surest test will be its effectiveness in the social sciences and humanities." Why would it be a problem if the natural sciences failed in undertaking this project? The answer given by the scientific naturalist is that otherwise there is a great risk that there is no real content to the humanities, since reality is at the bottom what science says it is and nothing more (or, at the least, that there is no knowledge or justified beliefs in the humanities since our beliefs and our theories are justifiable only by the methods of the natural sciences).

Due to the prestige of science, people typically try to maximize their worldview's intellectual standing when opting for this alternative. Often, presumably for rhetorical reasons, they do not want to acknowledge a distinction between science and their scientistic worldview, maintaining that this is, in fact, a scientific worldview, no more, no less.

2) The Extension View

Other naturalists have studied these attempts to naturalize or scientize our world and concluded that science is not enough. They think the world of persons, intentionality, agency, self-consciousness, social institutions, and morality is real and cannot be reduced to the world of the sciences, that we can know things about these phenomena and that they matter for how we should understand and live our lives. Mario De Caro and David Macarthur (2004, 16–17), for instance, maintain that "all attempts to reduce, eliminate, or reconceive these concepts [such as intentionality, agency, freedom, meaning, reference, rationality, and personal identity] in terms of supposedly more scientifically legitimate notions do not just fail—they entirely miss the kind of importance that these notions have in our lives and experiences." These atheists want to develop a more liberal naturalistic worldview, or simply, liberal naturalism. De Caro and Macarthur maintain that liberal naturalists are secular people since they reject theism and supernaturalism (as well as substance dualism). They think science is essential for developing a secular worldview but not quite as crucial as scientific naturalists believe it to be, since there are other forms of knowledge in life besides scientific knowledge and phenomena that cannot be reduced to scientific entities or properties. So, they aim to explore and develop a different secular worldview that still excludes religious outlooks on life.

Liberal naturalists think that people should privilege science in developing a worldview. They believe a secular construal of human life and flourishing should be grounded in but not necessarily derived from science, as scientific naturalists believe. Both scientific and liberal naturalists maintain that science

is paramount for the construal of a secular way of life. They think the defining feature of naturalism is the pride of place it grants science. On this account, naturalism is best understood as the philosophical companion to science, and an interesting question is how far one can deviate from that companionship and still be a naturalist.

However, it is also possible to maintain a religious worldview guided by science in this sense of starting from the deliverances of science, which, nevertheless, goes beyond science to capture religious features of reality. Willem B. Drees (2006, 110) says that naturalism can be "a label for a worldview that follows the natural sciences as its major guide for understanding the world we live in and are a part of." But for him, it is more a matter of methodological advice: recommending a starting point and what to privilege when developing one's worldview, and in cases of conflict or tension, restraining oneself to a particular naturalistic ontology. In Drees's view, this stance toward science is compatible with a religious conviction that there is more than nature. In contrast, naturalism is traditionally perceived in philosophy as the claim that nothing exists but nature. So, Drees (20006, 116) thinks accepting the whole natural world as the creation of a timeless, transcendent God is consistent with naturalism since the "naturalistically minded theist would claim that the sciences are explanatory within the world, but not explanatory of the world as such." Such a form of naturalistic theism (or perhaps deism) is a view Drees says he has sympathy for.

A second example would be religious naturalism, at least when its core idea is taken to be that science has undermined traditional religious views of the world, but something of truly religious significance can be kept even after religion has undergone a naturalization process. Donald A. Crosby (2007, 672) suggests that religious naturalists are characterized by "find[ing] religious meaning, values, and importance solely in nature or in some aspect of the natural order. The antithesis of religious naturalism is any kind of supernaturalism, i.e., belief in supernatural beings, principles, or powers thought to reside in a supernatural realm. Nature and its ongoing changes are metaphysically ultimate for religious naturalists." In this reading, what distinguishes religious naturalists from secular naturalists is that the former, but not the latter, maintains that religious meaning, value, or significance can be attributed to or found in nature or some aspect of the natural order. Loyal Rue (2005, 366) holds that the central core of religious naturalism is that nature is the sacred object of humanity's ultimate concern, and he believes that what characterizes religious naturalists is their reverence and awe before nature and their love of nature. Some religious naturalists also add that traditional religious symbols such as "God" or "karma" can still be used. However, they are through and through figurative or metaphorical and say nothing about what is beyond the limits of the physical world. Still, they provide an indispensable means to overcoming obstacles and obtaining human flourishing and an ecologically sustainable world (Kaufman 1993, 4–8).

I suggest that we call this way of understanding the relationship between science and our worldviews the *extension view*. Another option would be to follow Roosa Haimila (2020) and talk about a "science-oriented worldview," which refers "to meaning-making systems that rely on science." Consequently, this alternative could also be called the *science-oriented view* since there is—as I have shown—more than one science-oriented worldview. Notice, though, that Haimila uses the notion of a science-oriented worldview more inclusively than I do, so in her case, it also covers a scientistic worldview (alternative 1).

3) The Contact View

In contrast to the previous worldviews discussed, the starting point of secular humanism is humanism rather than science. Humanists emphasize the value, dignity, agency, and uniqueness of human beings and human life as well as the essential product of that uniqueness: culture. Human beings are persons born free and equal in dignity and rights. Humanism focuses on the centrality of humanity and human beings' unique status among beings in general. For this reason, and to protect human agency and dignity, humanists are suspicious of all attempts to reduce human beings to physical things or instruments of a divine will.[8] Core humanistic values are thus freedom, liberty, and equality. Secular humanists typically look to the future in hope, believing that human beings, if working together and liberated from religion, can build a better—a more humane—world. There is a progressive element to humanism. In his short introduction to humanism (which he takes to be identical with secular humanism), Stephen Law (2011, 2) maintains that "humanism involves a commitment to the existence and importance of moral value." I think this is true, but it is more substantial than that, since humanists affirm the particular values the ideas of human dignity and freedom imply. Secular humanists do not think science undermines the ideas of human dignity, freedom, and personhood. Still, they typically believe its theories and discoveries (alone or together with historical or philosophical arguments) undermine traditional religions. Thus, secular humanism is an example of a secular worldview that goes beyond science and is not assumed to be entailed by science, but rather is a worldview science can indirectly support or add credibility to by undermining religious worldviews.

What about the new spirituality, or Western esoterism (Lynch 2007; Magee 2016)? I suggest that it is best understood as an example of alternative (3). The idea is not —as in alternative (4)—that the new spirituality is merely compatible with science, such that its advocates would be satisfied if science does not contradict their core commitments. Instead, as I pointed out, there is a consensus among new spiritualists about the need for science and spirituality to come together in some higher, holistic unity. Adherents of the new spirituality would not start with science and then develop a worldview by incorporating

spiritual insights that go beyond science. Instead, they would first go within and discover, through practices such as meditation, channeling, and spiritual guidance, that they have a spark of the divine within themselves and a higher self that is connected to the divine consciousness infused in everything. Therefore, they believe there is a higher or deeper unity and integral wholeness to reality than meets the naked eye. Our consciousness is a part of the cosmic stream of consciousness, and together, these consciousnesses in a profound way, shape the world and how it has emerged and make trans-life progression possible.

Let us look at one classical statement of this kind of worldview and see whether it fits this view of relating one's worldview to science. Fritjof Capra's *The Tao of Physics* ([1975] 2000) is perhaps the most well-known attempt to develop a higher synthesis of science (or, more precisely, quantum physics) and the new spirituality, or what he calls "Eastern mysticism." Capra says he wants to find parallels between quantum physics and the new spirituality. His central claim is that a "view of the world is beginning to emerge from modern physics which is harmonious with ancient Eastern wisdom" (Capra [1975] 2000, 12). He thinks physicists and other readers "will find that Eastern mysticism provides a consistent and beautiful philosophical framework which can accommodate our most advanced theories of the physical world" (Capra [1975] 2000, 12). Capra appears to argue that the spiritual worldview is not only compatible with modern science but that science supports or adds to its credibility because they have both, by following different roads, come to the same conclusion. The findings of science can be interpreted within a larger philosophical framework. Of course, such a framework could also be proposed by advocates of other religious or secular worldviews. Process thinking and panpsychism constitute two such examples (Pfeifer 2016; Griffin 2000). But Carpra believes the new spirituality (or Eastern mysticism) is the best because it is more coherent with science than the others. There is nothing *un*scientific about these interpretations, but they are still *non*scientific, or, more exactly, not parts of quantum physics or science. The idea is that science supports or adds to the credibility of a particular worldview.

The worldviews of many Abrahamic theists engaged in the science–religion dialogue also fit this category. For instance, Robert T. Lehe (2018, 1–2) maintains that "modern science is not only compatible with the existence of God, but that it favors theism over metaphysical naturalism . . . [and theism] is more harmonious with modern scientific cosmology than the nontheistic Buddhist metaphysical framework." For instance, if the Big Bang theory is correct, the universe originated from an incredibly hot and dense state 13.8 billion years ago and has been expanding and cooling ever since. If the Big Bang is the beginning of space-time, matter, and energy, then there would be no prior physical stuff of any kind to cause it. Hence, the universe originated *ex nihilo* in the sense that at the initial cosmological singularity, it is true that there is no earlier space-time,

and it is false that something physical existed before the singularity, but its origin was not *ex nihilo* in the sense that science can establish that God is the cause of the universe's finite existence and therefore the universe is a creation. The Big Bang theory supports that the universe began to exist in the finite past, even if it does not explain what caused it to exist. Science investigates the natural order, but whether its existence depends upon a transcendent ground is beyond the purview of science. Still, the conviction is that science (in this case, the Big Bang theory) supports or adds to theism's credibility. It provides one crucial premise in a philosophical argument for theism or why theism is preferred over rival worldviews such as metaphysical (or scientific) naturalism and Buddhism.

In response to Sean Caroll's remark that when science has finished its work there will no longer be much point in believing in God, Lehe maintains that Caroll is overlooking the main reasons people believe in God, which are primarily religious rather than theoretical. Most theists see little point in looking to science for evidence of God's existence or insight into how to attain salvation. Instead, Lehe (2018, 9) writes, "their worldview is largely based on their religious beliefs, which may be thought of as beliefs concerning a dimension of reality that is transcendent, regarded as sacred (of supreme value and the source or ground of all value and perfection), and that pertains to the ultimate *telos* of all human endeavor." Hence, the grounds for being a theist in the first place—just as in the case of secular humanists—are not provided by science. Therefore, a theistic worldview is neither taken to be guided by science in its formation (as required in alternative (2)) nor entailed by science (as in alternative (1)).

One thing to pay attention to is that the support in the discussed alternative is assumed to go from science to a particular worldview and not both ways. However, in his debate with Michael Ruse, Michael Peterson maintains that theism explains better than naturalism (and perhaps any other religious or secular worldview) why science is successful. The very fact of science makes the best sense in a theistic universe. Peterson reminds us that he is not speaking about a scientific explanation here because science cannot explain itself. It is a philosophical explanation (Peterson and Ruse 2017, 49). To say that theism explains a particular phenomenon, such as science, better than a rival worldview is to say that the likelihood of that phenomenon occurring is higher or much higher on the assumption that theism is true than on the assumption that the rival worldview is true. It is not blind cosmic luck (one option open to advocates of secular worldviews to embrace) that our reasoning abilities happen to yield results that conform more or less to the truth about the world; it is only to be expected if we live in a theistic universe. It is because God created the world with certain regularities and structures that creatures like us can understand it. Not only is the universe orderly in itself, but it is also intelligible to us. According to Peterson, there is a deep concord between theism and science because a theistic

worldview provides a rationale for the conditions required for the development and success of science.

Hence, this way of reasoning suggests a stronger version of alternative (3) might sometimes need to be formulated to capture the feedback loop some religious thinkers (and presumably also some nonreligious thinkers such as secular humanists) believe exists between their worldview and the scientific enterprise. One suggestion of such reformulation would be:

3*) Our worldview goes beyond science, but science can support or add to its credibility, and vice versa.

We can call (3) the weak and (3*) the strong contact view.

4) The Independence View

Yet another way to understand the relationship between our worldview and science is to maintain that it is merely compatible with science. We cannot ask for more than compatibility or consistency because science and worldviews do different and unrelated jobs in our lives. These practices have different aims, different means to reach those aims, and, consequently, different contents. To ask for more than compatibility is to misunderstand the nature of either one's worldview or science. This stance is typically called the *independence view* within the science–religion literature (Barbour 2000; Stenmark 2010). An example could be that religion provides salvation and meaning in life, whereas science gives us theories and facts about the empirical world. Ian Barbour (2000, 17–19) identifies Karl Barth and Langdon Gilkey as Christian theologians who would embrace alternative (4) or something along its lines. Stephen Jay Gould's (1999, 209) well-known principle of non-overlapping magisteria says that science and religion do not overlap, nor do they compass all inquiry. However, in this context, the independence view merely applies to how one thinks about the relationship between people's religions and science. So, it is unclear how Gould understands the relationship between his presumably secular worldview (which includes agnosticism about God) and science.

Maybe there is a reason for not thinking alternative (4) comes naturally for advocates of secular worldviews in contemporary society. If so, it would be an option that primarily attracts some religious people. Something Wilson says might support this line of reasoning. He argues that when religious stories are abandoned and considered obsolete, the theory of evolution can replace them and play this role in people's lives. He claims that "the evolutionary epic is probably the best myth we will ever have" (Wilson 1978, 201). Wilson thinks secular people today can and should understand themselves and live their lives in the light of an evolutionary and not a creation story. If we assume that people need to embrace some origin narrative (where

does the world, humanity, and all other living things come from?), then the evolutionary story science provides would be a natural part of most secular individuals' worldviews. Consequently, the independence view is rejected because the evolutionary narrative is then taken to be an essential part of most contemporary secular worldviews. In contrast, theists could embrace a religious worldview in which the world is seen as God's creation. Whether God created living things directly using natural selection or any other process can be viewed as consistent with their worldview but essentially irrelevant to what they take Judaism, Christianity, or Islam to be all about. They could (but need not) embrace the independence view.

One could object to the line of reasoning that in at least some secular people's lives the evolutionary narrative plays no role; it is of no relevance to their self-identity, their understanding of the world around them, and the things they fundamentally care about in life. Evolutionary theory nor any other scientific theory does not give any shape or meaning to the beliefs, values, or attitudes that make up their worldview. I think this is a possibility. So, it could presumably be said that this subgroup of secular people embraces—consciously or unconsciously— the independence view.

5) The Tension View

Some people maintain, or what they say entails, that their worldview is incompatible with contemporary science. Due to the significant influence of Barbour's writings, this stance has been called the *conflict view* within the science-religion dialogue. Barbour (2000, 2) argues that since biblical literalists reject the theory of evolution because it conflicts with their faith, they think "science and religion are enemies." However, this is misleading. A more charitable and reasonable interpretation of those Barbour (2000, 15–17) classifies as biblical literalists, like Phillip Johnson and Michael Behe, is that they actually think it is possible to reconcile their Christian worldview with science, not today but in the future. They do not think the conflict between the two will last. Hence, this stance can be rationally reconstructed in two different ways (as alternatives (5) or (6)), and only in the second way could it be said that its advocates perceive science and their religion—or, more generally speaking, their worldview—as "enemies" or genuinely incompatible.

Instead, people who embrace alternative (5), like Johnson and Behe—if I understand them correctly—accept that their worldview is incompatible with contemporary science but add that this is as things stand right now. As science progresses, it will become clear that their worldview is compatible with, and perhaps even supported by, science. God is, after all, the author of both the book of nature and the Bible, and God cannot contradict himself. Barbour's mistake is treating science as a monolith, failing to see that criticism leveled against science often targets specific assertions, theories, or attitudes and not necessarily the scientific enterprise as such.

Therefore, one way of interpreting the criticism of science that can be found in society is to assume the critics see the relationship between their—religious or secular—worldview and science in terms of alternative (5). Certain religious conservatives do not accept central parts of evolutionary theory, other people reject determinist and mechanistic scientific accounts of human behavior, and yet others reject evolutionary accounts of human nature (they might even question the idea that there is a human nature) or society. They could embrace a feminist worldview and charge science with being objectionable because it is inherently male-biased. They may be radical environmentalists who are deeply suspicious of science because they maintain it is the prime example of a mechanistic-instrumentalist mindset directed towards nature, which they perceive as a major cause of the ecological crisis we face today. Or, to take one last example, their worldview may include climate change skepticism and thus conflict with the scientific consensus that global warming is taking place and will have harmful consequences for human civilization and the Earth's ecosystems in the near future. *Science criticism* is an integral part of these people's worldviews (Jewett 2020). Whether we think it is justified or not is beside the point. If they think the conflict is temporary, their understanding of the relationship between their worldview and science is best captured in terms of alternative (5), what we can call the *tension view*.

6) The Irreconcilability View

The last option is to think that one's worldview is incompatible with science, and this will not go away but is something we should expect because faith or worldview commitments go against reason—including scientific reason. There are not many who actually say they embrace alternative (6). Maybe some Christians inspired by the writings of Søren Kierkegaard would embrace it, although I think that would be more reasonably explicated in terms of the independence view. I am thinking of those passages in his writing that emphasize the offensive character of the Christian faith to natural reason (including presumably scientific reason). For instance, under the pseudonym Johannes de Silentio, he developed the idea that religious faith requires believing something irrational, absurd, or contrary to reason, and yet it is the highest possible thing we can aspire to (Kierkegaard [1843] 1983). Some hardcore environmentalists might embrace it if they think the scientific attitude clashes essentially with the attitude they maintain we should have toward nature.

However, we need to include alternative (6) in our typology primarily because some claim that *other* people's worldview is incompatible with science. John Worrall (2004, 60) maintains that "[s]cience and religion are in irreconcilable conflict . . . There is no way in which you could be *both* properly scientific minded *and* a true religious believer." Susan Blackmore (2024, 63) claims that evolutionary psychology, cognitive science, and memetics show that God is a

meme and thus undermine completely theistic worldviews, so that "[t]here is no God who created the universe, no God who made us in His own Image, no God who answer (some people's) prayers. . . . There is no creator who has a plan for His Wonderful World and who will rescue us from the mess we are making of it." If we want to use the notion of conflict to capture elements in both alternatives (5) and (6), we might call this last option the *irreconcilability view* instead of the *conflict view*.

Concluding Remarks

The starting point of my discussion was an observation, namely, that a significant number of individuals, particularly in regions like northern Europe and northern America, no longer identify as religious. This change, I argue, should make us see the relationship between science and religion in a new way, explicitly taking into account that today, there is a three-way relationship that should be explored between science, religions, and secular outlooks on life. We can only fully understand some of the standpoints in the science–religion debate if we consider that a third party is involved, implicitly or explicitly, in the discussion—namely, secular worldviews. The notion of worldviews was introduced to cover both religious and nonreligious people's views of life. I also pointed out that it is crucial to establish an academic discipline that investigates secular people's outlooks on life and juxtaposes them with religious ones. This is the task of the emerging field of worldview studies.

What we gain by using the notion of worldviews is an analytical category wherein secular outlooks on life, and not merely religious ones, can be studied in terms of what they positively affirm about reality. It then becomes evident that the reason some thinkers have the views they do about science and religion depends on their prior acceptance of a secular worldview of one kind or another. This is similar to the views of other thinkers, colored by their religious commitments. If essentially everyone has a worldview, then the discussion about science and religion is not between religious believers and "neutrals"—noncommitted people—or nonbelievers but between people who embrace different, sometimes rival, worldviews.

Therefore, we must pay attention to when one line of reasoning depends on the prior acceptance of a particular worldview in the science–religion debate. We need to distinguish between worldview-transcending and worldview-immanent arguments. A worldview-transcending argument contains premises or reasons that surpass people's different outlooks on life. Its force does not directly depend on whether we accept a Christian, Buddhist, scientistic, or secular-humanist worldview. Worldview-immanent arguments are rather arguments containing premises or reasons that depend, directly or indirectly, on the acceptance of one particular worldview or a subset of them.

We have also seen that the significance of science for worldview formation and revision depends on how relevant we think science is for the particular worldview we embrace. I suggested that six options are available today to religious and secular people alike. One's stance could be that their worldview is entailed by science; it starts from and stops with science (the scientistic view). A second possibility would be to deny that one's worldview is entailed by science and instead maintain that it merely privileges science while still acknowledging that it goes beyond what science can tell us about reality (the extension view). A third option is to maintain that the central motives or grounds of one's worldview are obtained from or provided by other sources than science but still stress that science can support or add to its credibility (the contact view). A fourth alternative would be to say that one's worldview is merely compatible with science but assert that that is all we can ask for since science and worldviews do different and unrelated jobs in our lives (the independence view). For those who embrace the extension, contact, or independence view, it becomes essential to distinguish between things that are "nonscientific" and those that are "unscientific," whereas, for those who endorse the scientistic view, these categories essentially coincide.

Science criticism plays an essential role in forming some people's worldviews. The last two options try to capture this stance. One option is to grant that one's worldview is incompatible with contemporary science but maintain that as science progresses, it will become clear that it is compatible with, perhaps even supported by, science (the tension view). The last option is more radical: the stance that one's worldview is indeed incompatible with science, and that that is what should be expected because one's core worldview commitments go against reason—including scientific reason (the irreconcilability view). Presumably, few people embrace this alternative, but it is essential to include because some claim that *other* people's worldviews are of this kind. These critics then assume irreconcilability to be a vice and not a virtue.

If my analysis is correct, then an essential question to explore is the relevance of science for forming and revising our different worldviews, both religious and secular. Worldview theory also makes it easier to understand and conceptualize that the main reason certain nonreligious individuals have a specific view of the relationship between science and religion is not always due to how they conceive science or religion but rather because of the secular worldview they embrace. This could be the case whether or not they are aware of this fact. The recognition that most, if not all, people have a worldview of one kind or another makes it possible and desirable to develop a more symmetrical explanation of some religious and secular individuals' views of science and religion.

Notes

[1] I am not the only nor the first researcher who has argued for the development of worldview studies; see also Anders Jeffner (1992), Ninian Smart (1995), M. Elisabeth Lewis Hall and Peter Hill (2019), and Ann Taves (2020). My first attempt to do so dates back to (Stenmark 1995, 239–52), although then I used the technical term "views of life."

[2] The theory is my proposal, but a reviewer pointed out that a similar theoretical framework can be found in Miguel Farias (2013).

[3] See, for instance, Hugh Lacey (1999) and Nicholas Rescher (2014).

[4] There are also forms of naturalism that arguably could be classified as religious or semireligious worldviews. I have in mind different forms of religious naturalism (see next section).

[5] I have analyzed their core commitments in Stenmark (2022c). John Gray (2018) differentiates between seven forms of atheism.

[6] Experts in the field sometimes call this view "Western esotericism" (Hanegraaff 2013, 1–3).

[7] It has also been named "philosophical naturalism" or "metaphysical naturalism." For a discussion of different forms of scientism, see Stenmark (1997).

[8] I am not saying that the affirmation of human dignity and freedom entails that humanists must affirm that humans have libertarian freedom. Some certainly embrace that view, but others are compatibilists. However, most of them have presumably not thought much about the issue at all. The idea is merely that there is something special about humans, and this makes them unique, so that we, for instance, can genuinely talk about human actions and not merely human behavior.

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