entirely unknown information. Another noteworthy contribution of the reviewed work is its exploration of the broader question regarding the relationship between science and ideology. Consequently, it can be reasonably expected that *Ethnography in Slovakia in the Service of the Third Reich* will serve as an inspiring stimulus for wider discussion, both due to the knowledge it presents about the history of science and its more general focus.

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WILL M. GERVAIS:
Disbelief. The Origins of Atheism in a Religious Space
Lanham: Prometheus Books, 2024, 432 p.

In this book, I'll argue that religion is not an evolutionary puzzle; so much as two evolutionary puzzles that can only be solved together. First is the Puzzle of Faith: the puzzle of how Homo sapiens – and Homo sapiens alone – came to be a religious species. Second, there is the Puzzle of Atheism: how disbelief in gods can exist within our uniquely religious species. (Gervais, 2024: 38)
Learning about how atheism works is important business in its own right, but it also helps us understand religion as well. (Gervais, 2024: 55).

Gervais' book is the first serious scientific account fully devoted to explaining atheism from an evolutionary perspective. The paradox of theoretically coupling religious faith with its lack is well accounted for in the citations above – humans alone developed the culturally universal institution of religion, and humans alone subsequently got rid of it (in some places, sometimes). That is the puzzle of religion and atheism – why and how did religions emerge, become cultural universals, and then (in some places, sometimes) lose their grip? Therefore, to understand the story of atheism, we must first understand the story of religion (and vice versa, as Gervais points out). The book nicely follows this logic in its structure. After the initial chapters devoted to debunking some myths and outdated (though popular) "theories" regarding religion and atheism – a very effective way to set up the stage and prepare the reader, it moves on to tell us a convincing interpretation (one backed up by decades of research and the author's whole scientific career)[1, 2] of how we became religious and (some of us) subsequently atheist.

The book's theoretical (and, to some extent, methodological) backbone is the Dual inheritance theory (DIT) of cultural evolution – a more developed and focused offspring of the gene-culture co-evolution approach. The core assumption of DIT is that cultural developments in the history of mankind represent a full-fledged evolutionary process, much like genetic evolution (as in following general evolutionary principles), but different nevertheless (not relying on high-fidelity transmission and discrete units of selection). More specifically, DIT states that

1. There is cultural variation on which natural and cultural selection mechanisms (content & context social learning biases) operate;
2. Said cultural variants can be passed on (vertically, horizontally, obliquely) via social (broader category, e.g., primates, whales, birds) or cultural (leading to cumulative culture – exclusively human) learning;
3. The variants with the most beneficial consequences (for individuals and/or cultural groups) spread and thus succeed in the cultural-evolutionary arms race.

On top of that, there is a mutual feedback loop between genetic and cultural variants in that both systems of inheritance influence each other, whether positively (enhancing the survival and reproduction of the respective system of inheritance) or negatively (lowering it).

In a nutshell, the above paragraph summarizes the DIT paradigm used in the book to explain the spread of religion and, subsequently, atheism. We will get to those topics in a bit, but let us dive into the DIT approach first. For starters, Gervais contrasts DIT with other cultural evolutionary alternatives, like memetics, which made a false parallel between genetic and cultural evolution in that it treated cultural information ("memes") very much

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1   This is something deserving a proper standing ovation – I remember how the topic of atheism used to be discredited as not worthy scientific inquiry. Were it not for determined people like Will Gervais, we would know much less about it (and about religion!).
2   What I applaud even more is the author's plain honesty about the harsh reality of the scientific process (publishing, experimenting) and the career choices connected to it. In fact, this "scientific honesty" thread in the book is one of its hidden gems and I would thus recommend (not only) early career researchers and students to pay attention to it – unlike what's being taught in science classes and handbooks, the real process is messy, biased, often frustrating, and full of surprises!

like genes, rather than just applying the general evolutionary principles of variation, inheritance, and consequences (like DIT does). On top of that, he also defends DIT as just being better science due to the people involved in it (expert scientists rather than atheism advocates and enthusiasts with less relevant or missing expertise in the field). In doing so, Gervais directly applies some of the biases he discusses scientifically in the book (such as prestige bias, or expertise of the referenced scientists) to defend the paradigm he uses. I quite enjoyed this meta-level of applying the mechanisms of the studied phenomenon to defend the field of study, although I would appreciate it being explicitly stated. On the other hand, in defending the field, he also engaged in referring to its "fancy" methods (advanced mathematical modelling), which is a practice he previously condemned (in the case of neuroscience imaging). I agree that those methods are superior to many alternatives (e.g., just-so-stories), but promoting them in this particular way seemed unnecessary.

Nevertheless, although I appreciate some aspects of the DIT as used in the book, there are others that I regard as problematic. For starters, the selection process of cultural variants is not as blind as in the case of natural selection due to the aforementioned social learning biases and cultural preferences. DIT explicitly states that humans are strategic information seekers since this can help them survive in their respective cultural milieus. As an anthropologist myself, I applaud the emphasis on context and social learning. However, there are some caveats in this approach.

One such caveat is that rather than information transmission and storage (as in genetic evolution, with occasional mutations, drifts, etc.), the spread of cultural information always leads to its transformation upon storage and retrieval. Even though I agree with Gervais (and the DIT) that perfect transmission fidelity is not required for cultural clustering, I think this issue should be addressed more deeply and not theoretically diminished. One great source (and authority) on the topic is Dan Sperber (1996), who developed the idea of cultural attractors and the epidemiology of representations. His work deserves to be referenced in the book more extensively as it is fundamental in treating cultural variation, transmission, and content biases. In addition, he also did extensive research on epistemic vigilance (Sperber et al., 2010), which speaks directly to how we select and process relevant information from our social environment – I was surprised that these sources were omitted in the chapters on content biases in cultural learning.

In addition, there is also the fact that we do not learn and adopt new information in a vacuum, or a blank-slate state of mind. Whatever information we encounter is measured against all the information we already possess about how the world works. If there is too much dissonance or conflict with what we already know or believe, we are more reluctant to accept it. One such account of how belief systems resist or support information adoption with regards to their inert properties, relations, and coherency is the cultural immunology (echoing Sperber's immunology) account by Jesper Sorensen (insert), which treats cultural learning mechanisms as a system with in-built immunity that selects information in consonance with it. As DIT presupposes that humans are strategic information seekers, I would expect such "immunological" biases to play an important part in information selection.[3]

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3   For further examples using a similar logic, you can even look at research within DIT on cultural filtering – see for example the work of A. Buskell et al. (2019).

Next, there is the issue of measuring evolutionary success, which is somewhat straightforward in genetic evolution – survival and reproduction of genes. However, it gets rather messy once the author considers success in the context of cultural evolution. DIT is quite inconsistent in this regard, lacking a precisely defined unit of selection and inheritance. Several candidates represent successful consequences of inherited (socially learned) culture throughout the book. Sometimes, the measure of evolutionary success seems to be the population spread of selected cultural traits (e.g., religions). At other times, it seems to be the cultural dominance, cohesiveness, or longevity of the groups associated with said traits (e.g., Christians) or the individuals within such groups (e.g., devout Christians). The currency of cultural fitness thus seems to be whatever fits the narrative being told.

The first usage of cultural evolutionary success thus resembles memetics or Sperber's epidemiological approach in that it takes copies of cultural traits as its fitness currency – the more a cultural trait spreads, the more successful it is. The other alternative considers the impact of cultural traits 1.) on the success of their individual bearers – in the context of within-group cultural selection, this would probably refer to adopting cultural traits that can lead one to become a successful group member, whatever that means (maybe being prestigious, and, eventually better survive and reproduce? the author does not develop this argument much further); or 2.) on the success of groups in the process of cultural group-selection – in this instance, in the course of inter-group competition, cultural traits enhancing group cohesion and advancing groups with such traits vis-à-vis other groups will prevail.

Clearly, there is some arbitrariness and subjectiveness to the above approach. Firstly, the scope of the selected cultural trait(s) seems to vary greatly – from singular technologies (e.g., food extraction), to whole belief systems (e.g., religions). How do we decide on a relevant scope of (a set of) cultural trait(s) whose success we want to measure? Related to that, how do we decide what constitutes a cultural group in the process of cultural group selection, and its eventual evolutionary success? This particular issue reminds me of the problem of species categorization in biology – whatever criteria we choose can utterly change the empirical outcomes of our theoretical predictions.

For instance, if we use the optic of group cohesion and within-group cooperation, we can find examples of super-tight groups that have successfully recruited members and strict religious followers who maintained their allegiance despite extremely high membership
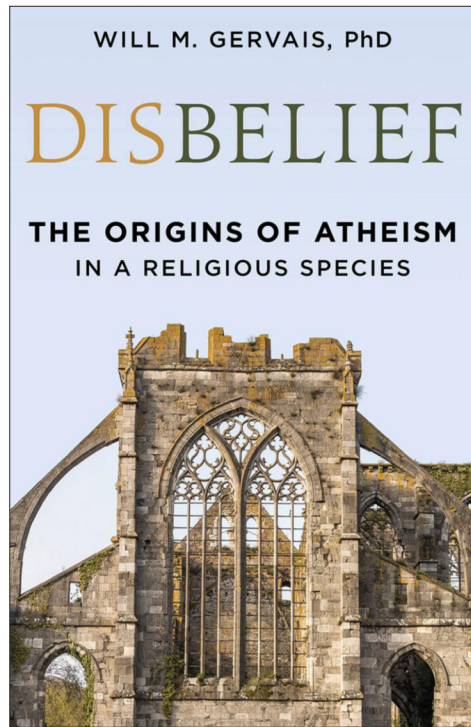
costs – e.g., Russian old believers (Bahna, 2022). In this instance, the extreme levels of fusion with the group and the individual sacrifices made for group benefits as requested by the local norms should lead to the group's cultural success, according to Gervais (who referenced Darwin [1888] in this regard). However, the opposite eventually happened – far trespassing the cooperative optimum, the most extremely cooperative and group-oriented Russian old believers groups dissolved or died out (due to group suicide, excessive celibacy, fragmentation, etc.). Therefore, it is not always the case that within-group integration and cohesion necessarily lead to its success. There seems to be a threshold when these processes become culturally maladaptive on the collective (and individual) level. DIT should address this issue accordingly, as it contradicts some of its predictions.

Nevertheless, I am not in opposition to the DIT approach; quite the contrary – I just think it needs more refining and precision and also include or consider other explanations. One of the DIT approach's strengths is its explanatory power regarding cultural learning, variance, change, and stability. Social learning biases are very helpful in explaining group-specific behaviours, norm stabilization, and the deepening (or lessening) of cultural differences. Thus, let us look at Gervais's use of DIT in explaining atheism in more detail.

The core assumption in the book is that social learning biases evolved as psychological adaptations to our social and cultural ecologies, as they helped individuals prosper (survive and reproduce) by selectively paying attention to the surrounding cultural models (e.g., skilled, prestigious, or successful people, the majority, people of same age or sex, etc.). As a by-product of these biases, groups started to diversify culturally as specific beliefs and practices were becoming internally widespread or standardized. Cultural group selection subsequently enhanced these differences since some cultural traits impacted the groups' survival and success.[4]

Religion then enters the picture as a specific set of beliefs about the supernatural that have some cultural selection advantage due to their appeal to our psychology and the content biases it operates by. More importantly, due to context biases and CREDs (credibility enhancing displays – behaviours reliably and consistently supporting the underlying beliefs associated with them, as in "walking the walk, not just talking the talk"), religious beliefs, behaviours, and faith became widespread and universal in human cultures. Finally, religions based on Big Gods (powerful moralizing omnipresent and omniscient intervening deities, such as the Abrahamic Gods) had the selective advantage of enhancing cooperation, pro-sociality, and trust amongst their supporters via various social and psychological control mechanisms (divine punishment, moral norms). One essential and related aspect of religions is that they function as norm accelerators – particularly the Big Gods traditions, which tend to amplify the developments of specific cultural traditions. Eventually, these Big God religions out-competed their alternatives, enabling civilizations to rise and create a global identity based on allegiance to the respective God(s).

The above account explains why some religions persist and thrive, but I think it falls short of explaining how religions would initially emerge and spread. A crucial (and

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4   Again, see the above section where I discussed some of the problematic aspects of this approach.

defining) characteristic of religious behaviours in this respect is their ritualization and costliness, something Gervais mostly omits in his account. In the evolution of honest communication, ritualization, coordination, and costliness seemed to be the key aspects of communicative displays that secured the necessary conditions for sending and receiving reliable information in the animal kingdom. Research on costly signalling systems and honest communication indicates that religious systems have specific qualities that make them very suitable for securing honest communication. These qualities could be among the factors that contributed to the emergence of religions as they served the function of social coordination, honest communication, and the establishment of trust, and social and moral norms – all necessary prerequisites for the evolution of human cultures. On top of that, other aspects of religious (ritualized) behaviours might contribute to their cultural success, such as their ability to respond to anxiety or uncertainty. When reading the book, I was thus missing more engagement with said research (e.g., Sosis, 2006; Malinowski, 1954 [1925]; Rappaport, 1999) that would complete the picture.

However, I think the latter part of the book on atheism is an excellent take on the phenomenon. Unlike some intellectualist or psychological accounts of why people become atheists, Gervais emphasizes the role of CREDs and modernization processes. Inspired by sociological writers (secularization theory, existential security), he theorizes that as states overcome a certain modernization threshold, religions tend to become more privatized, and eventually less practiced. Specifically, as the state overtakes some of the functions previously fulfilled by religion (social policing, social welfare and wealth distribution, administration, healthcare, and education), religion "shrinks" to a more private sphere and fewer (or alternative) functional domains (faith, spiritual, emotional, psychological fulfilment). Consequently, public CREDs diminish or disappear altogether, which causes a generational rift in cultural transmission. A growing number of inCREDulous atheists and apatheists thus populates the secular state. In effect, the success of religion ultimately precedes its own downfall in such modernized societies where secular institutions harness the know-how, infrastructure, and social order built up by it. Importantly, even after religious affiliation drops, the norms associated with it persist and wain much more gradually and slowly.

One could also add that, at least in the case of Christianity, its undeniable role in the evolution of modern secular norms centred around individual human rights played a part in its eventual downfall, as it propagated individual choice and freedom and a loosening of its former religious "grip" – especially so in the protestant traditions that spread in western European countries. These developments enabled the rise of capitalism and new social classes and accelerated the process of secularization (Weber, 1904 [1958]).

Again, I think that the DIT approach is excellent in explaining how atheism spreads once it's set in motion. However, I think it is much less potent in accounting for why it starts happening in the first place. Gervais does hint at some sociological explanations discussed above, but I think he would need to engage more deeply in the details of the process to make it more applicable to the historical trajectories of secularization around the world. I think he did open the discussions well by pointing out the various (psychological, social, emotional) functions religions fulfil, some of which are taken over by the state. Still, the topic deserves more in-depth attention to account for the specifics and diversity of the process as it has been unfolding in various societies.

For instance, the mention of Czech atheism in the book (referring to Willard, Cingl, 2017) ignores that a substantial portion of it developed due to population replacement in the state-border regions after WWII. The newly arrived groups of Czechs and Slovaks came to German-depopulated areas and established new communities from scratch. These regions became highly industrialized and urbanized under the new communist regime and are the very same areas with the highest rates of atheism. In addition, the communist regime endorsed atheism and often punished religiosity. In this case (and in the Soviet communist block at large), secularization proceeded not only due to modernization but was also forcefully enhanced from the top down by the state. Contrary to Western Europe's developments, where atheism spread from the affluent elites, in the communist east, it was very much associated with the new (often urban) working class moving to industrial cities and forming communities in the newly massively built blocks of flats. The post-soviet countries could thus serve as excellent case studies for applying DIT to explain atheism.

Furthermore, modernization and secularization are not necessarily a one-way development – sometimes they can even accommodate religious violence. Take, for instance, the ethno-religious wars accompanying the dissolution of the Republic of Yugoslavia. After some 40+ years of a communist regime that promoted atheism and modernized (mainly through industrialization and infrastructure) the country, its downfall immediately turned into civil wars between the ethnoreligious factions that constituted the former state's population. Even though many people were not practicing believers anymore, religion (alongside ethnicity) quickly became the decisive group marker that was fuelled and used by political and religious leaders as a selection criterion for who deserves to live. Hence, rather than providing the cultural (ethnoreligious) groups with some evolutionary edge due to its enhancing effects on their internal functioning (or maybe only to some limited extent), religion acted as a simple group marker that was situationally chosen by the local leaders and authorities and used in face-to-face combatant conflict as it had a direct impact on individual fitness (a matter of life and death). Very often, people cared little about the religious dogmas or associated practices but wanted only to survive and save their families – religion was the crucial marker indicating who's a friend and who's a foe that could kill you (Kiper, 2022).

One final remark on the possible routes towards religiosity: historically, as Gervais rightfully points out, people used to be born into their religious traditions. However, this is not the case for those populations that switched to new religious traditions en-masse due to top-down political decisions (a ruler deciding on the faith of his subjects), forced conversions (missionaries backed by guns, germs, and steel turning whole communities to their faith), or even converts in predominantly secular societies – that is, people who were born secular but became religious in their lifetime. In the last case, atheism is the default starting position, and religiosity is willingly chosen later in life. I think religious conversion (whether forced or freely chosen) thus deserves more focused research as it provides novel insights into how, when, and why people become religious or switch to new religions.

In conclusion, *Disbelief* is a much-needed and valuable contribution to the research on the evolution of religion and atheism. It is one of the best state-of-the-art critical synopses of the cognitive and evolutionary[5] science of religion (CESR) that helps one

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5   Even though it neglected a substantial part of the evolutionary approaches.

navigate and differentiate between the various approaches to the scientific study of religion. Thus, I would recommend it as an excellent source for the public and students interested in the topic, and for lecturers who teach courses in CESR and/or cultural evolution. Gervais's application of the DIT to the modern phenomenon of atheism is sound and convincing and explains much about the process and its distribution. Therefore, I look forward to the next volume that analyses and discusses its intricacies and developments in more depth.

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