same cognitive biases or motivations will facilitate religious belief in every case. This might explain why some common patterns in religiousness vary across cultures. Whereas religious belief is typically negatively correlated with socioeconomic status and women tend to be more religious than men, there are instances where religion is more of a tool of the elite (Seabright, 2024) and where men are more religious than women (Irons, 2001; Moon, Tratner, & McDonald, 2022). This might suggest that previous findings do not reflect some inherent propensity for certain groups to be religious, but rather that, *in the societies where these findings were produced*, these groups were more likely to perceive religion as affording important opportunities. Considering how people perceive cultural affordances may provide a useful framework for understanding such nuances.

Culture is an emergent property of the decisions of individuals (Baumard & André, 2025), and Singh provides a valuable framework for understanding what makes individuals choose certain cultural variants. My hope is that this perspective can help understand not only super-attractors that recur across cultures, but also nuanced patterns of variation that arise when different individuals and societies perceive culture as providing distinct opportunities and constraints.

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Spandrels in the cathedral of the mind

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Abstract

Reviving Gould and Lewontin's critique of adaptationism, Singh's subjective selection favors truth over useful simplification. Nonetheless, while psychologically plausible, its explanatory power remains limited. Moreover, by treating evolved psychology as fixed, it neglects gene-culture coevolution. The result is a vision of cultural evolution whose expansiveness risks outpacing its scientific utility.

Gould and Lewontin famously used an architectural metaphor to critique the adaptationist program in biology (Gould & Lewontin, 1979). So overconfident were biologists in the omnipotence of selection that many of the fancied adaptations they documented were, in reality, mere byproducts of other true adaptations.

Gould and Lewontin were also motivated by another concern: the veracity of models (Ullica Segerstråle, 2000). "All models are wrong, but some are useful" is an adage usually attributed to the British statistician George Box (Box, 1976). Nonetheless, for Gould and Lewontin, such an attitude forgot that the utility of a theory was intrinsically linked to its accuracy. As such, rather than seeking productive simplifications, such as assuming adaptation, Gould and Lewontin felt that evolutionary theories had to grapple with the full complexity of biological processes.

Did these critiques land? Certainly, they are well remembered. Nonetheless, they did not fundamentally change the way biologists go about their work. Everyone accepts the dangers of naïve adaptationism, but no one owns up to it! Moreover, few agree with the proposed relationship between accuracy and utility. Thus, the importance of Gould and Lewontin's argument is perhaps more rhetorical than scientific.

Turning to Singh's article, both of these concerns – excess adaptationism and the balance between truth and utility – re-emerge as motivating factors for subjective selection. Assessing it in this light raises the question of whether Singh's proposal will succeed where Gould and Lewontin's did not. I suggest that, as presented, it faces the same challenges: an impressive exposition of a broad worldview, but ultimately of limited scientific impact.

The essence of subjective selection is that individuals perform actions that they believe will help them achieve their goals. This can be contrasted with other broad theories of human behavior that emphasize payoffs, utility, or evolutionary fitness (Laland & Brown, 2011). Such an emphasis is, of course, a simplifying assumption; evolutionary fitness may only rarely be a factor that individuals explicitly consider. Subjective selection, by contrast, is undoubtedly closer to reality. It acknowledges that when individuals evaluate their options, they do so in terms of what

perceived benefits they bring the decider and whether this satisfies them.

But what value does this truthiness bring us? At best, it accounts for a range of recurrent cultural phenomena that other theories cannot. At worst, it is just a middleman; selection shapes our appetites such that by doing what feels good, we end up maximizing our fitness anyway. This is the first challenge to which Singh rises, documenting cases where traits are maintained by subjective preferences in the face of fitness costs. Such an account is far from complete, and fitness costs are hard to pin down, but the manuscript makes a good start.

A second challenge is to distinguish subjective selection from other theories of cultural attractors, which similarly explain recurrent patterns in cultural variation by virtue of biases in cognition (Buskell, 2017; Sperber and Hirschfeld, 2004). Here, the differences are in the details. Subjective selection pins its aspirations on the specific claim that it is subjective evaluations that create these patterns. However, it is not surprising that individuals seek to do what they think will benefit them. So, what exactly is the benefit of subjective selection? To prove utility beyond mere truth, it should provide novel predictions. Singh does provide a number of predictions in Box 1; however, these all test whether people make choices in line with their goals, which is not inconsistent with other theories. What is needed instead are predictions of specific cultural phenomena that other theories would not anticipate. What kinds of traits, as yet unexplored, are costly yet meet subjective needs and so can be predicted to be widespread? If subjective selection can pull this off, it will deservedly displace other similar theories, but until then, its utility is unclear.

Singh's cautiousness to assume cultural traits are adaptive is laudable given the ease of adaptationist storytelling. However, there is an important complication. For biological evolution, the constraints on adaptation are often immutable physical constraints. It is the physical requirements of domes that necessitate the spandrel. For cultural evolution, variation exists in a mental, not physical, world, and the constraints or biases the mind imposes are themselves products of evolution and so subject to additional evolutionary change. Such a view challenges the possibility of cultural spandrels maintained by subjective selection because for any sufficiently costly cultural side effect, biological evolution can, in theory, rework our subjective appetites to remove it.

Singh's solution to this is to question the possibility of such a biological change. Thus, the mind becomes a fixed landscape on which the evolution of cultural variants under subjective selection plays out. Such a position is akin to the meme's-eye-view of earlier decades. Nonetheless, I find it hard to accept, as it neglects the coevolution of mind and culture, a process that is central to contemporary thinking on the evolution of human cognition. A softer stance might be to suggest that the different pace of genetic and cultural change (Perreault, 2012) means that there will be an extensive period in which subjective selection can maintain cultural spandrels before genetic change removes them. However, there is evidence that gene-culture coevolution can dramatically accelerate genetic change, rendering such effects short-lived (Morgan & Feldman, 2024). Additional processes, such as cultural group selection, will further accelerate the removal of costly cultural practices (Zefferman & Mathew, 2015). As such, the only long-lasting cultural spandrels will be those that do not harm fitness, implying that subjective selection alone cannot be a complete ultimate explanation as Singh intends.

In sum, while I appreciate the anti-adaptationist and psychological leaning of subjective selection, it does not yet offer a novel and comprehensive account for human cultural phenomena. It may be accurate, but unless it can make insightful predictions, it will not surpass other existing theories. It is right to caution against naïve adaptationism, but the diminishment of gene-culture coevolution and cultural-group selection risks the baby being thrown out with the bathwater.

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The pros and cons of reverting to methodological individualism

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Abstract

I read Singh's stimulating proposal as a comeback to methodological individualism: social and cultural phenomena are driven by individual motivations, given by individuals' subjective