

Psychology Q1: Is objectivity all in the mind?

Introduction

When we are struck by how people from vastly different cultural backgrounds exhibit similar instinctive reactions when facing threats, or how they arrive at highly consistent judgments when observing physical phenomena, these observations suggest that the world we inhabit is not entirely constructed by subjective will. Admittedly, each individual perceives the world differently—but does this imply that objectivity is merely an illusion of the mind?

While subjectivity refers to personal interpretations shaped by emotion and experience, objectivity denotes qualities that exist independently of individual perspectives. John Locke held that ideas are the mind's responses to external stimuli, but he did not consider objectivity to be fictitious or constructed; rather, his view leaned towards a fusion of empiricism and realism (Mulder, n.d.). This essay adopts a similar stance: while we can only access the world through ideas, these ideas are prompted by an objectively existing external reality.

This argument will be developed from three angles: first, from an evolutionary perspective and illusion of objectivity, showing how the consistency of human perception suggests an underlying objective structure of the world; second, by analyzing the distortion of information during its transmission and interpretation, revealing the limits of our ability to understand things “objectively”; and third, by drawing on psychological and sociological theories to examine how personal beliefs and group effect further shape the “reality” we perceive. Through these three lenses, I argue that except for formal systems like mathematics and logical reasoning, our understanding of the world is inevitably marked by subjectivity. What we call ‘objectivity’ is, to a large extent, merely a consensus constructed under cultural and perceptual frameworks. Therefore, objectivity is indeed, in many ways, “all in the mind.”

An Evolutionary Perspective and Illusion of Objectivity

Evolutionary psychology asserts that the human cognitive system did not arise randomly. Scholars such as Steven Pinker and Tooby & Cosmides propose that the mind comprises specialized modules evolved to meet real-world survival needs (Tooby & Cosmides, 1992). This theory lends biological support to the notion that objectivity is not entirely subjective. For example, in tasks like judging distances or predicting where an object will fall, if our understanding of the world were purely shaped by personal bias, it would be nearly impossible to arrive at highly consistent judgments. In reality, mechanisms like facial recognition or fear response display similar neural patterns across different cultures and ethnicities, further supporting the idea that there are shared “objective foundations” within human perceptual systems.

However, this foundational objectivity does not imply that humans can directly access external reality. As John Locke noted in *An Essay Concerning Human Understanding*, ideas originate from sensory experience—they exist in the mind, but are triggered by stimuli from the outside world. Although we cannot directly “grasp” the world itself, our perceptions are not wholly fictitious; rather, they are rooted in objective existence. On both psychological and philosophical levels, this implies that it is possible to achieve accurate representations of the world without necessarily distorting reality. This essay holds that while we access the real world through ideas, the “objectivity” we form is constrained by physiological mechanisms and prone to cognitive errors.

Bananas appear yellow because our visual system consistently responds to light wavelengths around 570–590 nm reflected by their peel. In reality, bananas reflect a range of wavelengths, and “yellow” is the brain’s subjective interpretation of this stimulus. This reveals that what we experience as “color” is built upon physiological conditions and that its “objectivity” is fundamentally unstable.

Thus, we may identify three core characteristics that define whether something can be considered “objectively real”:

1. Absoluteness: It remains unchanged regardless of individual perspective or will, and exhibits stability across different contexts.
2. Lossless transmissibility: Its content can be communicated without distortion or information loss during transmission and interpretation, unaffected by language or perception (e.g., mathematical proofs, formal logic, computer code).
3. Consensus potential: It is consistently understood similarly by different individuals.

From this, it becomes clear that truly objective properties are usually limited to mathematics, formal logic, certain laws of natural science, or physical attributes with what Locke called “primary qualities.” All other forms of knowledge, reliant on perception, language, and cultural context, are inevitably infused with subjective construction—giving rise to the cognitive illusion we often mistake for objectivity.

Information Loss and Interpretation Bias During Transmission

The first issue arises from the use of language as a primary tool of transmission. As linguist Ferdinand de Saussure pointed out, there is a structural disconnect between linguistic signs and the objects they signify. This implies that language, by its nature, cannot convey reality without distortion—no matter how precisely we attempt to describe it.

This limitation manifests even in the simplest scenarios, such as conveying a straightforward action. For example, person A instructs person B to take the toothbrush off the cup rack and place it on the table. B complies, and the task appears complete. Yet the instruction “place it on the table” is ambiguous—which part of the table, in what orientation, and at what exact three-dimensional position? These details are often skipped due to shared assumptions, but even highly specific wording cannot fully capture physical precision through language. Even with more precise wording, it

remains nearly impossible to capture every spatial nuance in language. This demonstrates the inherent limitations of language as a transmission medium. Other sensory channels (e.g., visual or tactile communication) share similar characteristics, but we often overlook these imperfections due to a tacit consensus between the communicator and the receiver, shaped by experience.

This phenomenon is also supported by experimental psychology. In Bartlett's classic study *The War of the Ghosts*, British participants were asked to retell a Native American folktale. Over successive retellings, participants restructured the narrative, omitting unfamiliar elements and adjusting the storyline to fit their cultural logic and expectations (Bartlett, 1932). This experiment illustrates that in the process of transmitting information, individuals tend to use existing mental schemas to interpret or reframe content in a more "reasonable" way, leading to distortion and loss of detail. Even when information is clearly articulated at the source, ambiguity during interpretation arises from the imprecise nature of language and individual differences in experience.

Moreover, different language systems describe the world in fundamentally different ways, which exacerbates subjectivity in understanding. The perceived features of an object may differ from its actual properties. Only information that can be transmitted without loss or distortion—such as code instructions or mathematical proofs—can be said to have true objectivity. According to linguistic relativity, differences in language encoding lead to differing degrees of "reconstruction error" during transmission. For example, Boroditsky demonstrated that language can deeply shape cognitive processes (Boroditsky, 2012). Speakers of Guugu Yimithirr, an Australian Aboriginal language, use absolute spatial terms like "north" or "southeast" rather than relative ones like "left" or "right." This linguistic feature results in their superior spatial orientation skills, highlighting how language is not just a medium for communication, but a reflection of one's cognitive framework. As such, even the same event may be understood quite differently depending on the language in which it is conveyed.

Contemporary research into large language models (LLMs) also illustrates the limits of language as a medium for transmitting information. In studies of multilingual model transfer capabilities (Hu et al., 2025), reasoning tasks were divided into “knowledge retrieval” and “knowledge-free” types. It was found that performance on cross-lingual transfer was significantly lower in the knowledge retrieval category, suggesting that when a task depends on language-specific content, cross-lingual transmission amplifies bias and error. Researchers proposed a quantitative metric known as the Cross-lingual Transfer Ratio (XLTR) to evaluate the consistency between understanding and output across languages:

$$\text{XLTR}(s, t) = (\frac{|C_s \cap C_t|}{|C_s|} - A_r) / (1 - A_r)$$

Formula 1. Where s and t denote the source and target languages in the transfer. C_x represents the set of correct answers in language x , and A_r is the accuracy of random choices for the given task. If the model shows an XLTR score close to 100% in a language direction, we say it achieves fully cross-lingual transfer in this direction.

Empirical data shows that for knowledge retrieval tasks, XLTR between English and low-resource languages such as Chinese or Arabic typically ranges from 0.42 to 0.63. In contrast, knowledge-free reasoning tasks (i.e., those that do not rely on internal linguistic knowledge) achieve XLTR scores above 0.85 (Hu et al., 2025). This suggests a systematic divergence when attempting to express the same information across different languages, especially between languages with dissimilar roots. Conversely, when models perform knowledge-free reasoning—which relies on logical structures rather than stored knowledge—they demonstrate strong cross-lingual consistency. The study confirms that language does not function as a perfect medium for logical transmission and, in fact, shapes information during processing.

Since human understanding of the world is constructed through language, these findings—emerging from computational experiments—support the conclusion that language structure and encoding inevitably result in information loss. The imperfection of language itself makes lossless transmission of information—either into objective

logic or across individuals—virtually impossible. Other forms of information transmission also exhibit similar limitations.

Personal Beliefs and Group Effect

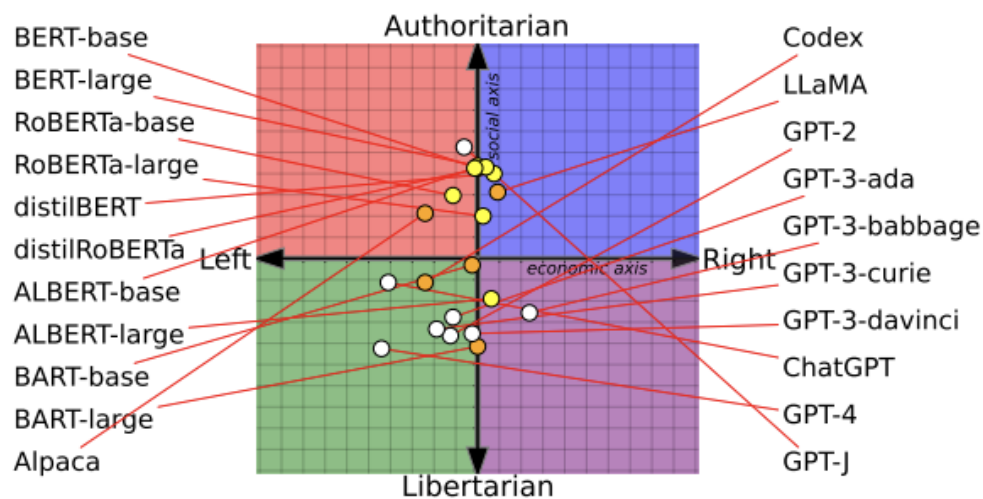
Our perception of objectivity is not only disrupted by transmission loss in communication media but also deeply shaped by personal beliefs and group effect. In modern society, due to differences in physiology and experience, individuals often form divergent understandings of the same phenomena. This naturally leads to cognitive conflict and the construction of cognitive comfort zones. When confronted with information that contradicts one's previously held beliefs or perceived "objective truths," individuals experience what psychologists refer to as *cognitive dissonance* (Festinger, 1962). This discomfort resulting from conflicting cognitions leads people to unconsciously modify one of the beliefs to restore internal harmony—giving rise to instances of cognitive alignment or "taking sides."

At a societal level, scholars have found that *cognitive dissonance* acts as a major trigger for *emotional contagion* (Barsade, 2002) and the *echo chamber effect* (Sunstein, 2001). This helps explain why objectivity is so often mistaken as a product of consensus or "common sense." With the rising efficiency of information flow in the digital age, platforms now curate content based on users' behavioral data. As a result, individuals are more frequently exposed to information aligned with their existing positions and are rarely confronted with opposing perspectives. This intensifies *confirmation bias* and *echo chamber effects*, meaning that what we receive is not neutral, unfiltered objective information, but a version of "reality" shaped jointly by algorithmic filtering and personal preference.

Digital media platforms, by continuously feeding users information based on their search history, create cognitive comfort zones that isolate individuals from new

knowledge and perspectives. As users become more entrenched in familiar viewpoints, their ability for critical thinking and objective value judgment diminishes. Furthermore, individuals also face strong assimilation pressures within social groups, reinforcing the subjective construction of “objectivity.” According to Henri Tajfel’s *Social Identity Theory*, individuals tend to derive a sense of value and belonging by identifying with a specific group, making them more receptive to information that aligns with group ideology (Tajfel, 1979). This tendency is especially prominent in emotionally or ideologically charged topics such as gender or politics, where individuals, in order to maintain group identity and cognitive consistency, often dismiss or ignore evidence that contradicts the group’s stance.

All of this suggests that in today’s information society, the “objective reality” we perceive is already shaped by the joint influence of individual beliefs and group effect. In other words, what we call “objectivity” is, to a large extent, a filtered and selectively emphasized fragment of reality constructed in the mind.



Graph1. AI language models have distinctly different political tendencies. Chart by Shangbin Feng, Chan Young Park, Yuhan Liu and Yulia Tsvetkov.

The subjectively constructed nature of “objective reality” is evident even in fields seen as neutral—like artificial intelligence. Automation bias (Parasuraman & Riley, 1997) shows how AI outputs, though based on logic and algorithms, reflect biases from

training data and development contexts. A study of 14 major language models found GPT-4 leaning liberal, LLaMA showing right-wing authoritarian traits, and GPT-2 once endorsing “taxing the rich”—a stance absent in GPT-3. These “objective” outputs mirror social biases and collective psychology—revealing yet another way in which objectivity is subjectively constructed. This underscores the idea that apart from mathematics and formal logic, there are very few domains where objectivity is truly independent of subjective influence (Heikkilä, 2023).

Conclusion

This essay has explored the topic through three lenses: an evolutionary perspective and illusion of objectivity, information loss and interpretation bias during transmission, and personal beliefs and group effect. Drawing on experimental evidence from psychology, neuroscience, and AI theory, I argue that except for formal systems such as mathematics and logical reasoning, our understanding of the world is always marked by subjective imprints. Ultimately, I believe that objectivity is, to a large extent, “all in the mind.” Whether it be the political bias expressed by AI language models or the motivational reasoning rooted in the human brain's evolutionary instincts, a consistent truth emerges: our processing and judgment of information often serve pre-existing inclinations. We habitually interpret the world in ways that align with our desires—an instinct shaped by our evolutionary history and amplified by technology and media.

In today’s information-saturated environment, the scarcity of true objectivity should not be used as an excuse to abandon rational judgment. On the contrary, awareness of our cognitive mechanisms and the distinction between objectivity and subjectivity is more important than ever. This awareness allows us to make decisions with greater clarity and purpose—and, hopefully, to shape a better world.

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