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What Do We Perceive and How Do We Perceive It?

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Epistemology is the branch of philosophy that asks the question, "What do we know and how do we know it?" Given that what we *know* is primarily what we *perceive*, the question becomes, "What do we perceive and how do we perceive it?" The answer indicated by physical perceptual processes is that what an observer perceives is a neurologically fabricated isomorphic *representation* of their otherwise unseen body and external environment existing outside their brain. That perceived representation of the real world is produced by and entirely contained within the observer's brain.

Representative Perception

The proposition that perceived phenomena are neurologically fabricated and contained simulations of an observer's otherwise unseen body and external world is known as the theory of *representative perception*. Perhaps the first representationalist was the French philosopher Rene Descartes (1596-1650), who proposed that sense-data are transmitted via sensory nerves to the pineal glad in the brain wherein they are perceived by the soul as an image of the world (Descartes 375). In other words, the perceived world is merely an image *in the brain* of the real world outside the brain.

Seventeenth-century philosopher John Locke (1632-1704) purported that "our senses, conversant about particular sensible objects, do convey into the mind several distinct perceptions of things … when I say the senses convey into the mind, I mean, they from external

objects convey into the mind what produces there those perceptions". In other words, object perception is produced and experienced in the mind.

Bertrand Russell (1872-1970), perhaps the most well-known mathematician, logician, and philosopher of the twentieth century, also advocated representative perception. Russell observed not only that "all my percepts are in my head, even the most distant star *as I see it*," he further observed: "My percept of a table is outside my percept of my head" (Russell, Philosophy 138). In other words, according to Russell, both your perceived environment *and* your perceived body are simulations within your real brain, as depicted in the following illustration by this author (Goddard).

The self and environment seen by an observer shown as simulations in the observer's brain.

Representative perception may have never been more explicitly articulated and explored than in the contemporary work of Steven Lehar, Research Fellow in Ophthalmology at Harvard University. According to Lehar, "the head you have come to know as your own is not your true physical head, but only a miniature perceptual copy of your head in a perceptual copy of the world, all of which is contained within your real head in the external objective world" (Lehar,

Gestalt). Lehar, like Russell, proposes that your entire field of perception that includes your own perceived body is a simulation in your brain of the real world outside your brain. While this review is by no means a comprehensive listing of representationalists, it provides a view of the historic continuity of the theory of representative perception.

Transparent Perceptual Processes

The idea that the objects you see around you are actually representations inside your brain of similar objects outside your brain may seem to defy common sense. However, it is beyond dispute that perception involves a sequence of external followed by internal events that must occur *before* you perceive something. Photons reflected or emitted by an object travel into your eye, where they stimulate signals that travel along your optic nerve to brain regions, where the signals are finally processed into a visual perception that is the end-product of the perceptual process. The preliminary steps of the perceptual process are themselves unperceived, or transparent. This transparency endows the end-product with the illusion that perceived phenomena are seen as they immediately exist "out there" prior to and independent of perceptual processes. In short, phenomenal perception appears to be immediate.

There Are *Two* Suns

The illusion of immediate perception is most apparent when considering very distant objects. For example, because it takes eight minutes for light from the Sun to reach your eyes (Eracleous), the Sun in outer space is always eight minutes in the future of the Sun that you see. There are therefore two Suns: (1) the real Sun in outer space, and (2) the historical Sun that you perceive. Since there is no second Sun located somewhere between your eyes and the real Sun, the historical Sun that you perceive must exist in the inner space of your brain as a perceptual end-product representing the real Sun as it appeared eight minutes ago, as depicted in the following illustration by the author.

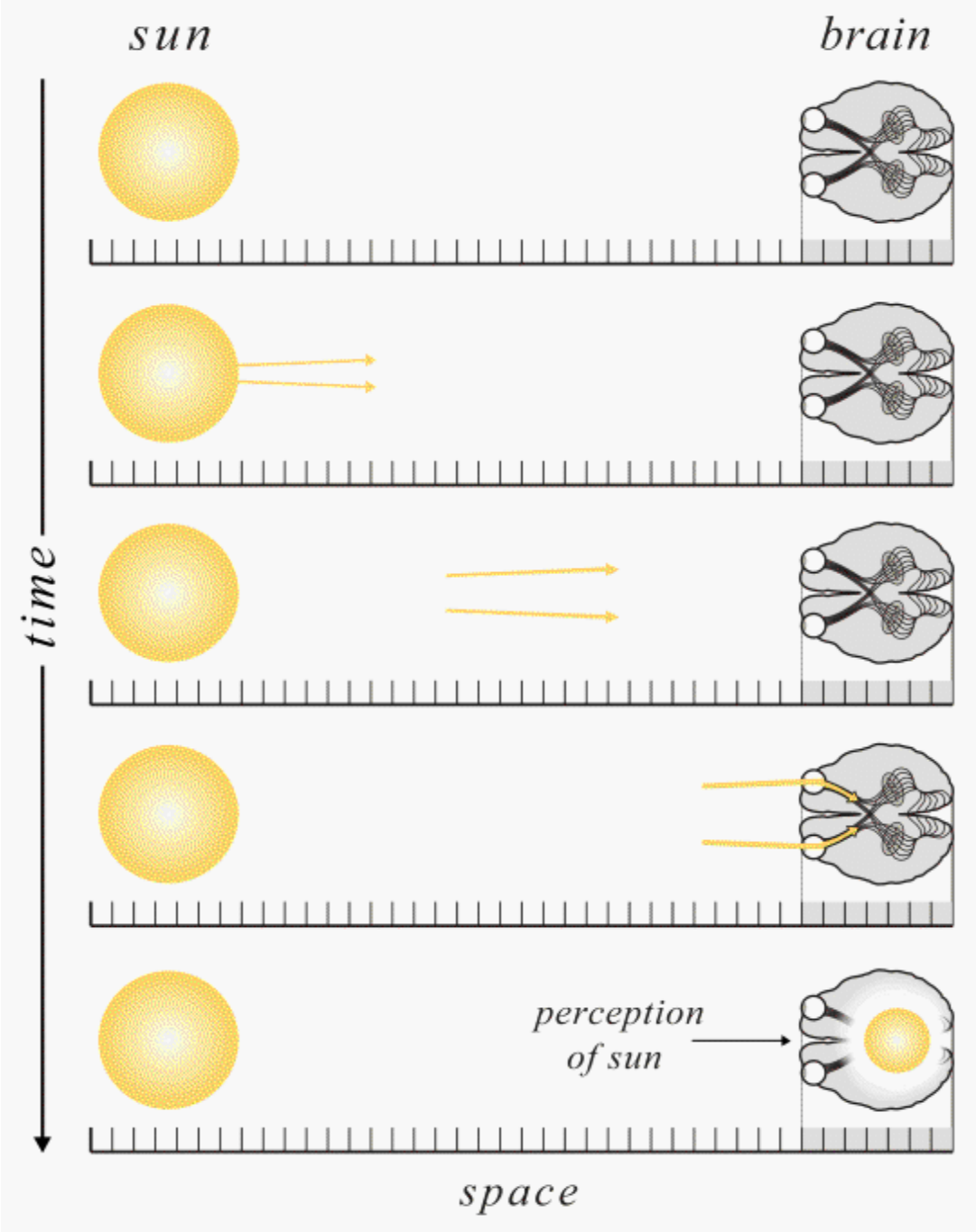


Illustration depicts spatial and temporal separation between (a) the emission of photons (sense-data) from the Sun and (b) sense-data perception. The real Sun must be separate from the perceived Sun.

The physical process of visual perception indicates that you do not perceive photons from an external source at any point before they reach your eyes, nor before they are neurologically

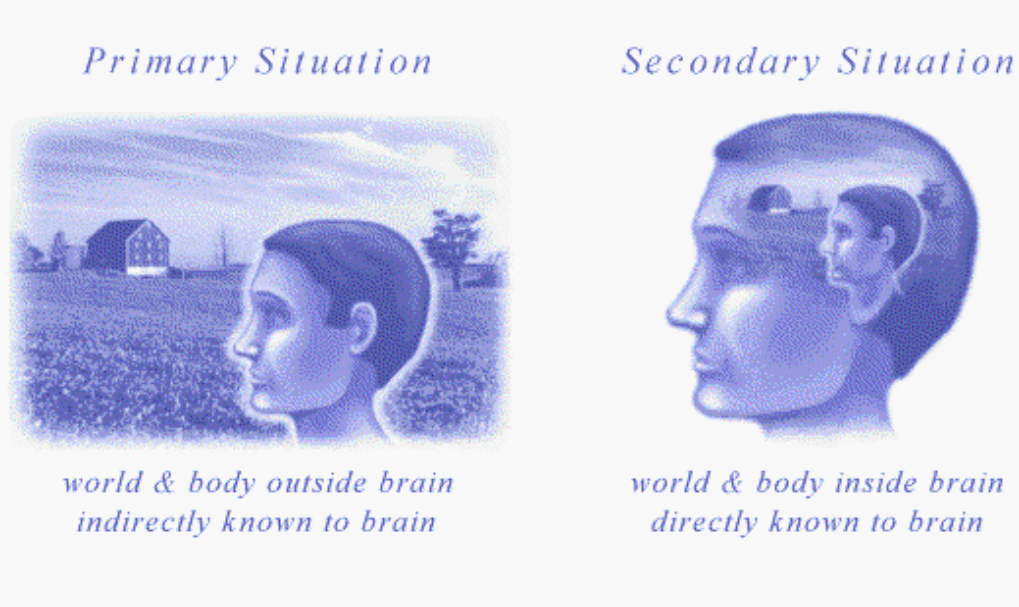
processed into a perceived end-product *in* your brain. How can your brain reach outside itself and perceive external phenomena prior to the acquisition of sensory data emanating from them? There is no known mechanism allowing for perception prior to sensory contact. There is also no known mechanism whereby neurologically fabricated representations can be projected back out of the brain onto the external world. Therefore, the physics and biology of perception demonstrated in the two-Suns analysis indicates that your brain can only wait for data to arrive at its sensory ports, after which you must wait fractions of a second longer for that data to be assimilated and processed into an end-product perceptual experience that occurs *in* your brain and that represents the environment and your body outside your brain.

The "Homunculus Fallacy" Fallacy

The classic rebuttal of representative perception is known as the *homunculus fallacy*, which purports that if the only way an observer can perceive their environment is by producing a simulated observer and environment in their brain, then the simulated observer can only perceive its simulated environment by producing yet another simulated observer in its simulated brain, requiring yet another simulated observer… *ad infinitum*. In this way the homunculus fallacy purports to refute representative perception by *reductio ad adsurdum*, that is, by reducing it to an absurdity. Based on the assumed validity of this refutation, representative perception has fallen into disfavor.

However, I propose that the assumed validity of the homunculus-fallacy refutation rests on the assumption that the primary situation (brain surrounded by external environment) and the secondary situation (simulated environment in brain) are functionally the same. But they are not. The primary situation involves an internal system (brain) surrounded by an external system (real environment), the contents of which are *unknown* to the brain prior to the acquisition and assimilation of externally sourced data. On the other hand, the secondary situation involves a simulated environment and observer in one brain, which are simultaneously created by and thus *known* to that brain. The brain creates an internal model of the primary situation to compensate for its lack of immediate access to the external environment surrounding it. However, because

the brain has immediate internal access, it does not need to create another model of the model that is entirely within itself.



Let me further propose that representative perception can be condensed into and expressed by this simple rule: a brain's knowledge of its external environment requires that everything outside the brain be modeled and perceived inside the brain. Given that rule, because a modeled simulation in a brain is *not* outside the brain, representative perception does not require the creation of simulations within simulations *ad infinitum* as claimed by the homunculus fallacy. Therefore, the so-called "homunculus fallacy" fails to refute representative perception because it assumes an infinite series of representations within representations that is not logically indicated by representative perception.

In Conclusion

The known physical process of perception as described herein indicates that all percepts exist within the brain where they represent phenomena outside the brain. As Russell, who called representative perception the *causal theory of perception*, observed: "Whoever accepts the causal theory of perception is compelled to conclude that percepts are in our heads, for they come at the end of a causal chain of physical events leading, spatially, from the object to the

brain of the percipient. We cannot suppose that, at the end of this process, the last effect suddenly jumps back to the starting point, like a stretched rope when it snaps" (Russell, Analysis 320). Apart from a philosophical exercise in epistemology, it stands to reason that allowing the physical process of perception to direct the formation of perceptual theories may advance mechanical replication of perception in fields such as artificial intelligence, robotics, and remote-operating systems.

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