Assumptions Made By the Human Vision System

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The human vision system employs several assumptions so that we can make quick decisions without being overwhelmed by the amount of visual data we're taking in. In this essay, we'll be exploring three of them; how our visual system gauges distances, detects motion, and identifies objects from the background.

Given two objects that are identical in size, the visual system assumes that the closer object is larger than the one that is farther away. This is reasonable since the closer the object is; the more it resembles its true size. For example, an incoming vehicle will be much larger than the vehicle that's situated at an intersection one and a half miles away. As such, your visual system will focus your attention on the vehicle that's larger and provide you with data such as perceived distance between yourself and the car so that you can make a decision (e.g. to jay walk or wait for it to pass by).

When you make a quick turn of a head (i.e. turn your head clockwise 90 degrees), the visual system assumes that you're the one that's moving, and not the scene around you. This is reasonable since the stationary objects remain in the same place in relation to your body when you stop moving your head. As such, your visual system will focus on gathering data of new elements in the scene, instead of doing the intensive task of re-computing everything.

Lastly, the visual system assumes that an object can be identified from the background via its edges. This is reasonable since usually, there is a contrast in color or shade between two objects. For example, a blackberry is usually darker than the bush it grows on, and using this knowledge, we can pick berries effectively without any misses.

In conclusion, the human vision system has evolved to become an effective system only because it uses shortcuts to process the visual information around us. By doing so, we focus our attention on objects that require us to react and bypass objects that aren't variables in our decision-making process.