On Electromagnetic Rays and Visual Perception – 2

A. Halliday

Abstract: This essay is a rewriting of an earlier version, also on electromagnetic rays—popularly known as 'light'—and visual perception. However, after one thought, experience shows that it is often followed by one or more other related concepts. In the argument against light, a series of realisations were given over a period of months. This essay has a reference on shadows.

General thinking on ambient space—the area between emitting and absorbing objects, and visual perceivers looking toward them—often highlights the role of electromagnetic rays (EM-rays, or rays). Objects exposed to natural or artificial 'light' emit them. Rays enter the eye, and subsequent processing results in visual representations of emitting objects. If rays absorbed by the retina are the only carriers of 'visual' data on the physical world, then the ramifications, on general, visual perception and on what happens in the physical world, are multiple.

EM-rays 'carry' data outward from their emitting objects. That is, if one side of an object is exposed to light, it emits rays into its ambient space. In general, all objects exposed to light emit rays. Emittances are continuous during exposure to light. If all objects in an ambient space emit rays, then that space can be thought of as full of rays. Sunlight itself contributes to the filling of that space. It follows that emitting and absorbing objects, including perceivers of them, are constantly bathed in rays.[1] Ambient space is not exclusively local. On Earth, visual perceptions are of the here and now but, the above argument can be extended to Moons and Suns.

Planets and Stars are remote objects. In visual perception, the standard argument is that the speed of rays emitted by the Moon travel so rapidly that they almost instantly close the distance to Earth-bound perceivers. However, if all objects—Earthly and stellar—continuously 'emit' rays while exposed to sunlight, then all of their rays travel outward. Humans on Earth can look at the Moon, and astronauts on the Moon can look back at planet Earth because both emit rays. If a perceiver can see the Moon, or a planet or the rays of a sun, then its ambient space extends to the perceiver. It should follow that, if rays are always in ambient space, and it is full of rays, then they are at the bodies of perceivers prior to looking at their objects.

Further, if ambient space is full of rays, then while in a room looking through a window, across a landscape, the viewer looks out at fields, trees, hills and a river. The standard, naive, argument is that perceivers look outward, through the pane of glass to the landscape beyond. But, if EM-rays are emitted by objects, such as the leaves of trees, then rays from those pass through the pane of glass to the eye of the perceiver. It follows that it is not possible for perceivers to look through glass; it is not transparent to the eye. That applies to all 'transparent' objects. The popular understanding is that perceivers look through water to the riverbed below,

[1] Shadows, the emittance of 'darker' rays on one side of an object and the ground, imply a change in emittances from the same object. If air, a 'content' of ambient space, has no 'colouring' effect on EM-rays, ensuring that the potential in emittances are not altered, then are shadows caused by a reduced number of absorptions on the shadow-side of objects? More light ensures a higher level of visual detail; less light, during early dawn and dusk, results in darker appearances.

but the natural direction of rays demands that they carry superficial properties of the ‘riverbed’ to the eye.

If EM-rays travel vast distances through space at ‘light’ speed, then their leading points become increasingly remote from their emitting objects. (The standard argument is that no physical object can travel at, or faster than, the speed of light.) It should follow that emitting objects have no subsequent effect on their previously emitted rays. Because leading points of rays are remote from its object, perhaps separated by billions of light years, then any change in their characteristics happens naturally: is not caused by its object. If that is so, then change in the ‘colour’ of rays, as under the Doppler Effect, happens naturally. It should follow that emitted rays from stellar objects cannot indicate whether they approach, or receding from, perceivers on Earth?

All arguments are open to revision and change. If the direction of all rays is one-way, always to other ambient objects and perceivers, then the superficial appearance of objects is determined prior to looking. The mechanics of perception ensure that perceivers cannot look outward. Rays arrive from outside the eye, and are already at the perceiver, prior to the head turning to an object. The argument, then, is that the direction of emitted rays determine that visual perceivers look only as far as the limits of the content field. The physical eye cannot ‘look’ further than the retina. That argument applies to all perceivers: bird, human or fishy. If the above is sound, then, over time, explanations of the mechanics of nature, relative to perceivers, become simpler—not more complex. Is that how it should be?