TOWARD A DEFENSE OF DIRECT REALISM

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Direct realism long has been a whipping-boy for philosophers. No matter what one's theory of mind, it seems, when it comes to matters of perception one takes up the position that one first perceives or somehow apprehends sense data, or has sensory experience and knows it, and then combines the data (perhaps with data from memory thrown in, and/or perhaps in accordance with some rules had innately) to construct a perception, or makes an inference or guess about what "external" physical object or event caused the data or experience. Whatever version of this story one decides upon, one derives some comfort from the observation that at least he is not so ignorant as to be a direct realist. For direct realism, it is thought, cannot explain illusions and hallucinations, nor can it explain perceptual relativity. Moreover, it is charged that to be a direct realist one must be unaware of the many links in the causal chain between perceived "external" event (or object) and sensory excitation, and between sensory excitation and perception.

I do not know, nor do I now care to guess, whether some direct realist theory of perception will turn out to be the theory eventually accepted as true, though for my money the most interesting perceptual psychologist now active is J. J. Gibson.[1] I do believe, however, that the reasons commonly urged against direct realism are quite feeble, though of some use in guiding the formulation of a direct realist theory, and that for the sake of philosophical progress this feebleness should be pointed out. In what follows I attempt to do just that.

It will help to get clear at the start about the nature of the direct realist claim. Koffka's slogan[2] is usually attributed to direct realism: "Things look as they look because they are what they are." (Koffka himself rejected this slogan, for the usual reasons, in favor of a representative realist slogan.) This can be generalized to: One perceives as he does because things are as they are. I do not wish to claim that a direct realist must hold precisely to this formula. (Gibson,[3] for one, offers a different slogan.) Moreover, it does

not bring out the most important point of direct realism with enough explicitness: perception, for the direct realist, is a reaction to the way things are, and not some sort of construction or inference from data physically or mentally "in" the perceiver and not the object of perception--perception is, in an important sense immediate. But, bearing this in mind, the slogan will do for now.

Direct realism presuppose naive realism: Things that we perceive are for the most part as they are perceived to be. Also implicit in direct realism is the claim that the relationship between the perceived and the perceiver is a causal one: Usually, one perceives x as an A because of the way it is (i.e. it is an A), and y causes one to perceive it as a B rather than as an A because y is different from x in ways in which B's are different from A's. Direct realism denies that one perceives x as an A by any sort of inference from some other thing, as I said--not by an inference from a private experience or some sensation, for instance; or putting-together of some other things immediately known --e.g. sense and memory data, or atomistic sensations. There are processes and procedures involved, of course, but one does not make inferences, and one does not "add" anything to whatever is obtained from the object to be perceived.

I can afford to neglect the objection of those who, like Berkeley, deny that there are any physical objects (or events) as we think we believe them to be. Such objections presuppose some inferentialist, enrichment theory--Locke's associationism, for instance. Thus they cannot be used (as they stand) in support of such theories against direct realism.

Russell,[4] among others, took the following sort of line on physics: It is so reasonable to believe physics to be for the most part true that whenever its claims conflict with some unscientific view, we should suppose physics true and the opposing view false concerning whatever point is at issue. Now, physics describes physical objects (and events--really the same thing) differently than people ordinarily describe them and take them to be simply on the basis of perception. Physics takes a table to be atoms and mostly empty space, for instance, and makes no mention of color in describing how light energy is absorbed and emitted by electrons in the atoms of the table. According to perception we should say that the table is solid and (say) brown. Thus it is proper to take it that the table is not as it is perceived to be.

This objection can work, though, only if the two descriptions actually are in conflict. But instead, they are quite compatible. Physics describes on the atomic level what the ordinary perceiver describes on the middle-sized-object level. There is no more conflict between the physical claim that the table is mostly space and the perceptual claim that it is solid, than there is between the claim that the defensive linemen of a football team can run between them and the claim that one can throw paper airplanes between them. After all, physics itself has several levels of description: it also says that the table is just energy and empty space. This is not thought to be in conflict with the claim that the table is atoms and empty space, but on the contrary these descriptions can be used to explain the description given in terms of atoms and space. Similarly the description in terms of atoms and empty space can be used to explain the solidity of the table. (Russell himself offers a sketch of such an explanation.) Similarly for color: a physical explanation of how the electrons in the table's atoms absorb and emit light energy can be used in explaining the brownness of the table, and this is not the same as to deny that the table is brown.

What the objection does point out is that it cannot be the case that the world is (and things in it are) no more than it is (they are) perceived to be. But I do not think that an intelligent direct realist would insist that nothing ever goes unperceived anyway, and I do think it consistent with direct realism to allow that there are things of a sort that cannot be perceived. The direct realist claim has to be in terms of what does get perceived.

Those who believe in inference and enrichment seem to think that to maintain direct realism one has to be ignorant of neurophysiology. Hubel and Weisel,[5] have found evidence that neural cells are connected (synapse one onto another) in a complex hierarchy such that (at least in the case of vision) information obtained by sensory receptor cells is processed in an orderly, sequential fashion: One perceives an upright cube, say, by first apprehending corners and edges and their orientations, and then somehow piecing together what he apprehends into a cube (or representation of a cube). Hubel and Weisel do not themselves claim this much, but it is apparent at least that there are specific cells that do fire in certain ways precisely when there is the appropriate neural input to them, such input normally resulting from there in fact being a corner, edge, or whatever is appropriate in the appropriate position or orientation. Thus it is apparent that

there is some sort of constructive--i.e. enrichment--and inferential process involved in perception. Gregory[6] takes an inferentialist line in part because of such reasoning; apparently Harman[7] and Fodor[8] do too.

Nevertheless, a direct realist can accept the neurophysiological evidence concerning cell firing patterns (and other neurophysiological evidence) and still deny that any inference or enrichment takes place. He can do this by denying that there is any stage in the process at which any ingredient, any component of the perception is known or entertained by the perceiver. His defence can go like this:

A cell does not know or entertain the information it processes--i.e. the firings of cells synapsing onto it, to which it reacts. (This is not to deny that a cell may be one sort of thing that can know. But whatever knowing is, what a cell does here is not it.) The cell simply, automatically, reacts. Nor is there any reason to think that the perceiver can be said to know (with anything like sufficient specificity) what his cells are doing or dealing with, individually or as a working system. There is no reason to say that the perceiver knows or entertains thoughts concerning this cellular activity as part of perceiving or in coming to (putting together) a perception. The processes of perception may be systematic and sequential, but it does not follow from this that they are inferential.

Moreover, if at any level some data cannot be said to be known or entertained, then it cannot be said at that level that they are combined or that any other ingredients are added to them. All that can be said (at that level) is that the data, in the aggregate, have an effect. (And I would deny that this is the most insightful way of describing the matter.)

Let's return now to what happens "external" to the perceiver in bringing about a perception. I have pointed out the irrelevance of the observation that physics describes objects differently from the description they would get according to how they are perceived to be. But there is another objection: Some of the senses do not perceive by means of direct contact with the object to be perceived. One sees an object by means of the light it radiates or reflects, one hears it by means of the patterns of rarefaction and condensation it sets up in the atmosphere, one smells and tastes it by means of particles it gives off into the air or onto the tongue. Now as everybody knows, it is these intermediaries--sound and light waves and emanating odors--that directly stimulate perception, and not the objects setting them up or giving them off. These intermediaries, moreover,

can be brought about by objects and events other than those which typically bring them about. Yet when these intermediaries are brought about by such artificial means, it is the typical objects and events that are perceived, and not the artificial causes of the intermediaries. Thus, goes the objection, in any case what one does is to infer from the intermediary to its typical cause, and not perceive the cause directly.

In reply, I note that had the word "react" been used in place of "infer," the claim would be unobjectionable to a direct realist. And, no reason has been given to say that the process involved is an inferential one. The fact is that on presentation of an optical (or aural or olfactory) array typically caused by an A, one will perceive an A, even when he knows in advance and while perceiving that a B, not an A, is causing this perception of his. If this is simply a reaction to stimulation, as the direct realist is free to claim, then this is readily understandable. But if it is to be counted as an inference, then the inferentialist should be obliged to explain just how and why one can so knowingly make an inference to a false conclusion.

The objections from science disposed of, I now turn to those objections that can be put under the umbrella, "sense datum arguments." There are too many subtle variations among them for me even to name them all here (or anywhere). I proceed to discuss a few examples, as an example for handling them all.

There are arguments from the fact that there are illusions, hallucinations, and dreams. Moreover, it is pointed out that there is experimental evidence to encourage the belief that by a judicious application of electricity, acid, or pressure to receptor neurons, or even cortical cells, it is in principle possible to cause a patient to have any perception an experimenter wants him to have. It is charged that direct realism cannot explain how such nonveridical perceptions as these can occur.

But such objections are easy to answer.

Take first the case of ordinary, everyday mistaken identity: x is an A, but one perceives it as a B instead. This sort of thing does not usually happen--the direct realist is right about this--but let us suppose that this is one of those instances where it does. Well, according to direct realism, one perceives as one does because the perceived object is as it is. Say B's have certain features--they are oblong, blue, and flexible. B's have more features than these, but in the present situation a B can by means of these cause one to

perceive a B. But things other than B's can have these features. They just don't have all the features B's do. In particular, x has them. Then this x, a non-B, is perceived as a B and the perception involved is non-veridical, but one perceives a B (as he does) by virtue of the x being as it is (being oblong, blue, and flexible). Thus direct realism can account for this.

A case of an illusion that fools one is a case of mistaken identity, as just now discussed. But there are illusions that occur but do not fool one. I cannot handle this here, because it involves more than perception, and hence the answer to be offered depends on the particular (direct realistic) theory to be offered. The fact that there are such illusions has been cited as proof that sense data exist, and hence as evidence that sense data are used in an inferential process in perception. I shall have something to say about this as well as dreams and hallucinations after I answer the objection from perceptual relativity.

The objection from perceptual relativity comes in two parts, one of which I shall answer here; the other of which has to be answered in terms of a specific theory. The first part is this: Different perceivers viewing an object from different orientations (or hearing it under different atmospheric conditions, or feeling it on different sides, etc.) have different perceptions of it. The object cannot be said to be of different sorts--an envelope, to use G. E. Moore's example,[9] looks trapezoidal from one angle and rectangular from another, but can't be both rectangular and non-rectangular. Thus the different perceivers are apprehending different things somewhere along the line, and hence not apprehending the same thing--i.e. the envelope --at all stages of perception. (This is how Moore argued.)

Now, although there is evidence (Bower,[10] Yonas and Cleaves[11]) that this doesn't happen so much as has been thought, there are cases where such a thing does happen. So what? In the case of the envelope, where the discrepancies do manifest themselves, one perceives a square envelope because the envelope is as it is--for one thing, it is perpendicular to the viewer's line of sight. Another perceives a nonrectangular envelope because the envelope is as it is--for one thing, it is oblique to this other viewer's line of sight. The features of an object are not all physically confined to the object; a lot (probably most) of them involve relationships between the object and its surroundings.

The second part of the objection from perceptual relativity deals with the role of the state of the

perceiver in perception. There are popular myths--jaundiced people don't see everything as yellowish, for instance; but there are also legitimate cases. For instance: a stares for some time at a pattern of vertical lines, curved concavely to the right, while b stares at a pattern of vertical lines curved concavely to the left. Both a and b are then shown a pattern of vertical, straight lines. a perceives them as concave to the left, b as concave to the right. The inferentialist could say that this is because they apprehend different sense data (or make some such claim). How can the direct realist explain it?

The answer depends on the particular theory the direct realist maintains. I can say this, though: Direct realism maintains that perception involves a causal interaction between perceived and perceiver. To the extent that one member of the relationship differs, then, the causal relation must differ; this is as true when the perceiver is what differs as it is when it is the object that is different. For a given perceiver in one particular state, it may be (as direct realism claims) that differences between objects causing perceptions are what account for the differences in the resulting perceptions. This is not to say that some particular object may not, by means of its features, by means of one particular causal relationship with one perceiver (in one state), cause that perceiver to have a perception of an A; yet by means of another particular causal relationship with another perceiver (or the same perceiver in a different state) cause <u>that</u> perceiver to have a perception of a B.

In a similar spirit, I have something to say about illusions that do not fool one. One does not have just one perception at a time, nor is one's cognition ever confined solely to perception. Perceptions and other cognitions (rememberings, imaginings, etc.) fit together pretty well in some configurations, poorly or not at all in others.

There is another answer also permissible to the direct realist: He can argue that some illusion of an A does not fool one because it is not the case that the features of this illusion's cause cause one to perceive an A; instead, these features cause one to perceive an <u>illusion of</u> an A. (This is in the spirit of Austin.[12])

Well, what about the cause of reversible illusions? A Necker cube, for instance, is seen first as a cube oriented in one set of axes, then as a cube oriented in a different set: the two perceptions flip-flop from one to the other and back again.

First, note that the line of sight controls the apparent orientation to some degree: if one focuses on the upper-right part of the figure, there is one apparent orientation of the figure, and if one focuses on the lower left there is the other apparent orientation. This accounts for most of the reversal phenomenon. But some reversal occurs even when the eyes stay fixed (as well as eyes can) on one point. Next, remember the after-effect of looking at curved lines: straight lines then appear as though curved the opposite way. This may be because of fatigue of some cells in the neural network so that they do not fire as they normally would on exposure of a straight line, thus allowing other cells' firing--cells that normally dominate for certain curved lines--to dominate. Or it could be that the system automatically "corrects" itself to compensate for the experienced curvedness. (The curved lines do look less curved after a while, and the difference here equals the amount of curvedness attributed to the really straight lines--Gibson.[13]) Now, why cannot reversible illusions be explained in the same spirit? In the case of the Necker cube, one starts out seeing it as in one apparent orientation rather than the other. But the structure of the drawing is not strongly determinate for either orientation, and has some determination for each of the two orientations. It may be, then, that the influence of the drawing's determination for one orientation loses its effectiveness, either because of tired nerve cells or because of some systematic nervous adaptation, thus allowing the drawing's determination for the other orientation to dominate, as an aftereffect. Thus even the Necker cube's flip-flop may be explainable as a complex reaction rather than as a series of inferences. I do not mean to offer a direct realist theory of perception here. The important thing is that I have pointed out that there are, contrary to popular opinion, avenues of theorizing open to a direct realist in his attempt to deal with this class of phenomena.

I now wish to say this about dreams and hallucinations: One may, in dreaming, take it that he is perceiving (or take his dream "cognitions" as though they were perceptions). This is not to deny that dreaming is not perceiving. In dreaming, events other than objects of perception--to wit, neural events--causes to some extent the same neural events as do objects of perception when one does perceive. Of course this results in cognitions that are to some extent the same as perceptions. In hallucinating the same sort of mimicking occurs, only simultaneously with (genuine) perception. These facts do not entail that there is anything apprehended from which perceptions are inferred or constructed. It is quite consistent with direct realism that the structures and processes used in perceiving also come

into play in other cognitive processes with results that (given their genesis) are to the perceiver occasionally indistinguishable from the results of perception.

This should do to show how direct realism can handle arguments from illusion.

Unfortunately, there is another sort of argument in support of the claim that sense data or some other mediating entities play a role in (inferential) processes of perception: It is claimed that they can be and are perceived--or at least apprehended, known in some way. One knows and perceives them, it is claimed, at least as surely as (rather more surely than) one knows or perceives anything else. Now, if it's argued that this means that reasoning concerning anything other than one's own sense data should, to be most secure (or secure at all), be based on and done in terms of what one knows of his sense data, then the argument is irrelevant to direct realism, and would be even if sense data (or etc.) did exist and were known; for direct realism does not purport to explain the basis for proofs concerning the nature of what is perceived, but only to explain how one does in fact perceive. But a relevant argument can be given thus: We know sense data to exist, and know that they are like--we can describe them. They are known to occur whenever perception occurs. Thus it is reasonable to suppose that they play some role in perception. To reinforce the argument an inferentialist, enrichment theory of perception based on characterizations of sense data (or etc.) is then to be given.

Nevertheless, given the descriptions of sense data that are offered, I doubt that what (if anything) are apprehended are sense data.

It is true that, sometimes, in perceiving an unfamiliar or unexpected object, one first perceives it poorly, or as something more simply or uniformly constructed than it is in fact, or perceives some parts or aspects of it first, and then after these intermediate steps perceives the object as it is. A direct realist theory should be required to explain how this happens. But in any of <u>these</u> cases, one is perceiving something that is a publicly observable object, and not something to which only he, in principle, can have first-hand access. This is not the same thing as observing one's own sensations, images, or whatever.

The sense data it is claimed are apprehended and known are described as sensations, images, or little parts of images which one is to assemble (and which do not completely assemble themselves), and in principle the one who has them is the only one who can have direct access to them.

The direct realist can admit that there are such things as images and sensations, and even that one alone can directly apprehend any particular bunch of them. The direct realist has only to deny that such things play a role in perception--the role of sense data. He could say, for example, that sensations are perceptions of events in one's own body. It should not be surprising that sometimes one first perceives an event in one's own body, and then goes on to perceive an event causing it--say, one first feels a pinching pain in one's elbow and then because of this looks around to see someone else's hand pinching the elbow wherein the pain occurs. But it should be equally unsurprising that sometimes one perceives an event that has a causal influence on one and then perceives its effect, which is an event in one's body. That the two sorts of perception so often occur contiguously or overlappingly is not evidence that one is somehow an inference or construction from the other; and much less is it evidence for which is the basis or component and which the inferred or constructed result. It only illustrates the role of some perceptions in inducing one to focus one's attention in certain ways, resulting in other perceptions. The direct realist could say that an image is something like an hallucination: one uses physical structures that are used in perception to produce things that are like perceptions. Once one has a perception one can somehow apprehend it, and so it is not surprising that one can do the same with things that are like perceptions--that is, with images. When one imagines one usually is aware that he is inducing these perception-like things, and so is unlikely to mistake them for perceptions; this is why images fool people less than hallucinations and dreams do.

To sum up: A direct realist may have to supply a specific theory to explain these phenomena, but the sheer fact of the existence of these phenomena does not of itself force him to admit that there are sense data and thus give up direct realism.

I have discussed the common objections to direct realism and found them clearly wanting. They do not destroy direct realism. A useful side effect has manifested itself, though: the objections do force the direct realist to formualted his theory along certain paths, and do not allow him to rest with the mere, basic direct realist claim, but cause him rather to work out some specific, positive hypotheses.

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NOTES

[1]See especially J. J. Gibson, The Senses Considered as Perceptual Systems (Boston: Houghton Mifflin Co., 1966) and "New Reasons for Realism," in Synthese, 17 (1967), pp. 162-72.

[2]Kurt Koffka, Principles of Gestalt Psychology (New York: Harcourt, Brace and World, 1963).

[3]J. J. Gibson, "The Legacies of Koffka's Principles," in Journal of the History of the Behavioral Sciences, 7 (1971), pp. 3-9.

[4]Bertrand Russell, The Problems of Philosophy (Oxford: Oxford University Press, 1975), and Human Knowledge (New York: Simon and Schuster, 1948).

[5]For example, see D. H. Hubel and T. N. Weisel, "Receptive Fields, Binocular Interaction and Functional Architecture in the Cat's Visual Cortex," in Journal of Physiology 160 (1962), p. 106.

[6]R. L. Gregory, The Intelligent Eye (New York: McGraw-Hill, 1970).

[7]G. Harman, Thought (Princeton: Princeton University Press, 1973).

[8]J. A. Fodor, The Language of Thought (New York: T. A. Crowell, 1976).

[9]G. E. Moore, Some Main Problems in Philosophy (New York: Collier Books, 1962).

[10]T. G. R. Bower, "The Visual World of Infants," in Scientific American 215 (6) (1966), pp. 80-92.

[11]A. Yonas and W. Cleaves, "Pictorial Depth Sensitivity in Infants," abstract, 1976.

[12]J. L. Austin, Sense and Sensibilia (Oxford: Oxford University Press, 1962).

[13]J. J. Gibson, "Adaptation, Aftereffect, and Contrast in the Perception of Curved Lines," in Journal of Experimental Psychology 16 (1933), pp. 1-31.