ABSTRACT. Axiom 4 of the *Ethics* of Spinoza runs:

The knowledge (cognitio) of an effect depends upon and involves the knowledge of the cause.

Since this is in the ancestry of some of Spinoza's most important and characteristic claims, a clarification of its meaning would be highly desirable (in the literature it is left unhelpfully vague.) I argue that A4 is a causal likeness principle, according to which causal relationships always feature a property which in some sense is "passed" from the cause to the effect. This interpretation provides a key to understanding some darker passages.

Spinoza at least thinks that his doctrines follow from the axioms of the *Ethics*, so it would be desirable to be as straight about the latter as possible. I hope to do something here toward clarifying IA4,

which is supposed to be in the ancestry of some of Spinoza's most characteristic claims. In the literature of which I am aware, A4 is taken to be a vague claim that if you know something about effects then you've got to know something about their causes: this sort of interpretation makes it mysterious how Spinoza might even have thought he was getting from it what he says he does. It turns out that A4 is highly dubious, but it and the Spinozistic derivations employing it are reasonably intelligible.

One way of finding out what someone means is to look at what he thinks follows from it. Now by my count Spinoza appeals to IA4 in eight places in the *Ethics*. IP3Dem., IIP5Dem., IIP16Dem., and IIP45Dem. seem to fall in one group, which I will take up first. IP6Cor., VP22Dem., and IIP7Dem. constitute a different group and will be discussed separately. The basis for this division is that in the latter it is the "depends" half of A4 which is cited, whereas it is the "involves" part which is operative in the former.
IP6 is the familiar Spinozistic doctrine that one substance cannot be produced by another, because, we are told, two substances would have to have different attributes and thus would not have "something in common." Not having something in common, one cannot be the cause of the other, Spinoza concludes, appealing to P3. I take it what is at issue is non-relational properties; surely two substances could have the property of being-thought-of-by-me. If so, what we are being told is that if one thing causes another, they must share some nonrelational (and presumably, non-trivial) properties. The demonstration of P6, then, requires that P3 be a kind of causal likeness principle, albeit a weak one: causality implies at least one shared property. Now P3 is officially derived from A4 and A5, which is the only use of the latter in the Ethics:

Things which have nothing in common with one another also cannot be understood through one another, or the concept of the one does not involve the concept of the other.

This looks like an explanation of the "involves" of A4, rather than a substantive principle in its own right, as the brevity of its appearance and its failure to appear in other derivations suggests. (I shall have more to say about this below.) If so, the concept of the cause "involving" the concept of the effect is a matter of cause and effect sharing properties in such a way that one can be "understood" through the other.

But in what way? Just what is A4 telling us from which a causal likeness principle is supposed to follow? And why all this talk about understanding one thing through another? My suggestion is that Spinoza holds what might be called a Transmission Theory of Causality. According to a Transmission Theory, for a to make b become F, a must already be F, in some sense. That is, causality is a "passing along" of some property from the cause to the effect. Some instances of causality do look like this, at least superficially. To move an ordinary billiard ball in ordinary circumstances one must transfer motion from something that is already in motion, such as a billiard cue or another billiard ball. To heat water in everyday circumstances we must transfer heat to it from something which is already hot. There are counterexamples, of course, such as moving metal balls with magnets or generating heat by mixing plaster of paris. But the counterexamples are unobtrusive enough to be overlooked, especially if one has powerful theoretical considerations pushing one towards such a theory. Recent authors have attributed Transmission Theories to both Descartes and Aquinas, though I shall not speculate here about influences. A Transmission Theory is not quite the same as a causal likeness principle, though authors have often used the latter name for both. If a Transmission Theory is true, then causes and effects must at least resemble one another enough to be capable of having the same kinds of properties; in Spinozistic language, they must fall under the same attribute. But a causal likeness principle would not necessarily mean that causality was transmission.

Spinoza's most unambiguous statement of a Transmission Theory occurs in his book on Descartes's Principles of Philosophy, where he is explaining Descartes's version of it.
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Whatever reality or perfection there is in a thing exists either formally or eminently in its first and adequate cause. This axiom depends on the preceding one, for on the supposition that there is nothing in the cause or less in the cause than in the effect, nothing in the cause would be the cause of the effect. But this is absurd (by preceding axiom); consequently, the cause of an effect cannot be anything one pleases, but precisely that which contains eminently, or at least formally, the entire perfection which exists in the effect.  

The "preceding axiom" says that things and their perfections cannot have "nothing" or a "nonexistent thing" as cause of their existence. It is tempting to think this is just a case of something looking self-evident at one time which looks obviously false or unintelligible at another, but I believe that would be a mistake. What we have in Spinoza's case is a man with a deep commitment to the idea that absolutely everything can be explained—that there are no "brute facts" about the universe. If you think this, and you also think that causal explanations must be in terms of one particular causing a change in another, you will be under pressure to say that a feature of an effect must be explained by some corresponding feature of the cause. Otherwise there will be no explanation of there being the feature: that is, it will spring "from nothing." Worse, you have the problem of why that feature rather than some other, so to make this intelligible you will be under pressure to picture all cases of causality as a "passing along" of a property from cause to effect. I take it the idea that the caused property might be "eminently" rather than "formally" contained in the cause is a bow to the fact that so many examples of causality don't fit the pattern. Rather than saying that a feature in the effect must also be in the cause it is supposed to be enough that the feature has some representative or stand-in.  

It is notorious that in this early work Spinoza is not always giving his own views, but there is something similar in the correspondence. In a 1661 letter Oldenburg comments on an early version of the first part of the Ethics:  

... the fourth axiom, namely, things which have nothing in common cannot be one the cause of the other is not so obvious to my dull intelligence as to need no further light for its illumination. For God has nothing essentially in common with created things, yet He is held by almost all of us to be their cause.  

Spinoza's answer:  

Fourthly ... it follows that things which have nothing in common between them cannot be one the cause of the other. For when the effect has nothing in common with its cause, then whatsoever it might have, it would have from nothing. As to your contention that God has nothing essentially in common with created things, etc., I stated the exact opposite in my definition.
It looks as though a Transmission Theory—or at the very least a causal likeness principle—is being discussed in connection with the Ethics or a prototype thereof, and the principle is being identified as the "fourth axiom" and apparently confirmed as such by Spinoza himself. Of course, this does not mean that the Ethics as we have it contains such a theory, much less that our IA4 is the same as the one Oldenburg cites; in fact, the quote makes it clear they could not have been exactly the same. But it certainly should alert one to possibilities. My guess is that A4 is saying that the caused feature in the effect is "involved in"—that is, had—by the cause. If so, then A4—and A5—are much less epistemological than they sound. But perhaps that is all right, since Spinoza frequently seems more epistemically concerned than he really is, as when he speaks interchangeably of "ideas" and "knowledge". (It is noteworthy he speaks of "ideas or Knowledge" in the statement of A4 in a 1675 letter to Schuller.) I have not forgotten that Spinoza does not just say that knowledge of the effect involves the knowledge of the cause; he also says that one depends on the other. The addition is important, and I shall try to show later that A4 is a conjunction of two claims.

Why does Spinoza appeal to A5 in the derivation of P3? If I'm right, A4 tells us that cause and effect will in some sense share the caused property. A5 is saying that things with no common properties are incapable of acquiring shared properties. Conclusion: no trans-attribute causality. That there is no trans-attribute causality is also the gist of IIP6Dem., IIP5Dem. and IIP45Dem., which I invite the reader to compare with IP3Dem.; nothing different in principle seems to occur. Yet all these cite IA4, and none mentions IA5. I think this confirms the suspicion that A5 is intended largely as an explanation of A4; it is the latter which is supposed to power the machinery.

Admittedly something weaker than a Transmission Theory would do for the inference of P3 and the cousins mentioned above. All that is required is that there be some conceptual overlap between cause and effect, not that they share the caused property. (And it might be that this is all Oldenburg and Spinoza are talking about.) But understanding A4 in terms of transmission has the advantage of explaining why Spinoza thinks there must be overlap. It also explains some passages which are otherwise difficult to fathom.

IIP16Dem. runs:

... all the modes in which a body is affected follow from the nature of the affected body, and at the same time from the nature of the affecting body (by A1). So the idea of them (by IA4) will necessarily involve the nature of each body. And so the idea of each mode in which the human body is affected by an external body involves the nature of the human body and of the external body.

In the second corollary to this proposition Spinoza concludes that

... the ideas which we have of external bodies indicate the condition of our own body more than the nature of the external bodies.
Before trying to interpret this, it is helpful to see what Spinoza does with it. Citings of P16 or the Corollaries appear in the demonstrations of Propositions 25-28, and these in turn are among the ancestors of P29. This whole sequence seems to reach a climax in P29Cor.:

... so long as the human mind perceives things from the common order of nature, it does not have an adequate, but only a confused and mutilated knowledge of itself, of its body, and of external bodies.

One way of explaining all this would be to say that Spinoza is singing a very old song indeed. Perception is liable to error since it is causally dependent on bodily states which may be abnormal, and the strong language is meant to deprecate this kind of knowledge in comparison with the error-free a priori kind. Perhaps there's also the idea that this kind of knowledge is essentially incomplete since we can never know the whole causal story of what's determining our present perceptual states. On this view A4 has little to do with P16, whether interpreted along my lines or not.

This story does not seem to me to account adequately for Spinoza's strong language. After all, the mere fact that perception is causally dependent on the body tells us nothing about its reliability or content. The kinds of considerations cited above might give one a ground for downgrading perceptual knowledge so far as certainty is concerned, but Spinoza's complaints seem to be more far-reaching than that. Just because television reception is dependent on picture tubes we cannot conclude TV images are unreliable, or "involve" the nature of the picture tube as much as that of the object televised, whatever that would mean. Now suppose that Spinoza really is thinking of causality as transmission. Then when two objects cause a change in a third the last will be characterized by some sort of "blend" of the features being transmitted from the causes. Spinoza could be taken to mean that in perception "ideas" will combine features which occur separately in nature, blending properties of external objects with features of my own body. (Of course on Spinoza's Parallelism the ideas will not be caused by my body and the external object, but the ideata of those ideas will, and the ideas will mirror them.) With one special exception to be noted below, perception would then normally be like the case where I confuse my own high fever with the temperature of a room. Or it would be like a camera which could not take pictures without showing things as possessing some of the features of the camera. It may be this is what Spinoza means by "confused and mutilated" ideas. They blend (confuse) characteristics cut from different sources ("mutilation"). This really would mean that normally there would be something wrong with perception, not just that we couldn't tell when there was.

Now, there are two sections in the Ethics which make sense under this interpretation, and so far as I know, no one has a rival. IIP38 is the claim that that which is "common" to all physical objects and their parts can only be perceived adequately. The demonstration runs in part:
Let A be something which is common. . . . I say that A can only be conceived adequately. For its idea . . . will necessarily be adequate in God, insofar as he has the ideas of its affection, which . . . involve in part both the nature of the human body and that of external bodies. . . . The Mind therefore . . . necessarily perceives A adequately, and does so both insofar as it perceives itself and insofar as it perceives its own or any external body.

The most striking things about this passage is the conflation of perception and conception. But it was typical of pre-Kantian modern philosophy to treat the sensory and the intellectual as being on the same continuum, rather than as differing in kind. It is likely that in this passage Spinoza is caught in the same muddle and supposing that without further ado you can say the same sorts of things about the one as you do about the other. (Of course, Spinoza officially distinguishes the two in II Def. 3. But as in this case he thereafter runs them together again.)

Above I made a suggestion about what "confused and mutilated" means, and with that would go an account of what inadequate ideas are. Adequate ideas are a difficult subject in their own right, but perhaps we already have enough to see our way through the proposition and its demonstration. I think what he is saying is something like this:

A can only be conceived adequately, for its idea won't be a blend of properties which don't go together in nature. (Since we have supposed everything has A.) Whether we consider our body or external bodies neither can be misrepresented by the other as having A, since everything's got A. Thus a certain kind of illusion is ruled out. And that's why we can only perceive A adequately.

Properties which all bodies have in common could hardly be miscombined in the way envisioned above; if everything has them, ideas cannot misrepresent objects as having them, no matter what their ancestry.

II P 39 Dem. and Corollary seem to require a similar treatment. P 39 Cor. also has P 16 ancestry and is the dubious thesis that:

. . . the Mind is the more capable of perceiving many things adequately as its body has many things in common with other bodies.

Notice that the ideas of things "common" will be "caused from without" just as much as inadequate ideas will, and in the cases now relevant these need not even be common to all bodies.

Let it be posited now that the human body is affected by an external body through what it has in common with it, i.e., A; the idea of this affection will involve property A (by P 16) and so (by P 7 C) the idea of this affection, insofar as it involves property A, will be adequate in God insofar as he
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is affected with the idea of the human body, i.e., (by P13) insofar as he constitutes the nature of the human mind.

As in the demonstration of P38 we have the claim that the commonality of properties possessed by the external object and the human body guarantees the adequacy of the corresponding ideas. This invites the question: what would be the difference if A were not common? Just what does the commonality of A rule out? Certainly not the causal dependence of perception on the body. On the other hand, commonality would mean a kind of distortion would be absent, which on my story Spinoza would think present in ordinary perception.

I must admit that I am hard put for examples, but then any interpretation of these passages is going to face that problem. Perhaps the following from I appendix is relevant:

... if the motion the nerves receive from objects presented through the eyes is conducive to health, the objects by which it is caused are called beautiful; those which cause a contrary motion are called ugly. Those which move the sense through the nose they call pleasant-smelling or stinking; through the tongue, sweet or bitter, tasty or tasteless; through touch, hard or soft, rough or smooth, etc.; and finally those which move the ears are said to produce noise, sound, or harmony.

This list is certainly heterogenous. It was standard seventeenth century fare to treat taste, odor, and sound as secondary properties, and a little before this passage Spinoza mentions warmth and cold. It is surprising color is not mentioned; it’s probably an oversight. The references to all these are slighting. Though he doesn’t explicitly say so, Spinoza seems to think an objective, basic scientific account of the world would mention none of the items on the list above; it’s shortly after this we are told the notions of ordinary people indicate only the "constitution of the imagination" and not "the nature of anything." Now my account of Spinoza’s intentions can hardly run: human bodies do stink but nothing else does, and one of the confusions of perception is that due to A4 we sense other things as having a property they don’t really have. That is really hopeless. Perhaps the story is this: the quality of stinking corresponds to a "motion" in our bodies, rather than in the external object. But since ideata of my idea of the external object is caused by "motions" in my body as well as in the external world, my idea of the object presents it as having a feature it does not really have.

If I’m on the right track, Spinoza’s position is an interesting contrast to that of say, Locke. Locke also claims that some of the most distinctive features of perceptual experience are not instantiated in physical objects, and like Spinoza thinks there are counterparts of the secondary properties. But for Locke these are arrangements of particles on the surfaces of the physical objects themselves, which is perhaps why there is such a different flavor to what is otherwise a very similar position. By contrast, for Spinoza the counterparts of the same features are characteristics of our bodies. If so, it is small wonder Spinoza gives
sense perception much lower marks than does Locke, at least in the case of those things which are not "common."

There is at least one other passage in the *Ethics* which seems to point in the right direction even though it is not directly related to adequate or inadequate ideas. IIP27 is the "imitation" doctrine which is important in the development of Spinoza's egoism and political theory; the demonstration runs in part:

... if the nature of the external body is like the nature of our Body, then the idea of the external body we imagine will involve an affection of our Body like the affection of the external body. Consequently, if we imagine someone like us to be affected with some affect, this imagination will express an affection of our body like this affect. And so, from the fact that we imagine a thing like us to be affected with an affect, we are affected with a like affect.

I take it to be clear this is an account of perception rather than of imagination in the ordinary sense. So understood the sense seems to be that when F is a property which I am capable of acquiring, perceiving someone who is F will make me F. Presumably the qualification is supposed to handle counterexamples such as the male who sees a pregnant woman without becoming pregnant. Now, the basis for this reasoning is supposed to be IIP16. It should be clear that on anybody's interpretation of Spinoza this move should be invalid. Putting things as neutrally as possible, P16 says that perception will be influenced by the "nature" of the human body as well as by the "nature" of the object perceived; the above is saying that if something is part of the nature of an external object we are perceiving that feature will tend to pop up in us. Leaving aside any other problems about this, what he's got in P16 is

If it's influenced us, then it's from both

whereas what he uses is something like

If it's from either, then it influences us.

That is, it looks as though he's muddled on which way a conditional runs. So any rescue can only be partial. But the derivation is intelligible if IA4 and P16 are to be understood in terms of the Transmission Theory. If you muddle which way that runs, you get that if it's got it then it passes it along. And that's exactly what he needs to get what he thinks he can.

I shall now turn to the "depends" part of A4 and the second group of descendants. Let us first look at IIP7:

The order and connection of ideas is the same as the order and connection of things. Dem.: This is clear from IA4. For the idea of each thing caused depends on the knowledge of the cause of which it is the effect.
Down to this point I have felt no need to bring in spinozistic "ideas", simply because nothing about them seemed to be operating in the passages I was trying to explain. One could "read through" ideas to things without going far wrong. Here that is not possible. It is fairly clear that Spinoza is assuming the existence of his thought-realm counterparts of things, and A4 is being read as:

the idea of each thing caused depends on the idea of the cause of which the thing is the effect.

Presumably the "depends" is causal, so what A4 is saying is that "ideas" of effects, whatever they are, are caused by ideas of causes, just as the effects are caused by the causes. If you add that to determinism and the thesis that for everything there is a thought realm counterpart you get IIP7.

Now I think there is a connection between the Transmission Theory and the idea-dependence claim. If the former is true, then we can always infer the existence of F-ish type causes from the existence of F-ish type effects. And I take it that's another way of saying the idea of the cause can be inferred from the idea of the effect. If you then conflate inferrability and causal dependence, isn't the result the "depends" reading of A4? I am suggesting, then, that A4 is a Transmission Principle-caused properties are transmitted from causes which have the same properties-together with the supposed consequence about the causal/logical relations between the thought-realm counterparts of the cause and effect. A4 would thus be telling us that causal connections are logical connections also. (This is a standard claim about Spinoza, of course, but I hope to have elucidated just what it means, and especially how Spinoza might have thought it was true.)

On anybody's interpretation the "causal, so logical" move is going to be important in the "depends" group. An especially well-known and interesting use is in IP6Cor.:

... if a substance could be produced by something else, the knowledge of it would have to depend on the knowledge of its cause (by A4). And so (by D3) it would not be substance.

I shall not consider here just why Spinoza thinks the concept of substance must be independent of anything else. But he does, and this is taken to mean substance must be causally independent also. I see the Transmission Theory as the bridge between causal and logical connection here and in the other members of the "depends" group. What I would appreciate from critics is any other interpretation which would explain as much about the Ethics as the Transmission Theory does.
ENDNOTES

1 This paper was written under a National Endowment for the Humanities Summer Seminar for College Teachers grant. Quotations from the *Ethics* are from *Collected Works*; translation by E.M. Curley, forthcoming from Princeton University Press.


6 Wolf, 83.

7 Wolf, 341.