Some Problems for "Alternative Individualism"*

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This paper points to some problems for the position that D.M. Walsh calls "alternative individualism," and argues that in defending this view Walsh has omitted an important part of what separates individualists and externalists in psychology. Walsh's example of *Hox* gene complexes is discussed in detail to show why some sort of externalism about scientific taxonomy more generally is a more plausible view than any extant version of individualism.

In "Alternative Individualism," D.M. Walsh (1999) argues not only for an alternative version of individualism in psychology but for the compatibility of this form of individualism with externalism in the philosophy of mind (see also Walsh 1998). Such a position faces challenges both from proponents of standard versions of individualism and from those who think that there is an important and somewhat large gap separating individualists and externalists about the mind and its study. Here I shall attempt to spell out what this division is, the ways in which Walsh's characterization of these two views misses an important dimension of the debate between them, and why his alternative individualism is problematic however it is characterized vis-á-vis the debate between individualists and externalists. Let me begin with the last of these points.

Walsh's paper is largely an attempt to show how to preserve the idea, initially articulated by Jerry Fodor (1987, ch.2), that psychological taxonomy should be by causal powers, and thus individualistic, because scientific taxonomy more generally is. Walsh does this by modifying and formalizing Fodor's criterion for the identity of causal powers (ICP), mak-

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ing that identity relative to a context. Fodor says that "identity of causal powers is identity of causal consequences across nomologically possible contexts." (1987, 44) Walsh's modified identity schema for causal powers is given by ICP′:

> ICP′: For all (nomically possible) contexts *C* [in which two individuals, *x* and *y* exist], *x* and *y* have the same causal powers *with respect to C* just in case *x* and *y* are in *C* and *x* brings about effect *e* if and only if *y* brings about *e*. (1999, 636; emphasis in original)

This schema tells us when two individuals have precisely the same causal powers. The point of this schema is to allow for a conception of causal powers that is *sensitive* to the context in which the individuals that have them exist. In particular, by requiring that individuals exist in the same context if they are to have identical causal powers, ICP′ is able to ensure that individuals with the same causal powers have the same properties, even if some of those properties are relational.

This requirement of coexistence in a context itself is at the heart of a problem intrinsic to the proposal; it entails that two individuals in different contexts do not have the same causal powers with respect to either context they are in. That's definitional and not problematic itself. However, either ICP′ provides a criterion for the identity of causal powers per se or it does not. The former of these alternatives implies that ICP′ should simply be substituted for the orthodox individualist's ICP, and where orthodox individualist's would write "causal powers," one should simply write "causal powers with respect to C," which I shall abbreviate as "*causal powers**." The latter of these alternatives implies that the notion that ICP′ characterizes, causal powers*, is to be incorporated into existing individualistic views, thus supplementing rather than replacing the notion of causal powers. Let us take each alternative in turn.

If ICP′ does provide a criterion for the identity of causal powers per se, then this implies that two individuals in different contexts, or even one individual in two different contexts over time, cannot have the same causal powers. This is extremely counter-intuitive, particularly given the idea that causal powers, being intrinsic to individuals, are what cause and thus explain an individual's behavior across *different* contexts, an idea that clearly motivates Fodor's original argument from causal powers. This problem is especially acute for Walsh, who conceives of a context as "a set of properties of an individual's environment." (633) Taking this set to be the complete set of such properties would make contexts so fine-grained that no two individuals, or no individual at two times, would share a context, Thus, contexts must be some subset of the properties of an individual's environment. But then it seems that we could choose various subsets of such properties and thus give different answers to the question of whether,

in a given situation, two individuals are in the same context, and thus whether they have the same causal powers; whether individuals share a context, and thus whether they have the same causal powers, becomes arbitrary.

If, on the other hand, ICP′ does not provide a criterion for the identity of causal powers per se, then we need to know more about the relationship between this special notion, causal powers* and causal powers. Importantly, we need to know that the criterion for individuating causal powers* preserves the intuitions that motivate those who claim that science, and thus psychology, individuates "by causal powers," even if causal powers* are not causal powers. One important difference between the two, hinted at above, concerns whether causal powers* are intrinsic to individuals. Walsh (e.g., 1999, 643) seems to think that they are, but since the standard ways of conceiving of intrinsic properties are cast in terms of the property's independence of either the particular context the individual is in (a property of an individual that it would have in other contexts) or, indeed, of all contexts (a property an individual would have whatever its context, or if it were the only thing that existed), this seems mistaken, unless there is some other understanding of what an intrinsic property is.

The substantive problem that Walsh's view faces here is that many *relational* properties would seem to be causal powers*; an individual's causal powers* are fixed by that individual's intrinsic properties, together with the context that individual is in, and this subsumes that individual's relational properties. Thus, since it is a property that has a causal effect, in certain contexts, on (amongst other things) the taxes one pays, the sexual behaviors one engages in, or the citizenship one has or can have, *being married* is a causal power*, given the particular context specified by the institution of marriage and one's causal connection to that context. (True, it has such effects via legal and social norms, and only in conjunction with a range of other properties, but it is no less a causal power* for that.) The same is true of the range of examples of relationally individuated taxonomies in science—e.g., species, continents, viral diseases—that have been discussed in relation to Fodor's original argument (e.g., Burge 1986, Wilson 1995, ch.2). One paradoxical implication of this is that relational properties will be intrinsic properties if causal powers* are. If such causal powers* are not intrinsic properties, however, then alternative individualism involves giving up the intuition that the properties that are individuative in science (and thus in psychology) supervene on the intrinsic, physical properties of individuals.

Walsh himself (638–39) suggests that while alternative individualism does give up strong local supervenience, it goes hand-in-hand with what he calls *context-sensitive strong local supervenience*, the claim that for all contexts, necessarily an object's having a given context-sensitive, intrinsic

property in a context fixes the psychological properties it has in that context; in symbols, where "γ" denotes a context, "Φ" an intrinsic, qualitative property, and "φ" the psychological kinds that an individual, x, instantiates:

$$\forall\gamma\ \forall x(\Phi\, x, \gamma \supset \varphi\, x, \gamma),$$

Walsh's claim here generalizes beyond psychology to scientific taxonomy in general. The problem with this supervenience thesis, as with that of the orthodox individualist (which simply drops the contextual relativization) is that there is a wide range of examples for which it simply does not hold. Two organisms that were intrinsically identical in the very same context could belong to different species because of ancestral, phylogenetic differences between them; two viral infections in a person (and thus, I assume, in one context) that give rise to identical symptoms and are treated by the same regimen can be of different types because they are caused by different viral agents. In both cases, the identity of consequences in a given context (or even of intrinsic, qualitative properties) does not determine sameness of scientific kind because the corresponding kinds are individuated, in part, by causal antecedents, not causal consequences.

I have argued previously (Wilson 1992; 1995, ch.2) that Fodor's argument from causal powers equivocates on "causal powers," invoking a wider notion in one premise (individuation in science is by causal powers) and a narrower notion in another (causal powers supervene on an individual's intrinsic properties). Having diagnosed this equivocation both in Fodor's (1987; 1991) work and in that of other proponents of the basic idea of the argument (e.g. McGinn 1991, Owens 1993), I have also expressed skepticism about whether any variant on this argument escapes this problem. (Wilson 1995, ch.5) Alternative individualism is an attempt to salvage both of these premises, but it too involves much the same equivocation, this time on *causal powers**. The fundamental problem in all of these cases is brought out once one asks whether relational properties are, or are fixed by, "causal powers:" they must be if the premise about scientific individuation is to be true, but they can't be if the premise about supervenience is to be true. I have suggested above that Walsh is committed to causal powers* subsuming relational properties—that is what allows alternative individualism to be seemingly compatible with externalism about the mind—but this is precisely what calls into question whether causal powers* are a subset of (or supervene on) an individual's intrinsic properties.

Let me turn now to what I think that Walsh has missed in his characterization of the debate between individualists and externalists in general, and their disagreements over the argument from causal powers in particular. Individualism, especially as it has been articulated by those proposing

or defending this particular argument, is touted as a *global* thesis about individuation in psychology that follows from an even more general thesis about individuation in science. Externalism, especially as defended by those attacking the argument from causal powers, is accompanied by a more pluralistic view of psychological taxonomy, one that can allow some place for the causal powers of individuals but which also sees scientific (and so psychological) taxonomy in many cases as being determined by an entity's relational and even historical properties (cf. also Boyd 1999, Wilson 1999). These individuative theses carry with them normative visions about what good and bad scientific taxonomy, and thus explanation, is like in particular sciences. In psychology, individualism implies that folk psychology, together with the vast tracts of psychology proper that incorporate or develop folk psychology—including much of social psychology, cognitive developmental psychology, and work on decision-making—involves a problematic taxonomy of mental states; it also implies that the way to repair such problematic taxonomies is to modify them so as to reconcile them with individualism (hence the *narrow content program*). Externalists are likely to view scientific taxonomies and scientific explanation as being sensitive to a range of factors, and to be skeptical about the prospects for any recipe-like prescription regarding "proper" scientific taxonomy of the sort that individualists propose.

Given that individualism in psychology cannot simply be read off from psychological practice, the argument from causal powers was an attempt to ground individualism, as a normative thesis about psychology, in principles governing scientific taxonomy more generally; science individuates "by causal powers." The problem has been that the more other sciences have been examined, the more the "pluralistic" picture of taxonomy has been supported, thus making what I have elsewhere (Wilson 1992; 1995, ch.2) called *global individualism* about scientific taxonomy an implausible position to maintain.

We might express this difference between individualists and externalists in terms of whether an entity's intrinsic, physical properties play a special role in scientific taxonomies per se: individualists claim that they do, while externalists deny this. These views about scientific taxonomies are typically accompanied by corresponding views of the significance of intrinsic properties for metaphysics (particularly causation); individualists hold, while externalists deny, that an entity's intrinsic properties, as opposed to the relations that that entity enters into, play a distinctive role in the causal trajectory of that entity, and thus occupy a special place in scientific taxonomy.

While Walsh's succinct expression of individualism (629–33) nicely captures a core part of the metaphysical picture that guides individualism, it neglects the broader conceptions of scientific individuation that separate

externalists from individualists, and thus a large piece of the motivation for at least the species of externalism that I have outlined in the previous paragraphs. This leads him, I think, both to view the difference between individualism and externalism about the mind and psychology as either minimal enough to be bridged, or as misconceived, and to misjudge whether particular sciences, such as developmental genetics, which he discusses (640–643), have "earned [their] individualist stripes." (640) I want to complete this discussion by considering this example in some detail, for I believe that doing so will not only substantiate the criticisms of Walsh's position made thus far, but also shed light on this more general debate over scientific taxonomy.

Walsh focuses on the individuation of homeobox (or *Hox*) genes in developmental genetics. These are high-level regulatory genes that control the development of broad features of the body plan of eukaryotes, and that seem to have been highly conserved over evolutionary time, as evidenced by their apparently homologous forms across widely divergent species and taxa. *Hox* genes are responsible, in particular, for regulating the formation of the anterior-posterior axis in both *Drosophila* and in mice, with structurally similar genes in both of these taxa sharing also the order in which they occur on the chromosome and their expression patterns. Since Walsh assumes from the outset that the individualist credentials of developmental genetics are not in question, he shapes his discussion of this example around whether the pattern of individuation one finds of homeobox genes is better described by orthodox or alternative individualism, arguing that it is the latter because genes that are very similar in base-pair structure, such as *Hox-1.6* (in mice) and *lab* (in *Drosophila*), are nevertheless distinguished as different genes because they occur in different contexts. Thus it is not sameness of causal powers (intrinsic properties) per se that determines genetic taxonomy, but sameness of causal powers*.

What is interesting about the case of homeobox genes is that despite the historical traditions within the field of developmental genetics that have created an individualistic edge to its taxonomic orientation—from "one gene, one protein" to the contemporary identification of genes with sequences of base pairs—actual individuative practice defies both orthodox and alternative individualism; it does so precisely because causal powers do not have the global, determinative role that global individualists ascribe to them in science. We can see this more clearly by considering the broader purview of homeobox gene taxonomy, which I shall argue exemplifies precisely the sort of pluralistic view of scientific taxonomy that externalists attacking the argument from causal powers have sought to defend.

First, I begin with some more information about homeobox genes and their labeling. (I rely here chiefly on Gilbert 1997, especially chapter 16.)

The earliest work on homeotic gene complexes was on *Drosophila*, where researchers identified the HOM-C gene complex on chromosome 3, containing at least eight identifiable genes; in their 3′ to 5′ order, these are *lab*, *pb*, *Dfd*, *Scr*, *Antp*, *Ubx*, *abdA*, and *AbdB*, with their expression pattern along the anterior-posterior axis of the developing fly embryo matching this physical ordering. These genes are classed *as HOM-C genes* because they are located on the same chromosome and function as a unit to specify the broad features of the anterior-posterior axis. In mammals, there are four copies of genes homologous to those within the HOM-C complex; in mice these are labeled "*Hox*" genes (in humans they are labeled "HOX" genes), with "a"—"d" distinguishing the four copies from one another. In mammals, the anterior-posterior order of distinct genes is reflected in numbered postcripts, from 1–13, but not all copies have exactly the same genes. *HoxC*, for example, is missing c1, c2, and c7; *HoxD* is missing d-2, d-5, d-6, and d-7. Moreover, since there are eight HOM-C genes, but thirteen distinct *Hox* genes, there are *Hox* genes, such as *Hox3*, that do not have a homologue in *Drosophila*. Genes with the same number across the four copies are called *paralogous* genes. Thus, "*Hoxa-4*" refers to the fourth gene on the *a* copy of the mouse homologue, and it, along with *Hoxb-4*, *Hoxc-4*, and *Hoxd-4*, is a homologue to *Dfd* in *Drosophila*; the three copies of *Hox*-1 (given the absence of *Hoxc-1*) are homologous to *lab*.

Walsh uses the (likely) fact that homologous genes (such as *Hox-1* and *lab*) are classed as distinct genes, despite the similarity in their causal powers, to argue for alternative individualism over orthodox individualism; for Walsh, vertebrates constitute one context, and arthropods another, and thus the taxonomy of these genes is by causal powers*, not causal powers. However, there are two problems here. First, Walsh construes the differential taxonomy of (say) *Hox-1* and *lab* as supporting the idea that taxonomy is by causal powers *within a context*. Since "within a context" here simply means "within an organism type" (or perhaps "within a taxon"), this is why this aspect of homeobox gene taxonomy is compatible with versions of externalism that emphasize the importance of an entity's relational properties for its taxonomy. In fact, since all other aspects of the genes' contexts are irrelevant to their differential taxonomy (as *Hox-1* or as *lab* genes), it is not the gene's context per se that, in part, determines its taxonomy, but just the relational property of being located within a given organism type.

The second problem arises in considering not why *Hox-1* and *lab* are different genes but why they are (apparently) homologous. Since the two occur "in different contexts," alternative individualism is in no position to explain why they are regarded, respectively, as the *Drosophila* and mouse version of *the same gene*, i.e., as homologues. Here orthodox in-

dividualism, in looking to causal powers across contexts, is in a better position, but still it has a problem in accounting for homology. While *Hox-1* and *lab* share a range of base-pairs, they are not strictly identical in structure; while they have similar functions, these are not strictly identical either; and while they occur in sequences of genes that are uncannily similar, these sequences are not strictly identical. Externalists, by contrast, can appeal to a *cluster* of intrinsic and relational features of the two, including the proteins they produce, their base-pair structures, their relative location on their chromosomes, their place in the corresponding gene complexes, and their phenotypic functions, in explaining why, in a certain sense, these genes are the same genes. The weakness of orthodox individualism is that it must ignore the subset of these properties that are relational (and thus not "causal powers"); the weakness of alternative individualism is that it has nothing to say about homologues across taxa.

Alternative individualism has related problems in providing an account of what makes each of the (up to) four copies of a given *Hox* gene a *paralogue* of the other two or three within a given organism type. To parallel the response to the case of trans-taxa homology, the proponent of alternative individualism should claim that despite the similarity in their causal powers, these genes (say, *Hox-4* genes) are not the same because each occurs "in a different context." Here this means not "in a different organism type," as we saw was the case for the homologous genes *Hox-4* and *Dfd*, but "on a different chromosome." (If this is correct, then it adds further support to my claim that Walsh's appeal to context is really an appeal to particular relational properties.) But what makes all four *Hox-4* genes paralogues? Here again the orthodox individualist is at least in a position to point to the similarities in their causal powers, but the externalist is in a *better* position in being able to point to these *and* the range of relational properties that they share.

The example of homeobox genes serves, I think, to highlight both what is wrong with orthodox individualism and also (and subsequently) the weakness of alternative individualism, as a modification of that view. As we have seen, the complexity of the taxonomic schemes in use in developmental genetics allows for judgments not only of whether two given genes are the same or different, but whether they are homologous or paralogous as well. To account for this full range of judgments one needs to appeal to more than the causal powers a given stretch of DNA has, as does orthodox individualism, and more than its causal powers "in a context," as alternative individualism does. What both versions of individualism share is the idea that causal powers have some privileged role in scientific taxonomy, summarized in the orthodox individualist slogan "same causal powers, same kinds," which is weakened by the alternative individualist to "same causal powers within a context, same kinds." The

problem is not simply that entities rarely, if ever, have the same causal powers, but that what makes for a common taxonomy is a cluster of similar causal powers *together with a variety of relational properties.*

The appeal to an entity's relational properties in taxonomizing it is widespread in the biological sciences, often explicitly (as in the cases of species in systematics, and neural crest cells and retinal ganglion cells in neurobiology; see Wilson 1999), and otherwise implicitly (as in organismic fitness in ecology). This is because relational properties are sometimes easier to discern; are sometimes presupposed as fixed in the research traditions in which their taxonomies develop; and are sometimes those properties easiest to disturb or remove experimentally. To subsume this range of relational properties under the heading of the "context" in which the entities with the causal powers occur, in order to restore the asymmetry between intrinsic causal powers and relational properties, as alternative individualism does, is to miss some of the complexity of biological taxonomy, including genetic taxonomy.

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