Avoiding Traps: The Common Enemy of Two Interactionist Views

Abstract:

Dualisms of every sort are an ever-present part of both science and philosophy. They are so common that many times their origin and creation are forgotten and they simply become ontological categories. There is a growing dissatisfaction in some fields of philosophy and science with this practice.

In this paper, I will be attempting to bring the interactionist and constructivist work of the philosopher Mark Johnson and the psychologist and philosopher of biology Susan Oyama closer together by utilizing the naturalistic logic of their common philosophical ancestor John Dewey. Oyama and Johnson are at the forefront of a movement in philosophy and in the philosophy of biology that is pushing through and pushing away from the “trap” of Cartesian language and Cartesian ontology. Though there are some variations in their approaches, there is a common attempt to turn both science and philosophy away from what is becoming an increasingly ineffective dualistic explanatory model.

In this paper, I will be attempting to bring the interactionist and constructivist work of the philosopher Mark Johnson and the psychologist and philosopher of biology Susan Oyama closer together by utilizing the naturalistic logic of their common philosophical ancestor John Dewey. Oyama and Johnson are at the forefront of a movement in philosophy and in the philosophy of biology that is pushing through and pushing away from the “trap” of Cartesian language and Cartesian ontology. Though there are some variations in their approaches, there is a common attempt to turn both science and philosophy away from what is becoming an increasingly ineffective dualistic explanatory model.

To accomplish this task, the paper will follow a progression. I will first briefly explain the problem, what I am calling the dualistic trap. Then beginning with Oyama, I will show her explicit knowledge of this trap and her general method for its avoidance. Following this, Johnson will receive the same treatment. As will become clear at that point in the paper, the difference between Oyama and Johnson is the depth of their philosophical background. Dewey
is this difference and I will conclude by showing just how his naturalistic logic has helped
Johnson position and could potentially strengthen Oyama’s.

Before we can examine the nature of this dualistic trap, we must briefly examine the process
that creates these dualisms in the first place. I will attempt to generalize this problem of dualism
and abstract it away from the typical Cartesian story as I believe it is not helpful to say it is only
a “philosophical” problem. It is simply a problem for any type of inquiry. There is a long and
by now quite solidified adherence in philosophy, in science, and of course in the public at large
to what in this paper is called dualism.¹ Stated most simply, it is a two step process. The first
step is on its surface seemingly quite innocent. In order to explain something such as human
thought one initial process is separated into two distinct and most often fixed things.² For
example, the thought process is explained by splitting mind from body and then focusing solely
on mind. To most philosophers and scientists, this complicated first step is nearly if not wholly
invisible.³ In fact, it has become such a habit of thought in our culture as a whole and so ever-
present in all types of inquiry that most philosophers and scientists make this move
unconsciously. The second step nearly universally follows from the first step. Once this initial
division has been made, the initial process drops into the background and fades almost
completely from view. In my example, thought suddenly and literally becomes mind—and body
is ignored or denigrated. A thing which was initially put forth as only part of an explanation is
later taken to be the whole explanation. Over time, this explanation becomes solidified and

¹ Though Descartes often gets the majority of the blame, Dualism—especially the tendency to give preference
to a single aspect of the dualism—can be traced back at least to Plato. It may be one of our most long-lived
explanatory frameworks. This of course could be one of the reasons it is so difficult to overcome or even recognize.
² I am underlining this transition from process into thing because there will not be time in this paper to do
justice to even this immensely underappreciated leap from process to thing. This is an equally invisible and equally
under-determined move
³ For the public at large, this hidden explanatory and eventually ontological move is of course completely
invisible. The stark separation between mind/body can be seen in nearly every aspect of our society. The examples
are legion in the medical, military, education, and athletic fields to mention only a small portion.
movement from explanation to ontological assertion becomes habitual and eventually fades completely from view. Though the trap can take many different forms, both Oyama and Johnson regard the many different problems associated with traditional dualism as aspects of the same concealed steps.

Susan Oyama is a psychologist and philosopher of biology/evolution and is often considered one of the founders of developmental systems theory. She is a consistently strong critic of dualism and its many offshoots and traps. In one particular instance, Oyama writes about the problems that arise with this trap as seen in the sharp distinctions and separations drawn up between Nature and Nurture:

One of the legacies of the nature-nurture dichotomy is that anyone criticizing one of the opposing positions will be seen as advocating the other. If one voices skepticism about some “biological” interpretation, then, one is assumed to be an environmental determinist, and vice-versa. This assumption is a trap, and it is better to dismantle traps than to step into them (or, for that matter, to set them for others). (Oyama, EE, 154)

In this passage, we can see the use and abuse of dualism in practice. What was initially a single interactive and constructed process of nature-nurture is now treated as two distinct and separate things. In the initial context, before the bifurcation, nature and nurture interacted in their construction of human nature. That human nature was always in flux, always in

---

4 Oyama has a very strongly argued and well supported case that DST will be and should be the next conceptual framework that will synthesize the evolutionary biology side with the developmental biology sides of biology (a split she sees as misguided and damaging). Cont.:
1) Joint determination by multiple causes: every trait is produced by the interaction of many developmental resources--no overly simplistic causation.
2) Context sensitivity and contingency: the significance of any single trait is contingent on the entire system--no isolation.
3) Extended inheritance: an organism inherits a wide range of resources--inheritance is of course genetic but also cultural, etc.
4) Development as construction: all traits are made--reconstructed in development.
5) Evolution as construction: evolution is not a matter of separated organisms/environments influencing each other but of dynamic organism-environment systems that co-evolve. Organisms construct their niches by transforming their surroundings just as these niches can feed into and change the organism.

5 The dash, as it was with John Dewey, is meant to symbolize that those things connected are a single process. This is not meant to imply that there are no differences or that we cannot abstract away from the single process and speak about just “organism” or just “environment” but only that we must always keep in mind that these separations are part of a purposeful inquiry about one aspect of a single process. They can never actually be fully separated without a vast distortion of their initial qualitative character.
construction—circles upon circles upon circles.⁶ After the explanatory bifurcation, what was initially one process has become two opposed and mutually exclusive positions.

The amount of ink that has been spilled since the 1970’s when this once again became a hot scientific and philosophical topic could not possibly be exaggerated.⁷ It is most often phrased as the Nature versus Nurture debate—with the emphasis on versus. Explanatory categories have solidified until they are mistaken for actual barriers between nature and nurture. This is the trap that Oyama wisely cautions us to dismantle and gently warns us against using as a weapon against others. As she points out repeatedly, there are real scientific and societal repercussions to this explanatory dualism.

One of her responses (she has too many to detail them all here) is to simply expose dualism as it appears in what she calls developmental dualism, “The dilemma is how to have an evolutionary perspective without being trapped with some untenable notion of genetically directed development and, by implication, an equally untenable notion of environmentally directed development to complement it.” (Oyama, EE, 28) This division forces a scientist to focus on either a deterministic gene directed view—to the exclusion of the environment. Or, it causes the scientist to instead focus on the external forces of the environment at the expense of the genetic development, never both. Of course as Oyama laments, the scientist will often pay some cursory lip-service to the importance of the environment but absolute explanatory preference will be normally be given to only one side of this fabricated dualism, to the genetic development.

Johnson’s intriguing book The Meaning of the Body is a long critique of the traps of dualism as well as a strong and well argued endorsement for an alternative view. Whereas

---

⁶ This is one of my favorite Emersonian images.
⁷ As is usually the case, there is a long philosophical history, nearly as long as philosophy, attached to this debate. It is far too peripheral to discuss in detail here.
Oyama had very little historical-philosophical background on which to build, Johnson looks back constantly to the work of Dewey. Where Oyama is struggling against the language, the ontological commitments, and the dualism of nature-nurture and organism-environment in psychology, Johnson is bringing a similar method to the long-standing philosophical issue of the mind-body split in contemporary philosophy of neuroscience. There is no clearer explanation of Johnson’s project and his reasons for avoiding the dualistic trap than his own:

According to the embodiment view I am developing here, meaning and thought emerge from our capacities for perception, object manipulation, and bodily movement. The chief challenge is to explain the phenomena of thought and symbolic interaction without resorting to a dualistic mind/body ontology that would violate Dewey’s principle of continuity, insofar as it would deny continuity between so-called “bodily” processes and “mental” acts. (Johnson, 113)

The dominant (but currently weakening) view in neuroscience is that mind is irrevocably separated from body. There are many ways this initial split plays out in the literature but some type of dualism is always present. Once, “mind” arose a new category emerged that was from that point forward separate from the physical container of that new process—the body. It should be clear just how embedded this traditional view of the mind/body split is in science, Philosophy, and our culture. In just the same way this pattern occurred within Oyama’s work, these neuroscientists and philosophers of mind Johnson is addressing have begun with an explanatory category and over time have turned that explanatory category into an ontological thing and then built an entire science and an entire philosophy around this ontological separation.

---

8 I am of course greatly, and in this short paper necessarily, oversimplifying the vast amount of variation of argument that falls under this description of neuroscience I am using here. Johnson goes into this issue in great detail in his book. Another great source is Teed Rockwell’s *Neither Brain nor Ghost* (2005).

9 Richard Lewontin and Richard Levins have an interesting explanation for this re-occurring pattern in science in their book *The Dialectical Biologist* (1985). They argue that this method of separation emerges along the path of least resistance. Scientists want problems that can be solved so in the early stages of a science this type of oversimplification leads to at least some progress—though it ignores until much later the complex problems that are often there right from the beginning.
Johnson has built the entire structure of his philosophy against this split view, “An embodied cognition view must avoid one of the most dangerous dualistic traps of Western philosophy, namely, asking how something inside the “mind” (i.e. ideas, thoughts, mathematical symbols) can represent the outside (i.e. the world).” (Johnson, 113) More importantly for the project in this paper, Johnson's cognizance of the history behind this movement, and the importance of Dewey to counteract it, points to a possible solution to the barriers that Oyama, Johnson and others face while trying to explain their positions. Rather than repeat the many examples of this dualism in practice as given by Johnson, I will begin to detail his response to this issue.

The underlying key to this response can be found in the following passage, “Several centuries of struggling with the problem of how “internal” ideas can be related to “external” things should suggest that once you assume a radical mind/body dichotomy (or any other radical dichotomy), there is no way to bridge the gap between the inner and outer.” (Johnson, 114, my parenthetical) Now neither Johnson nor Oyama are denying the explanatory power of breaking problems down into parts. What they are questioning is the relationship between these parts and the whole context from which the problem—the cause of the question—arose. The parts alone did not give rise to the question; a problematic context made up of those parts and many other aspects of the situation gave rise to the question. Johnson wonders why these biologists, neuroscientists, and philosophers then take this single abstracted part of a contextual situation and attempt to equate the entire answer for the contextual situation by what is after all only a single part. After “several centuries of struggling with the problem,”
the single abstracted part is then literally taken for the whole context in which it arose.

Johnson’s solution, a solution I am suggesting would assist Oyama (and many others besides), is to challenge the very validity of this embedded, assumption laden dualistic logic. He writes that:

> The disastrous error that is so characteristic of much of Western epistemology and logic is to equate “conclusions that are stable and productive” with principles that are absolute, a priori, universal, unchanging. Our quest for certainty and our desire for fixed standards tempts us into hyostatizing our principles as absolute forms. In other words, we abstract logical principles from incarnate inquiry and attempt to safely ensconce them in the Museum of Eternal Forms. (Johnson, 106)

In the cases presented earlier in the paper, the stable conclusions would have been such things as nature or nurture. The logic that emerges at this point is not difficult to explain, though it is difficult to overcome. Because these posited categories were effectively used to explain various psychological issues, they are then taken to be fixed and certain categories; they are taken to be absolute, universal, and unchanging. The original and often complex initial contextual situation is pushed into the background if it is noted at all. Nature or nurture become dualistically defined categories and psychologists must pick one or the other. Importantly, this logic does not allow for the possibility of both (except in a very limited and empty way) and it most certainly does not allow for neither. A direct result of this last exclusion is that anyone who enters the argument—even someone who is questioning the entire framework—is read as taking one or the other side by those embedded in this dualistic logic. There are no other live options. This same model with the same pitfalls appears in evolutionary biology (i.e. organism/environment), in neuroscience (i.e. mind/body), and in many, many places in philosophy (i.e. mind/body, soul/body, free-will/determinism, etc.).

Johnson’s practical solution to this problem is two-fold. The first, which is outside the scope of this paper, is to present the science and neuroscience which show that this reduction to a
dualistic view-point in neuroscience is simply mistaken. The second, which will become our focus now, is to look to the philosophy of John Dewey. The first and most important aspect of Dewey’s thinking for this proposed solution is the concept of continuity and its relationship to naturalism. Continuity is most easily understood as actually taking the idea of “no gaps” in nature seriously. Johnson (quoting in part from Dewey) explains it in this fashion, “on one side, that there is no breach of continuity between operations of inquiry and biological operations and physical operations. ‘Continuity,’ on the other side, means that operations grow out of organic activities, without being identical with that from which they emerge.” (Johnson, 107) There is a deep and abiding naturalistic logic built into this explanation that will become clearer as we proceed. Though it might be a little over-simplified, one way to understand this concept is through a spatial/temporal metaphor. Evolution is fully continuous. If the vertical axis of a diagram represents time, the less complex (be careful not to understand this in a pejorative sense) evolves into the more complex over time. At each stage, those more complex processes that emerge cannot be fully reduced to a mere collection of the processes that led up to its emergence—though they can be explained in retrospect by them under the proper experimental and theoretical conditions. What this means is that on the horizontal plane we have the emergence of new functions and new processes. These new processes and functions could not be fully predicted prior to their emergence but they can be explained since they were a construction of the previous organism-environment. All of this comes down to a commitment to a living continuity. There are no gaps but there is emergence of fully continuous functions. The principle of continuity suggests that there are no gaps, and no ruptures in nature (small n-nature).

10 Naturalism as a word has become a very commonly used term in both science and philosophy and it might be difficult to find many contemporary thinkers who do not consider themselves to be at least some type of “naturalist.” However as Johnson points out, Dewey has a very specific underlying aspect to his naturalism, namely continuity, which will preclude many of these so-called “naturalists.”
This principle extends to every experienced aspect of nature and to every field of inquiry. Science (evolutionary biology to neuroscience to anthropology to physics), philosophy (of every type), art, poetry, or any other human field of enquiry comes under the sway of this principle. This is the meaning of Dewey’s naturalistic logic. Several things are excluded once we accept this logic. Those things are:

- Gaps, ruptures, or leaps.
- Mere reduction of the more complex to the less complex.
- New causal “forces” or “hopeful monsters.”
- Supernatural and non-natural causation and the closely related...
- Prior conceptual structures: a priori, capital R-reason, capital M-mind, capital N-nature.

This principle and its exclusions have an enormous scope in Dewey’s philosophy, have an equally enormous scope in Johnson’s work, and could greatly assist Oyama as she confronts the many scientists and philosophers who are embedded in a sharply dualistic system. As we will see as we begin to examine some of our previous examples, dualisms of every sort violate this principle of continuity and therefore cannot be described as fully naturalistic explanations.

By now, I hope it is clear how Dewey’s naturalism could be used and adopted by Oyama (and many others). The principle of continuity is a powerful tool that can be applied to any type of ontological dualism. The first way to use this tool is to note that whenever there is a split, there is a break in continuity. Whenever there is a solidified dualism (nature-nurture, mind-body, organism-environment) there is a hidden assumption to the effect that “it” is all nature or almost completely nature. Even if this assumption is not explicitly there and even if a thinker is “interactionist,” there is still an implicitly dualistic character to their ontology. Even just allowing for the interaction between the isolated organism and the external environment is a break of continuity. The second way to use this principle of continuity is to reveal the many

11 Some excellent philosophers—especially Peter Godfrey-Smith—have begun to work out the details of just how this simple version of interactionism can be overcome and improved. In my opinion, Godfrey-Smith is one of
ways that a single term (i.e. Nature, Mind, etc.) taken in an ontological sense violates the principle of continuity because it is functioning as a prior conceptual structure. As both Johnson and Dewey repeatedly point out, there is no difficulty in using the term nature or the term mind when is it used as an abstraction and if it is used as part of an experimental structure. The difficulty is when the abstraction, small n-nature or small m-mind, is surreptitiously converted into big N-Nature or big M-Mind and becomes the prior conception that all later hypotheses and experiments must assume as a first principle. Finally, the principle of continuity and some of its exclusions can function as a tool that can reveal the shortcomings of many other terms in evolutionary biology if they are taken in an ontological sense, such as gene (atomistic—breaks continuity), meme (atomistic—breaks continuity), genetically determined (capital T-teleology—returns to non-natural causation), and adaptation (reduction of the complex to the simple). The simplicity and power of this tool would greatly improve Oyama’s chances to overturn the backwards-looking aspects of evolutionary biology.

I would conclude with a hope that Mark Johnson, Susan Oyama, and many others could find a greater unity by looking back to their common interactive constructivism ancestor John Dewey, who can teach us all the best way to avoid dualistic traps.

the best of this group (including Lewontin, Oyama, Eva Jablonka, and others) and it is not a coincidence that he is also heavily influenced by John Dewey.
Bibliography


