

Individuality? An Analysis of the Conception of the Individual in Science

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Abstract: The common sense notion in science and, indeed, everyday life, is that the “individual” is a concrete conception. We work constantly with such notions, and divide our world into parts such as individual objects, organisms, animals, and people. However, upon further philosophical consideration, these *prima facie* ideas become increasingly convoluted and we are led to wonder, what, if anything, constitutes an individual? This paper discusses some of the conceptual problems inherent in notions of individuality across time, and concludes that such subjective notions are too vague and uncertain for rigorous scientific purposes. Scientific investigation should, therefore, abandon such conceptions of individuality because they are not real features of the world about us; rather, they are pragmatic constructions of the mind that serve only to categorize our observations. If science, therefore, purports to objectively analyze the world as it is, then it should be free from subjective, mental constraints imposed upon it by our limited human perspective.

It is no novel notion to claim that the concept of the “individual” is an awkward and tediously difficult question to consider. The handful of proposed solutions is decidedly overshadowed by the abundance of philosophical arguments and biological specimens that serve as counterarguments to individuality, further clouding the debate over a persistent “self.” Examining the outside world or reading an article such as David Hull’s “Individual” can only hint at the evanescence, and lack of solidity, of conceptual and organic identity. This essay will examine such questions as they relate to the process of scientific discovery, and argue that ontological primacy should not be given to the individual; rather, it should be given to its constituent parts or particles. To claim that there exist “individuals” that hold certain enduring properties is to overlook the critical role of the atomic aspects of the world and that such an arbitrary conception of individuality undermines the importance of such atomic particles and their inter-relationships with each other. Moreover, we should accept that such conceptions of individuality and identity are simply pragmatic constructions of the mind that serve only the classification of ideas, and, although valuable in many day-to-day activities, such a framework should not be employed in rigorous scientific methodology.

I will begin by expounding the problem, as I see it, and will then, in the second part of the essay, explain my solution as a normative response to this problem. To start, let us consider our everyday “common sense” approach normally taken towards organisms and personal identity. It would not be a stretch to hold that we are intuitively drawn towards placing great importance on the individual. That is, we seem to take comfort in a large degree of separation between one organism and another, and their surroundings, claiming that this distinction carries on throughout a being’s lifetime. In philosophy, we ask loaded questions pertaining to identity and its persistence through time (such as, “where is personal identity found?”) to aid us in maintaining our conviction that the individual has primacy in the world. We create complex, theoretical puzzles in which objects’ parts are removed, substituted, and replaced; all with the aim of maintaining persistent personal identity at all costs, even without proper justification. (For example, one might tell the story of the axe that has its head replaced and, over a period of time, its shaft as well. In

such puzzles, we all take comfort in calling this axe “the same axe” without good reason.) However, to base substantive philosophical and scientific questions on instinct, intuition, and “hunches,” is far from ideal. Furthermore, to have rigorous philosophical discourse be contingent upon such uncertain and ephemeral things is to forsake any possibility of success. The first step in moving closer to a workable solution for scientific inquiry is to abandon, without remorse, this fancying of solid, persistent, individual identity.

One problem with our stubborn concept of personal identity is that it manages to effectively create the illusion of separation and isolation of an organism from its environment. In science, this has the consequence of closing one’s mind to the totality of facts and possibilities before them. For, what other purpose does an “individual” serve than to distinguish itself from the outside world and the “other?” What good is the concept of an individual if such a concept only serves to render us blind to other, potentially vital, facts? Every day, for example, science seems to find more and more surprising connections between certain organisms and the various phenomena acting upon them in ways we might never have imagined. Therefore, to approach science with existing preconceptions of separation, classification, and “individual identity” almost amounts to a failure to accept these inter-relationships, inter-connections, and inter-dependencies, and risks becoming an archaic and outdated endeavour. We must be mindful that concepts of individual classification are for pragmatic purposes only, and should not translate to the method of strict scientific inquiry. Now, this is not to say that we should give up such notions as kingdom, phylum, class, order, &c, and other such groups, for they serve to organize the near-infinite amount of information available to us. Rather, it is to say that we should not give such distinctions primacy, nor should we allow ourselves to be limited by such constructions of the mind, especially when it comes to notions of personal identity in science.

Additionally, placing importance on persisting identity over time creates the illusion of permanence, longevity, and continuity. Such a disposition may give rise to the false impression that organisms, or at least a certain part of an organism, does not change over time, when, in reality, such is not the case. Science should not need to admit a persistent self, because such a notion is not scientific;

rather, it is “common sense” and pragmatic. It simplifies our lives but does nothing to aid us in rigorous scientific analysis. The world is in a state of constant change, from biology, to physics and geology, to geography and meteorology, to chemistry and astronomy, and science must acknowledge this. And such an acknowledgement requires the abandonment of a “persistent identity,” for such a concept is misleading and false.

Another problem with the conception of the “individual over time” is that we seem to give primacy to these notions of individuality, perhaps on practical grounds, intuitive grounds, or reasons of stubbornness. Regardless, to place such importance on the individual is to overlook the importance of our atomic and biological components. This is not to say that we don’t consider them, for anyone even remotely versed in the scientific world would know that scientists place great importance on microscopic particles and their study. Simply, I posit that such notions of personal identity do nothing to help us in our investigations into the intricate workings of the world because they create illusions and, if anything, they hinder us for reasons already mentioned.

Finally, consider thought experiments and other particular biological examples that serve as problems for “material identity.” In David Hull’s article “Individual,” he outlines several instances that challenge our notion of individuality. For example, should we take tufts of crabgrass, each connected by invisible, underground runners, to be many individuals or one single entity? What about strawberry plants, which possess plainly visible runners above the ground? What are we to make of cases such as these, in which “individuality” is not immediately apparent to us?

What about siphonophorans such as the Portuguese man-of-war? Such creatures, with a large float and many tentacles, can arguably be one single organism (T.H. Huxley, 1852), or a colony of organisms (Louis Agassiz, 1857-1866).¹² What are the criteria for identity in this case? Even if we were to come to a satisfactory answer here, would it further our understanding of the organism and its environment? Would it give us any answers to life and the universe? In my view, it would not. Rather, it would simply provide some sort of peace of mind to a select few who debate such things, and that scientists should not concern themselves with such questions because they are fruitless.

Moving on, if we take individuality to consist in the retention of substance, structure, and existence, what about the fact that many organisms exchange their substance several times throughout their lifetimes? Hull concludes, not unlike countless philosophers before him, that neither the retention of substance, nor of structure, is necessary or sufficient for a persisting identity.²³ Another question posed concerns the size of a DNA strand; that is, how long must it be to be considered a single allele, and must all parts be contiguous at all times?³⁴ Therefore, as we can see, there are numerous real-life problems in the realm of biology alone that can confuse the notion of a persistent identity. Why base thorough scientific and philosophical investigation on such uncertain and undecided terms?

To conclude the first section of my essay, I will briefly discuss thought experiments and their vast shortcomings. Consider such examples as the Ship of Theseus or, more contemporary, the automobile that is gradually repaired and modified, their old parts

used to make a “new” ship or car. In these cases, we feel compelled to admit that either the “old” ship or the “new” ship is the same as before. Our intuition stubbornly insists that we maintain this comforting, if unjustified, order. But, as Hull states, “such examples are frustrating because they highlight problems without providing any way of resolving them, other than intuitions, and intuitions are as variable as societies and people.”⁴⁵ Other puzzles involve the already-mentioned axe that had its head and shaft replaced, or the hockey team that, over time, had its players replaced. These puzzles seem to be intrinsically self-perpetuating, for they are not designed to offer any prospect of progress. Rather, they are simply meant to elucidate the problem and, additionally, they are amusing to contemplate around the dinner table. Furthermore, such puzzles seem to be loaded questions, for they are formulated in such a way that “individuality” and persistent identity are their exclusive outcomes, without really granting the third, and simplest, option: that such concepts are fruitless and unimportant in the first place and should be abandoned.

So, to be sure, the conception of individuality is important in our everyday lives for it allows us to distinguish and categorize the intricacies of the world and it allows us to call an object or an organism by the same name over a period of time. However, in science, the persistent self should be abandoned for such a thing does not exist, except insofar as we need it to. Therefore, as I have explained, the conception of the organic individual over time is typically problematic, to say the least. It creates an illusion of separation between organisms, dividing the world into non-existent, artificial, units. And this, at a time when science is finding many surprising links between entities, previously thought to be unrelated, and phenomena. This approach also creates the illusion of a static universe, something that is categorically false and misleading, especially in the scientific world. Simply put, there are too many difficulties with such conceptions of persistence and individuality; so many so, that, to base any thorough and accurate discussion on them would be almost pointless.

To this point I have outlined my concerns with individuality, stating that such conceptions do little to aid in scientific analysis and should therefore be abandoned. But consider: with what, if anything, should we replace such notions? Does eliminating such constructs of identity necessarily advance the scientific method of analysis? Well, it can be argued, by granting primacy to constituent and atomic parts of organisms, we can avoid the limiting boundaries that might otherwise hinder the process of scientific discovery. Now, this is not to say that we should not look at the “big picture” every now and then, for all perspectives have their merit. Rather, this paper holds that we should be mindful of our human-constructed boundaries and notions, such as persistence of identity, and perhaps place more importance on a reductionist model. By granting the atomic particles primacy, we are accepting that they are the building blocks of the universe and should be treated accordingly. After all, they can exist without the notion of an “individual,” whereas an “individual” cannot exist without such constituent elements.

As well, by eliminating notions of individuality, we become able to address the totality of facts available to us. That is, with certain organisms or phenomena, we can open our minds to factors never-before considered so that we might observe inter-relationships between them. By classifying organisms and placing them into mental boundaries, we are limiting our ability to effectively carry out this all-encompassing and thorough analysis. Being mindful of

4 Ibid. p.181.

1 David L. Hull, “Individual,” in Keller, E.F. and E. Lloyd. (ed.), *Keywords in Evolutionary Biology*. Cambridge: Harvard University Press, 1992, p.184.

2 Ibid. p.182

3 Ibid. p.185.

all aspects of the world, regardless of frontiers, will produce unlimited possibilities and unbiased results.

Our conception of the world should be a passive one. That is, we should not impose mental frontiers upon it, but should, instead, take it “as it is.” The universe is but a massive accumulation of aspects, each of which has causal effects upon another. This mass of coexisting particles has no boundary, other than its physical limits. Lead, for example, does not allow the transmission of x-rays, whereas a cell’s membrane does not allow other certain substances to pass. However, these boundaries are not features of some intangible individuality; rather, they are features of certain intermingling particles that act in certain ways. Restated, a person is not an individual by virtue of his or her having skin that separates him or herself from the outside world. Rather, the skin allows certain products in and out in certain ways dictated by the nature of the particles that compose it. Therefore, it is these particles of which we must be aware, for they are the real factors that determine the state of the world; not the “individual.” To claim that there exist “individuals” who possess certain enduring properties is to overlook the critical role of the atomic aspects to which I refer. In effect, it is not the individual that possesses properties; it is the atomic particles that constitute it. Therefore, treating the world as an accumulation of coexisting aspects that act upon each other, notwithstanding “personal identity,” is an important step in our quest for a rigorous scientific methodology; one with integrity and objectivity (for, as Hulls states, “intuitions are as variable as societies and people”⁵⁶). We cannot have objectivity, something to which science aspires, when conceptions of individuality rest so heavily upon subjective experience and perspective.

Therefore, as has been demonstrated, our conception of “individuality” is too cloudy, uncertain, and ephemeral for valid use in science and philosophy. “If common sense is wedded to the human perspective,” explains Hull, “then the common sense distinction... becomes a matter of scale and vantage point.”⁶⁷ How can science, an institution that prides itself upon objectivity, make use of such an uncertain and subjective concept? It has been proven, time and time again, that there is no tangible, persisting “self”; that any attempt to solve related thought experiments is futile, and that such human-made boundaries serve only a pragmatic purpose of classification and organization. To be sure, this is an important and admirable enterprise, but, in terms of biology and the natural sciences, it simply confuses the nature of the universe and its inhabitants. Rather than allow ourselves to be caught up on such uncertain and subjective concepts, why not hold that the universe is but a massive accumulation of aspects acting upon each other in certain causal ways?; that the universe is as it is; and that human boundaries do very little insofar as allowing us to conduct an open-minded process of scientific discovery.

Work Cited

Hull, David L. “Individual,” in Keller, E.F. and E. Lloyd. (ed.), *Keywords in Evolutionary Biology*. Cambridge: Harvard University Press, 1992.

⁵ Ibid., p.181.

⁶ Ibid., p.183.