

Re-Articulating the Individuality Thesis

Abstract

Philosophers of science have tended towards a local, as opposed to global, treatment of the metaphysics of individuality. This strategy has been fruitful, e.g., Michael Ghiselin and David Hull's individuality thesis has centrally shaped debates in philosophy of biology and meaningfully influenced biological practice (Ghiselin 1974; Hull 1976, 1978). These deeply intertwined applications inform each other as biologists and philosophers refine their concepts of individuation and identity in light of each others' work. This is exemplified by Frédéric Bouchard's (2008; 2010) consideration of reproduction and growth in terms of differential persistence of lineages, and conceptualization of lineages in light of symbiosis; Johannes Martens' (2010) expansion of the organism category; and Daniel Janzen's (1977) treatment of dandelions and aphids as scattered evolutionary individuals. Furthermore, by forging meaningful cross-disciplinary dialogue, the individuality thesis has indirectly shaped philosophy of biology's turn towards empirically informed philosophy. Expanding the discussion to include philosophers of physics and metaphysicians is a gambit worth pursuing. The challenge lies in effective communication across fields. Below I propose a re-articulation of the individuality thesis that facilitates cross-field dialogue.

I characterize the Ghiselin-Hull individuality thesis in terms of three core commitments:

1. *The Parity Thesis*

- Species, like organisms, are individuals.

2. *The History Thesis*

- Biological individuals are defined by ancestry, not possession of intrinsic properties, traits or characters;

3. *The Part/Whole Thesis*

- Biological individuals are concrete (spatiotemporally located) objects, constituted by parts (as opposed to members);

Though widely applied, the Ghiselin-Hull individuality thesis is often misconstrued. Likewise, each of these commitments has been challenged or misunderstood. A careful look at these commitments provides a better understanding of the individuality thesis, and a more nuanced classification of its critics.

The *parity thesis* is simply a claim that species and other taxa belong to the same ontological category as organisms. This can function as a heuristic device, e.g., in demanding a consistency of treatment of biological entities across levels of the biological hierarchy (Wilson and Sober 1989; Haber and Hamilton 2005). But notice that, as rendered above, the parity thesis is *merely* the claim that both species and organisms are individuals; it is silent about what it means to *be* an individual, or whether species and organisms might embody individuality in similar ways.

A misreading of the parity thesis is to render it as a strong claim of similarity to organisms, i.e., *species are biological individuals like organisms*. Among other problems with this reading is what Haber (forthcoming) calls the *Problem of the Paradigm*. Namely, presuming (i) that organisms are *the* paradigmatic biological individuals against which other claims of individuality are measured; or (ii) that there is some paradigmatic organism that exemplifies individuality. Neither presumption is well supported, and there are good reasons to reject both. For example, even among organisms there is a vast diversity of how individuality is expressed (see Buss 1987; Tuomi and Vuorisalo 1989; Turner 2000; Pepper and Herron 2008, among others). Rather, there is no level of biology that provides an exclusive privileged perspective of individuality. Individuality is an evolved character of entities at different levels of the biological hierarchy, and like other evolved characters, variation of expression is to be expected. So though species, like organisms, are individuals, this fact in itself is rather inert. It needs to be filled in by appeal to biological facts and theory. The utility of the parity thesis is to recognize this task; guidance for how to proceed is offered by the history and part/whole theses.

The *history thesis* is often read as a simple rejection of essentialism or typology. Though there is something to that, the story is a bit more complicated (Sober 1980; Winsor 2006). My characterization more closely tracks taxonomic practice and concerns identity conditions, asserting that traits and characters play a diagnostic, rather than definitional, role in individuals. History is taken to be central to identity. Though this deeply influences taxonomic practice, for now notice that this aligns the individuality thesis with work in metaphysics (e.g., Kripke 1980; Jubien 2009). This alignment is complicated by the fact that biological individuals are typically diffuse, variable, become attenuated at the edges, and have parts that may be more or less tightly integrated—perhaps even overlapping with other individuals. These complications are not defeaters, though, but instead should inform our metaphysics.

Finally, the individuality thesis demands some account of ‘belonging to’, and cashes this out as a relation of part-hood (as opposed to membership). Yet the relevant part/whole re-

lations are *biological*, not logical. At the very least, the sort of modal claims biologists hold true ought to give mereologists pause in treating biological individuals simply as mereological sums. Still, some clarification is needed on what the *part/whole thesis* tells us about biological individuality. I propose that (i) to be a biological individual is to be constituted by and be constitutive of other biological individuals; and (ii) biological individuals are concrete multiply decomposable multilevel lineages. To avoid a nasty regress, this must top off and bottom out in maximal and minimal biological individuals, respectively. What those are is an open biological question under active research, e.g., origin of life studies (Maynard Smith and Szathmáry 1998; Gánti 2003). An advantage of this approach is that it forces biologists to consider part-hood both diachronically and synchronically (Griesemer 2000; Okasha 2006; Godfrey-Smith 2009).

This re-articulation of the individuality thesis carries several advantages. It provides resources to pull apart arguments that are often run together, and clarifies the diversity of positions that have been staked out on biological individuality. Furthermore, the core commitments provide points of contact for a ‘transversal comparison’ of criteria and concepts of individuality across scientific and philosophical fields. For example, the history thesis specifies identity conditions for individuals in terms of ancestry, as opposed to possession of characters. A physics or metaphysics analog of this component may be constructed or generalized to consider against existing criteria in those fields. Thus my approach is well suited to promote dialogue among philosophers of science and metaphysicians working on individuality.

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