

## Individuation and identity: towards a practice-based metaphysics for homology

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Traditional philosophy of science often articulates meaning through critical analysis of the definition of a concept central to a particular discipline. For instance, the concept of homology has been understood as a natural kind concept that expresses an identity relationship between two or more individuated parts in different organisms. The structural identity between parts is identified as homological correspondence if the possession of the same structure is due to the inheritance of the part in each of the two different organisms in virtue of its inheritance through a continuous unbroken lineage from a shared ancestor (see Patterson 1982, Ghiselin 2005, Wiley 2008). As the articulation of the concept is central, this type of investigation might be referred to as a “concept-first” approach. Concept-first approaches may promise resolution of putative problems arising from the multiplicity of various competing concepts. However, the accounts they furnish are typically incomplete as they neglect reference to the systems of practice which generate the underlying entities and processes to which the concept applies. Taking a concept-first approach to the meaning of *homology* neglects reference to the very practices necessary to circumscribe the possibility space of comparison needed for the determination of homological correspondence.

Concept-first approaches stand in contrast to what might be described as practice-first approaches. A practice-first approach focuses on the meaning of a concept through an analysis of how it is used, how reference to a natural kind concept, entity, or process is fixed by a discipline, or how the activities of practitioners using a concept shape its meaning. For instance, a practice-first approach to *homology* might focus on an analysis of the nature of the comparative approach though an investigation of how different concepts of homology are used, what grounds the attribution of being a homologue for different groups of practitioners, or what constitutes successful explanations of homology within empirical practice (see for instance, Hall 1992, 2003, 2012; Minelli 1996, 2003; Brigandt 2007; Love 2007; Winther 2009; Ereshefsky 2012, Kendig 2016). In this talk, I investigate how parts are individuated by practitioners and then show how these activities shape the meaning of *homology* and partially determine the identification of sameness in structure and the identification of transformational series.

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