

Natasha Maria Haddal
 Ph.D. Candidate, UC Davis
nmhaddal@ucdavis.edu
 NatashasNature.com



Three Context-Sensitive Approaches to Biological Sex

f /natasha.haddal
 @natashasnature.bsky.social
 @natashaznature

Introduction

In recent years, both philosophy and science have seen growing interest in pluralistic approaches that embrace multiple perspectives and methodologies to account for complex phenomena. Philosophers of biology, in particular, have pioneered anti-essentialist frameworks that emphasize dynamic context-sensitivity. However, the term “pluralism” has been used broadly, and I argue this is a mistake. This project is part of my dissertation, *Conceptual Pluralism and Contextual Sensitivity: Analyzing Biological Sex*, which examines pluralistic frameworks in philosophy—including John Dupré’s promiscuous realism, Marc Ereshefsky’s eliminative pluralism, and Sarah Richardson’s sex contextualism—and their relevance to biological sex. I argue that while these pluralistic frameworks share anti-essentialist motivations and aim to capture the complexity of the biological world, they diverge in their functional roles and outcomes. Specifically, they differ in how context-sensitivity is employed and the inferential and sociopolitical consequences of their conceptualizations. In essence, while these views align in rejecting essentialist assumptions, they differ in how context functions within their frameworks and the implications that follow for scientific and public discourse.

Expansive Realism

This perspective maintains that all, potentially inconsistent, theories about biological sex should be retained. It argues for a diversity of legitimate sex concepts across both scientific and pragmatic communities, rejecting any single authoritative definition.

Dialectical Motivations

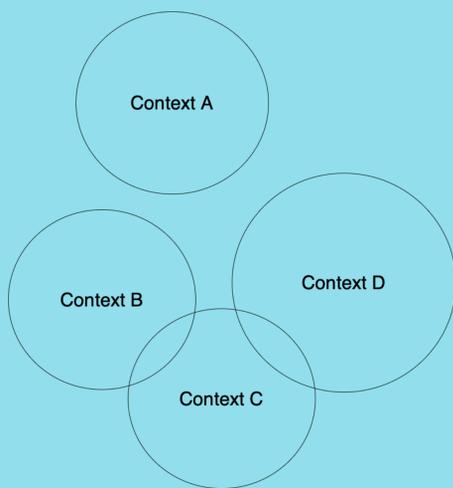
Anti-Essentialist – fixed essences are inadequate for describing the complexity of biological sex. Biological sex cannot be reduced to a single set of properties.

Functional Role of Context-Sensitivity

Common sense, language, and science each play distinct roles in shaping the concept of biological sex, depending on the context. There is no singular authority or definitive framework for determining what constitutes biological sex. Instead, common sense and folk conceptualizations are as contextually legitimate as scientific perspectives in defining what sex means within a given context.

Outcomes

This approach allows for a more liberated perspective, one that considers what folk conceptualizations aim to capture without granting automatic authority to any single context. Each context operates on its own terms. However, what remains unclear is how contexts that influence one another—especially when one holds greater authority—can work together to foster mutual understanding.



Eliminative Pluralism

Using Ereshefsky’s (1992) species eliminativism as a heuristic, this approach acknowledges the multiplicity of ways scientists might recognize biological sex—gonadal, chromosomal, hormonal, and morphological. Here, scientific theorizing plays a crucial role.

Dialectical Motivations

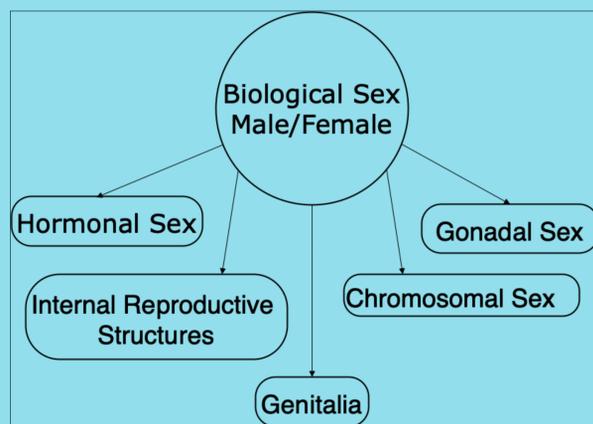
Anti-Essentialist – Fixed essences are inadequate for capturing the complexity of the biological world in scientific theorizing.

Functional Role of Context-Sensitivity

Scientific theorizing shapes legitimate sub-conceptualizations of biological sex by prioritizing frameworks that capture relevant measures for scientific inquiry. Rather than adhering to a single, rigid definition, this approach eliminates the term “biological sex” in favor of pluralistic conceptualizations that address specific scientific needs. While context sensitivity highlights the diversity of biological sex in human beings, legitimate contexts are constrained to science.

Outcomes

Science plays a central role in determining which conceptualizations are relevant for understanding biological sex. Scientists establish the norms for what constitutes sex and how these definitions should inform broader applications, including legal contexts. Policymakers should collaborate with scientists to develop informed, evidence-based sex-specific policies.



Sex Contextualism

(Richardson 2022) There is no single component or set of components specifies sex across biomedical research programs. According to sex contextualism, there is no ‘sex itself’. There is only sex as pragmatically constituted in an observational frame.”

Dialectical Motivations

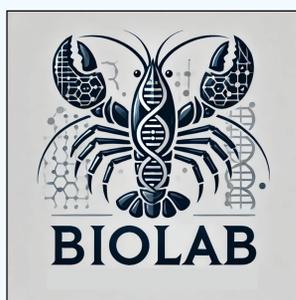
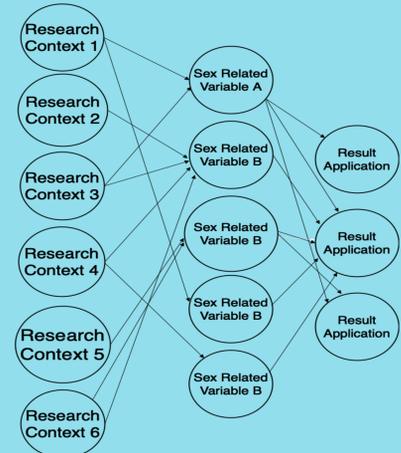
Anti-essentialist – there is not “sex itself”. Rigid characterizations do not capture complex operationalizations of sex-related variables.

Functional Role of Context-Sensitivity

This view provides research groups the liberty to operationalize sex-related variables in ways that align with their specific research questions. By allowing flexibility, researchers can focus on the variables most relevant to their studies. At the same time, contexts are employed as tools to critique essentialist views of biological sex. However, this flexibility is balanced by constraints that ensure contexts remain robust.

Outcomes

Richardson acknowledges the normative weight of theorizing about biological sex, particularly its sociopolitical applications. Her approach seeks to reconcile scientific autonomy with the broader sociopolitical impact of such research. While she advocates for increased awareness of these applications during the research process, more discussion is needed on how this awareness should be effectively implemented in practice.



Limited References:

1. Dupré, J. (1981). Natural Kinds and Biological Taxa. *The Philosophical Review*, 90(1), 66–90. <https://doi.org/10.2307/2184373>
2. Dupré, J. (1993). *The Disorder of Things: Metaphysical Foundations of the Disunity of Science*, Cambridge, MA, Harvard University Press.
3. Dupré, J. (2016). Realism, Pluralism and Naturalism in Biology. In N. Cartwright & K. Ward (Eds.), *Rethinking Order: After the Laws of Nature* (pp. 99–118). London: Bloomsbury Academic.
4. Ludwig, D. and Rupy, S. (2021)., "Scientific Pluralism", *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/win2021/entries/scientific-pluralism/>.
5. Ereshefsky, M. (1992). Eliminative Pluralism. *Philosophy of Science*, 59(4), 671–690.
6. Richardson, S. (2022, 1 31). Sex Contextualism. *Philosophy, Theory, and Practice in Biology* 14(0) doi: 10.3998/ptpbio.2096

