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Symmetry, Structure and the Constitution of Objects

French, Steven (2001) Symmetry, Structure and the Constitution of Objects.

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Abstract

In this paper I focus on the impact on structuralism of the quantum treatment of objects in terms of symmetry groups and, in particular, on the question as to how we might eliminate, or better, reconceptualise such objects in structural terms. With regard to the former, both Cassirer and Eddington not only explicitly and famously tied their structuralism to the development of group theory but also drew on the quantum treatment in order to further their structuralist aims and here I sketch the relevant history with an eye on what lessons might be drawn. With regard to the latter, Ladyman has explicitly cited Castellani's work on the group-theoretical constitution of quantum objects and I indicate both how such an approach needs to be understood if it is to mesh with Ladyman's 'ontic' form of structural realism and how it might accommodate permutation symmetry through a consideration of Huggett's recent account.

Keywords:	permutation symmetry, structuralism, structural realism
Subjects:	Specific Sciences: Physics: Quantum Mechanics General Issues: Realism/Anti-realism General Issues: Structure of Theories
Conferences and Volumes:	[2001] Symmetries in Physics, New Reflections: Oxford Workshop (Oxford, January 2001)
ID Code:	327
Deposited By:	French, Steven Richard Douglas
Deposited On:	18 July 2001

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