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90f:20060 [20G20 \(16A64 18E30 20C20\)](#)

[Scott, Leonard L. \(1-VA\)](#)

Derived categories and algebraic groups.

Classical groups and related topics (Beijing, 1987), 127–142, *Contemp. Math.*, 82, Amer. Math. Soc., Providence, RI, 1989.

There are many reasons why this paper should be widely read. At one level it is a philosophical essay deeply rooted in living mathematics. The author starts by drawing attention to the fact that there are “unchallenged and unconscious assumptions about the way mathematics is and should be”. He examines briefly the successes of an “atomistic” view of algebraic structures (with particular reference to representations of finite groups and semisimple Lie algebras) which sees them in terms of their internal structure. He goes on to describe a different (perhaps “more dynamic” is an appropriate term) view based on categories of complexes. This has emerged from the work of Kashiwara and Brylinski and of Beilinson and Bernstein on the Kazhdan-Lusztig conjecture and draws on recently developed methods from topology and analysis.

Whilst retaining the philosophical thread, the paper continues with “A quick course in derived categories”, and could well be read for this alone. The very brief introduction to quasihereditary algebras and why they are important is another integral part of the whole.

By the end of the paper one feels that perhaps the author’s main aim was to attract new workers to this important and exciting field. If so, he deserves to succeed. It is a brilliantly crafted paper, written with a light, sure touch.

{For the entire collection see [MR 89h:20002](#)}.

Reviewed by [Sheila Brenner](#)

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