

Book Reviews and Reports

Henry Laycock, *Words without Objects: Semantics, Ontology, and Logic for Non-Singularity*, Clarendon Press, Oxford, 2006, XVI + 202 pp. (ISBN 0-19-928171-8)

The title of this book is a play on W. V. Quine's *Word and Object*, a major publication from 1960 in the philosophy of language. It is a critical study of the semantics of non-count nouns (NCNs) as discussed by Russell, Strawson, Quine and other less prominent philosophers of language. NCNs include mass terms, which have some bearing on the category of stuff or matter, and which is where the book touches the interests of readers of this journal. The book claims to address the ontology of stuff on the understanding that "it is precisely in the semantics of these nouns that the key to understanding this ontology is found" (p. ix), although it soon transpires that metaphysics does the lion's share of the work. The author's central thesis is that NCNs are non-singular, which he reflects in the contrast his title makes with Quine's. But the magnitude of the task is such that "an enquiry of this [book's] length cannot be anything but programmatic" (p. xii), and readers hoping for a systematic positive contribution to the ontology of stuff will be disappointed. Similar reasons are given for making few inroads into the vast literature in linguistics bearing on these issues. But the author doesn't comment on the more remarkable absence, in view of the subtitle, of any serious consideration of logical investigations into these matters.

Stuff as homogeneous substance or undifferentiated material is contrasted with the identifiable and discriminable objects denoted by count nouns (CNs)

such as 'table', 'tree' and 'atom'. Of CNs we ask 'How many?' whereas of NCNs such as 'wine', 'food', 'gold', 'tension', 'furniture', 'leisure', 'refinement' and 'good' we ask 'How much?'. These examples illustrate that the category of NCNs identified by such contrasts is not confined to undifferentiated materials, but also includes abstract terms and terms denoting discrete, concrete things. Since too much furniture might simply be too many chairs, the contrast with CNs "is rather obviously non-metaphysical" (p. 12), and many writers reserve the term 'mass nouns' (MNs) for concrete NCNs denoting undifferentiated materials.

Several writers, of which the author takes V.C. Chappell ('Stuff and Things', *Proceedings of the Aristotelian Society*, 71 [1971], 61-76) to be a paradigm example on whom he concentrates his criticisms, have sought to capture the idea of undivided reference by what Quine calls cumulative reference. Whereas any sum of parts that are each an apple is not another apple, any sum of parts which are water is water. (The condition is based on mereology – the theory of the part relation which, in its standard formulation, is tantamount to Boolean algebra without a null element – in terms of which the operation of sum is defined.) But Laycock points out that this condition doesn't distinguish NCNs from plural count nouns like 'apples', which sets no limits on what counts as apples. As with 'water', it is only additional qualifying terms which provide criteria of distinctness or boundaries for what it collectively applies to – a heap, or bag, of apples, just like a glass, or drop, of water. Cumulativity only reflects the semantic contrast between singular and non-singular nouns generally, be they

NCNs or plural CNs, and not the “only metaphysically significant contrast in this domain [...] between CNs and atomic NCNs on the one hand, and the non-atomic NCNs on the other” (p. 51). Laycock diagnoses the tendency to think that there is a metaphysically significant contrast as based on a conception of form-indifferent objects, which Chappell calls parcels of matter, predicated by NCNs such as ‘gold’ but not CNs like ‘apple’. Laycock maintains that the distinction is between “atomically based non-singular concepts and non-atomically based non-singular concepts – it is simply the presence or absence of ‘semantic atoms’” (p. 52).

Given his talk of non-atomic concepts, it is surprising that Laycock makes no mention of other authors who emphasise the distributive condition (that the parts of whatever has a property also have that property). Though rejected by Quine, it is incorporated into other authors’ analyses of mass predication. In particular, P. Roeper (‘Semantics for Mass Terms With Quantifiers’, *Nous*, 17 [1983], 251-65; ‘Generalisation of First-Order Logic to Nonatomic Domains’, *Journal of Symbolic Logic*, 50 [1984], 815-38) appeals to it in providing an equivalent form of Quine’s cumulative condition which can be generalised to relational predicates and shows how standard predicate logic can be generalised to non-atomic domains. Roeper characterises these domains mereologically (actually, with Boolean algebra, building in restrictions to elements other than the null element), and refers to the elements of the domains, after Helen Cartwright, as quantities. Laycock regards Cartwright’s appeal to quantities as much the same as Chappell’s appeal to portions, and criticises it in an appendix. Cartwright uses the term by way of introducing the distinction between an individual, such as a gold ring, and the (quantity of) gold of which it is constituted, allowing identity statements such as

The gold constituting my ring is the same gold as that of which Aunt Suzie’s ring was made

and Laycock makes the most of apparent confusions engendered by speaking of quantities containing a certain amount of stuff and being identical with some stuff. But the question is whether any serious confusion in Cartwright’s pioneering work infect those, like Roeper, following in her footsteps, and I don’t think Laycock’s arguments have the power to block this avenue of approach.

One of his arguments locks onto Chappell’s claim that in certain processes of reformation and division the gold is something which survives, retaining its identity as the same gold. Laycock draws attention to examples like the wax of a burning candle or the ice in a gin and tonic, which, as kinds of stuff, “typically come to be and cease to be through continuous and progressive transformations in other kinds of stuff” (p. 25) often involving growth in one kind of stuff and diminution in another. But the problem he raises simply confuses the mass term predicate with what it applies to. “Realistically”, he says, “we may suppose that once added [to my gin and tonic] the ice begins to melt” (p. 22) until, some time later, it has entirely disappeared. Why not maintain the idea of the permanence of quantities of matter and say that the parts of the quantity which was ice at the beginning of this period change, successively becoming liquid? Laycock doesn’t say, but poses the dilemma that less ice can hardly be identical with more and yet only when all the ice has melted will it have finally ceased to be, and concludes that identity criteria do not apply to what expressions like ‘the ice’ denote as they do to what expressions like ‘the cat’ denote. Whether Chappell would have said that ‘the ice’ in this example should be understood as a singular thing, there is evidently no compelling reason for others following the mereological interpretation of stuff in-

corporating the cumulative condition and building on Cartwright's initial work to follow suit, and Laycock's argument is not the sweeping knock-down critique he takes it to be.

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Workshop on *Precarious Matters*, Max Planck Institute for the History of Science, Berlin, Germany, 22-24 March 2007

Sponsored by the Deutsche Forschungsgemeinschaft (DFG), this workshop was organized by historian of science (pharmacy) Bettina Wahrig from the Technical University of Braunschweig and her group and by historian of science (biology) Hans-Jörg Rheinberger from the hosting MPIWG.

Precarious matters – which should be and was read as precarious substances (in German, *prekäre Stoffe*) during the meeting – are substances which usually have a very strong physiological performance, both negative or positive. Thus, these substances are “powerful and autonomous/dangerous” (from the workshop description on the MPIWG website). The aim of the workshop was “to analyse ‘precarious substances’ in the different stages of their trajectories – experimental establishment, institutional stabilization, social activation and control – in order to compare or distinguish them” (*ibid.*).

After an introduction by the Braunschweig group (Viola Balz, Heiko Stoff, Alexander von Schwerin, and Brigitte Wahrig) thirteen papers were presented. Most of the speakers came from German speaking countries and each one from Greece, France, USA, and Israel; the main conference language was English.

Volker Hess (History of Medicine, Charité, Humboldt University Berlin) told the story of the quack Johann Gottlieb Grabe who in the beginning of the 19th century claimed to heal by putting his hands on certain body parts. The assumed healing effect was called “animalistic magnetism” and considered to be substantial. Hess showed that stuff can be assumed as precarious even if there is no measureable substance at all and, moreover, that precariousness can be performative to a large extent.

Axel Helmstädter (History of Pharmacy, University of Marburg) gave a talk about the *Arndt-Schulz law* which claims a non-linear relation between the dose and the effect of an agent. Helmstädter demonstrated that in modern pharmacology, with its prevailing molecular point of view, this law cannot be considered a natural law because therapeutic substances can cause a variety of different effects. Thus the dose-effect relation becomes much more complex than Arndt and Schulz suggested.

With an emphasis on the influence of involved scientists and administrators, Carsten Reinhardt (MPIWG, now Science and Technology Studies, University of Bielefeld) presented a study about the historical development of the list of threshold limit values for workplace substances in Germany (MAK-Liste). His historical example illustrated how precariousness has been construed or defined rather than discovered as a natural property.

Beat Bächli (History of Technology, Federal Institute of Technology Zurich, Switzerland) talked about how Hoffmann-La Roche invented application fields for synthetic Vitamin C and created new disease symptoms for Vitamin-C-avitaminosis. Impressively, Bächli presented Vitamin C as a precarious “substance in search of a disease or function”.

Otniel Dror (History of Medicine, Hebrew University of Jerusalem, Israel) gave a presentation on the cultural and biological potencies of adrenaline.