BOREL ON THE HEAP

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Abstract. In 1907 Emile Borel published a remarkable essay on the paradox of the Heap ("Un paradoxe économique: le sophisme du tas de blét les vérités statistiques", published in La Revue du Mois, a journal edited by Borel), in which Borel proposes what is probably the first statistical account of vagueness ever written (antedating M. Black's account by 30 years), and where he discusses the practical implications of the sorites paradox, including in economics. Borel's paper was integrated in his book Le Hasard, published 1914, but has gone mostly unnoticed since its publication. One of the main originalities of Borel's essay is that it puts forward a model of vagueness as imprecision, making particular use of the Gaussian law of measurement errors to model categorization. Another striking feature is the early emphasis put on the dependence of lexical meaning on language use. The aim of the present paper is to present Borel's account of vagueness, to spell out the mathematical details of his model, and to provide a critical assessment of his theory. From a modeling perspective, we will see that Borel's model distinguishes itself from posterior degree-theoretic accounts by his specific reliance on statistical laws. On a more philosophical level, two issues will be particularly discussed: the first concerns the anti-epistemicist flavor of Borel's account, whereby the idea of statistical fluctuation is supposed to undermine any notion of determinate boundary for vague predicates. The second concerns the problematic link between Borel's model of vagueness as imprecision and the notion of semantic indeterminacy.