



The Kinematics of Cutting Solid Objects: Technical Report 541, January 1991 (Classic Reprint) (Paperback)

By Ernest Davis

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****. Excerpt from The Kinematics of Cutting Solid Objects: Technical Report 541, January 1991 This paper studies how the cutting of one solid object by another can be described in formal theory. We present two alternative first-order representations for this domain. The first views an object as gradually changing its shape until it is split, at which time the original object ceases to exist and two (or more) new objects come into existence. The second focusses instead on chunks of material which are part of the overall object. A chunk persists with constant shape until some piece of it is cut away, when the chunk ceases to exist. We prove that the two theories are equivalent under ordinary circumstances, and we show that they are sufficient to support some simple commonsense inferences and algorithms. 1 Introduction Previous AI studies of reasoning about the physics of solid objects (e.g. [Davis, 88], [Joskowics, 87], [Faltings, 87]) have, almost without exception, assumed that solid objects are rigid and immutable. The only properties that can change over time are position and its...



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