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ARTICLES

DEPARTMENTS

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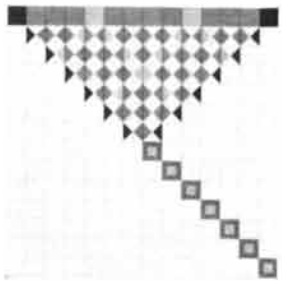

THE COVER

The design on the cover shows how a palindrome—a phrase that reads the same in either direction—can be recognized as such by a cellular automaton, a system of uniform cells whose states change according to specified rules. The palindrome TOO HOT TO HOOT is symbolized in the top line, with the *T*, *O* and *H* represented by blue, red and yellow respectively. The configuration changes in successive rows as certain transition rules are applied (see "Mathematical Games," page 112). The two dots in the left-hand cell in the seventh row from the top signify recognition of the palindrome; thereafter the right-hand cell changes to an "accept" state (*nested squares*), which persists until the edge of the cellular space is reached. The automaton, a pattern-recognition machine devised by Alvy Ray Smith III, is one application of cellular automata theory, which has generated a number of mathematical games as well as more theoretical applications.

THE ILLUSTRATIONS

Cover illustration by Alan D. Iselin

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