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Crosswords, Quiz Shows, and the Geometry of Question-Asking

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Abstract

Asking and answering questions is a pervasive activity. Over and above the survival benefits it provides, it is one that can be intrinsically pleasurable. Word puzzles provide a window into this process that allow us to go beyond laboratory investigations to capture how question-asking functions in the real world. Analysis of New York Times crosswords, and quiz-show Jeopardy questions allow us to tease apart two phenomena that make for difficult questions: opacity (the indirectness of cues within a clue), and obscurity (the rarity of the answer). Vector-space models of natural language reveal how synergistic cues aid the puzzle-solver, overcoming obscurity in ways that contemplation of cues in isolation can not, and show how these effects compete with the obscurity of the answer itself. Our methods provide new ways to measure these phenomena in question-asking, and show how they operate in this most basic of behaviors.