



Reading Your Mind?

How does something the size of a yo-yo successfully play a game of *20 Questions*? Although its success tempts players to think that the device is reading their minds, it's not. This sophisticated toy uses mathematics such as probability and fuzzy logic, and mathematical objects such as matrices to determine your animal, vegetable or mineral more than 75% of the time.

The online version of the game is an example of artificial intelligence, specifically a neural network, which uses feedback loops and weights to "learn" as it gets more information. In this case, answers are given weights, with "unknown" having a weight of zero, and (in the online game) weights are adjusted as necessary after each game. The weights form a matrix, with objects and questions indexing the rows and columns, respectively. The game chooses a question by first determining which objects are still probable and then finding which question has the most desirable set of weights for the remaining candidate objects. What is the most desirable set of weights? Sorry, that's not a Yes-No question.¹

For More Information: "AI on the Web," *Monitor Magazine*, Tanis Stoliar, April, 1999.

¹The most desirable weights are those closest to a 50-50 split of Yes's and No's.



Photo courtesy of Radica.



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