

Attention shoppers: Researchers find neurons that encode the value of different goods

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Researchers at Harvard Medical School report in the April 23, 2006 issue of *Nature* that they have identified neurons that encode the values that subjects assign to different items. The activity of these neurons might facilitate the process of decision-making that occurs when someone chooses between different goods.

"We have long known that different neurons in various parts of the brain respond to separate attributes, such as quantity, color, and taste. But when we make a choice, for example, between different foods, we combine all these attributes -- we assign a value to each available item," says Camillo Padoa-Schioppa, PhD, HMS research fellow in neurobiology and lead author of the paper. "The neurons we have identified encode the value individuals assign to the available items when they make choices based on subjective preferences, a behavior called 'economic choice.'"

Everyday examples of economic choice include choosing between working and earning more or enjoying more leisure time, or choosing to invest in bonds or in stocks. Such choices have long been studied by economists and psychologists. In particular, research in behavioral economics shows that in numerous circumstances, peoples' choices violate the criteria of economic rationality. This motivates a currently growing interest for the neural bases of economic choice -- an emerging field called "neuroeconomics." In general, it is believed that economic

choice involves assigning values to available options. However, the underlying brain mechanisms are not well understood.

In the study, Padoa-Schioppa and John Assad, PhD, HMS associate professor of neurobiology, found a population of neurons located in the orbitofrontal cortex (OFC) that assigns values to different goods on a common value scale. Assigning values on a common scale allows comparing goods, like apples and oranges, that otherwise lack a natural basis for comparison.

Source: Harvard Medical School

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