## THINKING, FAST AND SLOW

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Fig. 1

To observe your mind in automatic mode, glance at this image. Your experience as you look at the woman's face seamlessly combines seeing and intuitive thinking. This is an example of fast thinking.

(Courtesy of Paul Ekman Group. LLC)

Your first task is to go down both columns, calling out whether each word is printed in lowercase or in uppercase. When you are done with the first task, go down both columns again, saying whether each word is printed to the left or to the right of center by saying (or whispering to yourself) "LEFT" or "RIGHT."

**LEFT** upper left lower right **LOWER** RIGHT upper RIGHT **UPPER** left lower LEFT **LOWER** right upper

Fig. 2

This is a variant of a classic experiment that produces a conflict between System 1 and System 2.

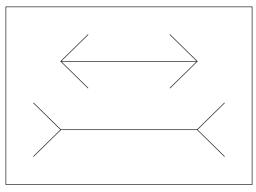
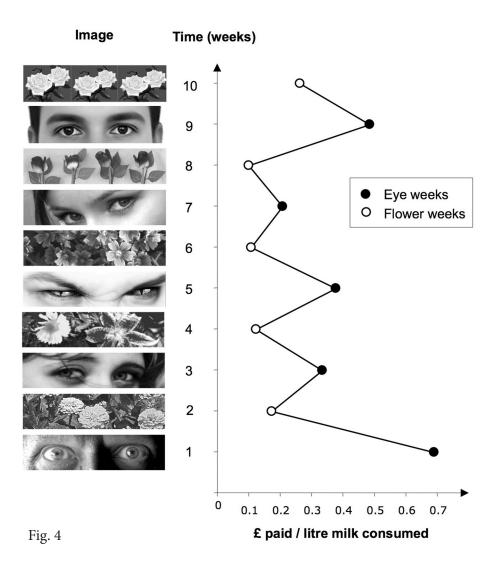


Fig. 3

The famous Müller-Lyer illusion. As you can easily confirm by measuring them with a ruler, the horizontal lines are in fact identical in length.



System 1 priming effect on voluntary behavior. On average, the users of an office kitchen contributed almost three times as much in "eye weeks" as they did "flower weeks."

(from "Cues of Being Watched Enhance Cooperation in a Real- World Setting" by Melissa Bateson, Daniel Nettle, and Gilbert Roberts, Biology Letters (2006); reprinted by permission of Biology Letters.)

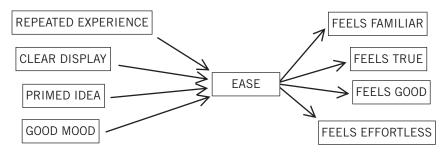


Fig. 5

When you are in a state of cognitive ease, you are probably in a good mood, like what you see, believe what you hear, trust your intuitions, and feel that the current situation is comfortably familiar.



Fig. 6

All 3 examples are ambiguous. While looking at them, System 1 made a definite choice, but you did not know it. Only one interpretation came to mind, and you were never aware of the ambiguity.

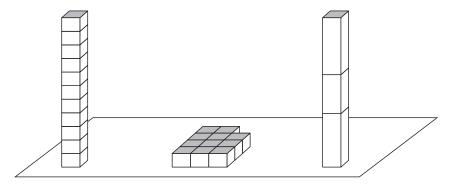


Fig. 7

A glance provides an immediate impression of many features of the display. You know the two towers are equally tall and that they are more similar to each other than the tower on the left is to the array of blocks in the middle. However, you do not immediately know that the number of blocks in the left-hand tower is the same as the number of blocks arrayed on the floor, and you have no impression of the height of the tower that you could build from them.



Fig. 8

What is the average length of the lines in this figure? Experiments have shown that a fraction of a second is sufficient for people to register the average length of an array of lines with considerable precision.

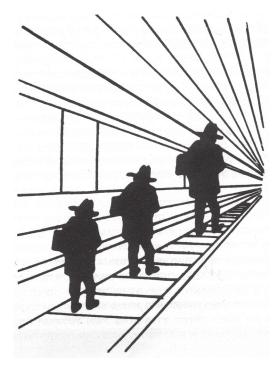


Fig. 9

Have a look at this picture and answer this question: is the man on the right larger than the man on the left?

(from Mind Sights by Roger N. Shepard, New York: W.H. Freeman and Company, 1990); reprinted by permission of Henry Holt and Company)

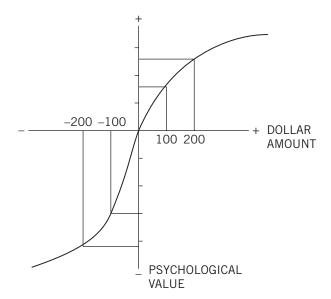


Fig. 10

The psychological value of gains and losses, which are the "carriers" of value in Prospect Theory. The response to losses is stronger than the

response to corresponding gains. This is loss aversion.

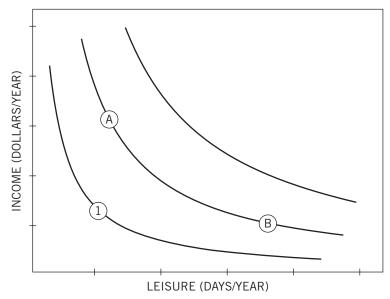


Fig. 11

"Indifference Map" for two goods: income and leisure. Each point on the map specifies a particular combination of income and vaction days. Each "indifference curve" connects the combinations of the two goods that are equally desirable.

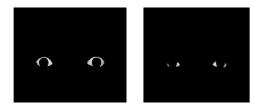


Fig. 12

The amygdala, or "threat center" of the brain, is registered to give priority to bad news.

(from "Human Amygdala Responsivity to Masked Fearful Eye Whites" by Paul J. Whalen et al., Science 306 (2004). Reprinted by permission of Science.)

	GAINS	LOSSES
HIGH	95% chance to win \$10,000	95% chance to lose \$10,000
PROBABILITY	Fear of disappointment	Hope to avoid loss
Certainty Effect	RISK A VERSE	RISK SE EKING
	Accept unfavorable settlement	Reject favorable settlement
LOW	5% chance to win \$10,000	5% chance to lose \$10,000
PROBABILITY	Hope of large gain	Fear of large loss
Possiblity Effect	RISK SE EKING	RISK A VERSE
	Reject favorable settlement	Accept unfavorable settlement

Fig. 13

The Fourfold Pattern of preferences is considered one of the core achievements of Prospect Theory. People attach values to gains and losses rather than to wealth, and the decision weights that they assign to outcomes are different from probabilities.

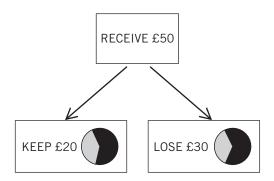


Fig. 14

Neuroscientists combined a study of framing effects with recordings of activity in different areas of the brain. By joining observations of actual choices with a mapping of neural activity, this study provides a good illustration of how the emotion evoked by a word can "leak" into a final choice.

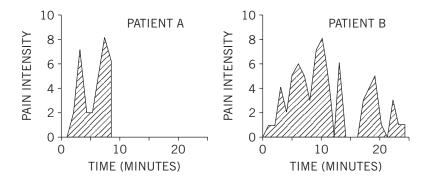


Fig. 15

Profiles of the experience of two patients undergoing a painful procedure.

Assuming that the two patients used the scale of pain similarly, which pateint suffered more?



Fig. 16

The figure is taken from an analysis by Andrew Clark, Ed Diener, and Yannis Georgellis of the German Socio-Economic Panel, in which the same respondents were asked every year about their satisfaction with their life. The graph shows the level of satisfaction reported by people around the time they got married.