NEUROSCIENCE

What makes us laugh

Humour is the brain's reward for discovering unexpected errors, says **Appletree Rodden**.

Photons have mass? I didn't even know they were Catholic.

Why do some of us find that funny? *Inside Jokes* surveys the scientific basis of humour and proposes a new theory. It presents a brief history of the concept's development from the ancient Greeks to the present, discusses the possible origin of laughter from a Darwinian perspective and describes what is known about jocularity in the brain.

Co-authored with philosopher Daniel Dennett and psychologist Reginald Adams, the book grew out of the dissertation of neuroscientist Matthew Hurley, then at Tufts University in Medford, Massachusetts. The authors' account of why humour and laughter exist independently, and how they relate — such that laughter sometimes “expresses the

detection of humour” — is a valuable, if not a full, explanation. A mix of lightness and seriousness, the book also contains a great collection of jokes: from awful groaners to choice quips.

The authors propose that humour is a cognitive event, in which an unconscious assumption is discovered to have been a mistake. For example, if on reading this magazine you suddenly become aware that the pages are not made of paper but of pressed haddock, then, they argue, that should strike you as

“Countering the belief that ‘the journal Nature is never printed on pressed haddock’ should seem funny.”

**Inside Jokes:
Using Humor to
Reverse-Engineer
the Mind**

MATTHEW M. HURLEY,
DANIEL C. DENNETT
AND REGINALD B.
ADAMS JR.
MIT Press: 2011.
384 pp. \$29.95, £22.95

humorous. The countering of the belief that ‘the journal *Nature* is never printed on pressed haddock’ should not merely surprise you, but seem funny. However, danger trumps humour: it would not be amusing, for example, if the pressed haddock were radioactive.

Humour, the authors suggest, is an element in the cognitive ‘just-in-time spreading activation’ system, by which our brains fit the best overall meaning to

the collection of mental scripts or frames it has at its disposal. For example, you may currently be following a ‘reading the journal *Nature*’ script; perhaps also a ‘sitting at my desk’ script, and maybe a ‘trying not to forget to stop at the grocery store on the way home’ script. The brain is constantly mediating among these frames, charting our course through a fast-moving, life-threatening world.

Our ability to fashion ‘just in time’ meaning from this jumble is far from perfect. We are not computers but flesh-and-blood, jerry-built synthesizers of meaning constructed from the impressions provided by our sense organs, memories and emotions. Humour happens when this operating system detects an error that other parts had overlooked. The brain’s dopaminergic pleasure system rewards that survival-benefiting discovery with a jolt of mirth.

The authors explain how their ideas build on previous theories of how humour emerges. Notably, that it comes from the joke-teller’s position of superiority, as proposed by Aristotle and Thomas Hobbes; when an incongruity is resolved, as suggested by Immanuel Kant, Arthur Schopenhauer and V. S. Ramachandran; on release from internal censors, following Sigmund Freud; and from some kinds of surprise, as hypothesized by psychologist Jerry M. Suls. It can also be inspired by shifting our frame of reference, according to Marvin Minsky, Victor Raskin and Salvatore Attardo.

The authors sometimes labour to bend the phenomena of humour and laughter to fit their theory. And their attempt to explain every reason why humans laugh, smile or experience low-grade mirth is not entirely satisfying. To their credit, the authors realize this, and rightly consider their book a valuable contribution. ■

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