uses as a metonym for direct emotional perception. Gardner says:

> As for God and an afterlife, our head tells us both are illusions. An Old Testament psalm (14:1), Unamuno reminds us, does not say "The fool hath said in his *head* there is not God." God is a hope only of the heart.

In the King James translation of Psalm 14 that Unamuno is referencing, the italicized word is rendered heart, which is indeed the literal translation of the Hebrew word in question. On the other hand, the biblical writers understood that organ to be the location of the intellect, not the emotions, which is why a modern translation, such as the Jewish Publication Society's of 1982, renders the verse "The benighted man thinks…." Could Martin Gardner, the master annotator and occasional pseudonymous prankster, not know this? This reviewer, an afterlife skeptic, is willing to suspend disbelief long enough to wonder if in some form or other Gardner is watching to see how many readers catch this "glitch". Plus of course I wonder if there are other glitches Gardner has planted that I've missed. For example, about that express subway station: are there any stops in New York where trains go in two directions from a central platform?

In keeping with the prankster tradition, I confess that the Arkansas group theorists' query above is also a trick question. There's a three-way tie for first (some say two-way).

Donoho Awarded 2013 Shaw Prize

David L. Donoho

The Shaw Foundation has awarded the 2013 Shaw Prize in Mathematical Sciences to David L. Donoho of Stanford University "for his profound contributions to modern mathematical statistics and in particular the development of optimal algorithms for statistical estimation in the presence of noise and of efficient techniques for sparse representation and recovery in large data sets." The prize carries a cash award of US$1 million.

The Shaw Prize in Mathematical Sciences Selection Committee released the following statement about Donoho's work.

"For more than two decades David Donoho has been a leading figure in mathematical statistics. His introduction of novel mathematical tools and ideas has helped shape both the theoretical and applied sides of modern statistics. His work is characterized by the development of fast computational algorithms together with rigorous mathematical analysis for a wide range of statistical and engineering problems.

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"A central problem in statistics is to devise optimal and efficient methods for estimating (possibly nonsmooth) functions based on observed data which has been polluted by (often unknown) noise. Optimality here means that, as the sample size increases, the error in the estimation should decrease as fast as that for an optimal interpolation of the underlying function. The widely used least square regression method is known to be nonoptimal for many classes of functions and noise that are encountered in important applications, for example, nonsmooth functions and non-Gaussian noise. Together with Iain Johnstone, Donoho developed provably almost optimal (that is, up to a factor of a power of the logarithm of the sample size) algorithms for function estimation in wavelet bases. Their 'soft thresholding' algorithm is now one of the most widely used algorithms in statistical applications.

"A key theme in Donoho's research is the recognition and exploitation of the fundamental role of sparsity in function estimation from high-dimensional noisy data. Sparsity here refers to a special property of functions that can be represented by only a small number of appropriately chosen basis vectors. One way to characterize such sparsity is to minimize the L^0-norm of the coefficients in such representations. Unfortunately, the L^0-norm is not convex and is highly nonsmooth, making it difficult to develop fast algorithms for its computation. In addition to pioneering the exploitation of sparsity, Donoho also introduced the computational framework for using the L^1-norm as a convexification of the L^0-norm. This has led to an explosion of efficient computational algorithms realizing this sparsity framework which have been used effectively in a wide variety of applications, including image processing, medical imaging, data mining, and data completion.

"A recent and much celebrated development along this sparsity-L^1 theme is Compressed Sensing (a term coined by Donoho). Data compression is widely used nowadays—for example, the JPEG standard for compressing image data. Typically, the data is gathered from sensors (for example, a camera) and the data is then compressed (that is, represented by a much smaller number of coefficients in an appropriate basis, while preserving as much accuracy as possible). Corresponding decompression algorithms are then used to recover the original data. The revolutionary idea in Compressed Sensing is to shortcut this standard approach and to 'compress while sensing', that is, to collect a small number of appropriately chosen samples of the data, from which the original data can be recovered (provably exactly under appropriate assumptions) through corresponding decompression algorithms. The key ingredients are again sparsity (most typical in a wavelet basis), use of L^1-norm for recovery, and the use of random averaging in sensing. Along with Emmanuel Candes and Terence Tao, Donoho is widely credited as one of the pioneers of this exploding area of research, having contributed fundamental ideas, theoretical frameworks, efficient computational algorithms, and novel applications. This is still a thriving area of research with wide applications, but already many stunning results have been obtained (both theoretical and practical)."

David L. Donoho was born in 1957 in Los Angeles, California. He is currently Anne T. and Robert M. Bass Professor of the Humanities and Sciences and professor of statistics at Stanford University. He received his Ph.D. from Harvard University in 1983. From 1984 to 1990 he served on the faculty of the University of California, Berkeley. He has been on the faculty at Stanford since 1990. He received a MacArthur Fellowship in 1991. He is the recipient of the John von Neumann Prize of the Society for Industrial and Applied Mathematics (SIAM) and of the Norbert Wiener Prize in Applied Mathematics of SIAM and the AMS. He is a fellow of the American Academy of Arts and Sciences and of SIAM. He is a foreign associate of the French Academy of Sciences and a member of the National Academy of Sciences.

The Shaw Prize is an international award established to honor individuals who are currently active in their respective fields and who have achieved distinguished and significant advances, who have made outstanding contributions in culture and the arts, or who have achieved excellence in other domains. The award is dedicated to furthering societal progress, enhancing quality of life, and enriching humanity's spiritual civilization. Preference is given to individuals whose significant work was recently achieved.

The Shaw Prize consists of three annual awards: the Prize in Astronomy, the Prize in Science and Medicine, and the Prize in Mathematical Sciences. Established under the auspices of Run Run Shaw in November 2002, the prize is managed and administered by the Shaw Prize Foundation based in Hong Kong. Previous recipients of the Shaw Prize in Mathematical Sciences are Maxim Kontsevich (2012), Demetrios Christodoulou and Richard S. Hamilton (2011), Jean Bourgain (2010), Simon K. Donaldson and Clifford H. Taubes (2009), Vladimir Arnold and Ludwig Faddeev (2008), Robert Langlands and Richard Taylor (2007), David Mumford and Wen-Tsun Wu (2006), Andrew Wiles (2005), and Shiing-Shen Chern (2004).

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