

Sperber, Dan

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Dan Sperber (born 1942) is a social and cognitive scientist whose research is about culture, cognition and communication. His work has had considerable impact on anthropology, evolutionary psychology, and philosophy of language and mind as well as linguistic pragmatics. He has written books on symbolism (1975) and anthropological knowledge (1985b), and one in which he develops his own naturalistic account of culture, the theory of the epidemiology of representations (1996). With Deirdre Wilson he is the co-founder of relevance theory, a theory of cognition and communication and one of the leading programmes of research in linguistic pragmatics, which they set out in their monograph *Relevance: Communication and Cognition* (1986). He has also edited volumes on causal cognition (Sperber, Premack, & Premack, 1995); metarepresentation (Sperber, 2000b); and experimental pragmatics (Noveck & Sperber, 2004), the latter an emerging field which his research has helped to found.

Sperber is emeritus senior researcher at the *Centre National de la Recherche Scientifique* in Paris; and professor of philosophy and cognitive science at the Central European University in Budapest.

Four areas of Sperber's work are described below: intuitive and reflective beliefs; the epidemiology of representations; massive modularity; and epistemic vigilance. In addition, the entry on Deirdre Wilson in this volume provides an outline of Sperber and Wilson's relevance theory and their theories of irony and of lexical pragmatics.

[A] Intuitive and reflective beliefs

Sperber (1982; 1996, pp. 87–97; 1997) has proposed that beliefs do not form a natural class: that is, there are (at least) two quite distinct types of thing that we call beliefs (just as scientists have discovered that there are two different minerals, jadeite and nephrite, which are both referred to as 'jade'). He labels these two classes *intuitive* and *reflective* beliefs.

Reflective beliefs are mental representations that are held true because the believer also believes there is a good reason to hold them. For example, a child, Bobby, is told by his mother that God is everywhere. Because he trusts his mother, he forms the corresponding belief. This is a reflective belief, held on the basis of two other beliefs: that his mother says that God is everywhere and that what his mother says is true.

Intuitive beliefs are ones that are delivered by our spontaneous cognitive processes, such as perception, memory or spontaneous inference and experienced as "plain awareness of a fact" (Sperber, 2010, p. 584). For example Bobby believes that coal is black. He may at first have

come to believe this because he was told it, but he could easily check it by looking at some coal. Intuitive beliefs, Sperber suggests, also differ from reflective beliefs in that they are composed only of basic concepts: concepts of perceptually identifiable phenomena (e.g. coal) and abstract concepts that we have innately, such as *cause*, *function* and *truth*. In contrast, reflective beliefs can include concepts that the believer only partially understands, as with Bobby's grasp of the concept 'God', and they are typically acquired through communication and accepted either on the basis of an explicit argument, as when understanding and accepting a theorem, or on the basis of authority, which may be the authority of a parent, a teacher, science etc.

Sperber's initial purpose in making a distinction between intuitive and reflective beliefs was to show that there is a way to understand that different cultures include different and incompatible beliefs without either assuming that people are irrational, or subscribing to cultural relativism. Many reflective beliefs, for instance most religious beliefs, are only partly understood and indeterminate in content, so it is not clear whether they are consistent or inconsistent with other beliefs, and it may therefore be rational to hold them on the basis of the authority of their source. Sperber suggests that many scientific beliefs of non-scientists fall into this category, and that reflective beliefs play an important role in teaching and learning. For example, Bobby's teacher may say that there are male and female plants, and Bobby may come to hold this as a reflective belief on the basis of her authority, without having much of a grasp of what it would be for a plant to be male or female. This reflective belief may be fleshed out as Bobby learns more. Some reflective beliefs may never be fully fleshed out because the concepts are difficult to grasp: the average person only ever partly understands what is meant by $E=mc^2$. Others, like 'God is everywhere', remain mysterious because they do not lend themselves to a "final, clear interpretation", but can be reinterpreted in many ways. Sperber suggests that it is because they are partially grasped that religious beliefs are attractive, even "addictive".

[A] The epidemiology of representations

Sperber (1985a; 1996) has proposed a naturalistic, causal account of culture. He argues that "to explain culture is to answer the following question: why are some representations more successful in a human population, more contagious, more 'catching' than others" (Sperber, 1985a, p. 74), just as epidemiologists aim to understand the spread and distribution of diseases in a population.

According to Sperber, there are two types of representation: mental and public. Assuming that both types are material, mental representations are ultimately brain states, while public representations are arrangements of ink on a page, vibrations of air molecules, scratches in stone, movements of people's limbs and so on: ultimately arrangements and movements of physical particles. Mental representations can cause physical representations – one has to know a story to tell it, for example – and physical representations can cause mental representations: those hearing the story represent it mentally and may remember it, i.e. retain the representation. These mental representations may in turn cause public ones: the original hearers may retell the story, for example. Thus there are causal chains linking mental representations to public ones and those public representations to further mental ones and so on. This picture applies to cultural phenomena quite generally: not only facts, opinions, and stories, but also skills, procedures and rituals.

Sperber claims that two properties are necessary for a representation to be widespread: it has to be repeatedly communicated and minimally transformed in the process. Here Sperber's account of culture leans on Sperber and Wilson's account of communication. They argue that human communication is essentially inferential, and is aimed, in the general case, at producing thoughts in the hearer that resemble the speaker's thought rather than at identity

of transmitted thought. Thus it cannot be taken for granted that a representation that is communicated retains its form or content. Representations that are easier to communicate without large changes and ones that are more memorable are more likely to spread and to persist, that is, to become and remain part of a culture. Stories about people (or gods or animals with personalities) may be more widely known than mathematical theorems because they are more memorable. Other factors may contribute: perhaps mysterious religious beliefs of the type mentioned above are retained, in part, because they are not easily refuted. Sperber's theory also predicts that representations that are spread and retained will gradually be transformed, particularly in oral cultures.

Such explanations and predictions show how cultural (anthropological) facts can be given a kind of causal explanation in terms of psychological tendencies. This framework for the study of culture is in contrast, although not necessarily in conflict, with prevailing views in anthropology, according to which culture is *sui generis* and anthropology offers explanations that are interpretive rather than causal.

[B] Against memes

Sperber (2000a; 2006) is one of the leading critics of a popular idea with some similarities to his epidemiology of representations, Dawkins' memetic theory of culture. On this view, cultures are composed of 'memes', cultural replicators (including ideas, but also methods, musical tunes and much else) which propagate through imitation and undergo selection in a process that is closely analogous to the replication and natural selection which operates on genes. In a parallel to his famous claim that genes are 'selfish', Dawkins makes the same claim about memes: whether or not they are selected depends on how well adapted they are to their environment, not on whether possessing them is beneficial to their host (the organism in the case of genes, the human mind in the case of memes). Sperber agrees that there are some things that are replicated despite being harmful to their hosts: chain letters do not benefit the people who copy and send them, but they are spread because of their threatening content. But few cultural items are like this.

The behaviours and representations that are stable in a population are mostly so because they are not copied or reproduced as genes are: they are rather 're-produced' or *produced again*. Consider the way that laughter spreads. It is triggered by perceiving others laughing, but it is not copied. A young child who laughs for the first time is not replicating observed laughter. Rather, a biologically innate disposition is triggered. The same obviously goes for smiling and for yawning, but also for more complex cases such as acquiring the grammar of one's native language: the grammar cannot be copied, since the child hears utterances, not a grammar. It has to be inferred. So copying cannot be the mechanism by which the grammar which the child acquires is similar to the one which is in the heads of his parents. Instead, according to the standard account of language acquisition, it is a result of two factors: first, there is an innate disposition to form a grammar with certain properties, second, human grammars vary in certain limited ways, and infants are innately disposed to set corresponding parameters so that their emerging grammar matches the one generating the utterances they hear. The meme theory tacitly assumes that when behaviour is caused by some prior behaviour and resembles it, then the mechanism must be copying. But these counterexamples show the assumption is untenable and imply that the research programme should be abandoned, a conclusion that is supported by the fact that it has not generated any significant body of empirical research (Sperber, 2006, p. 152, quoting Robert Aunger).

[A] Massive modularity

The idea that human cognition includes distinct abilities dedicated to different domains is an old one, reintroduced in the 1960s by Noam Chomsky. The philosopher Jerry Fodor (1983) argues that some of human cognition is modular, but not all: there are ‘input’ modules for perceptual processing, but also non-modular ‘central’ reasoning that integrates their outputs. *Contra* Fodor, Sperber (1994; 2002) proposes massive modularity, an admittedly “extremist thesis” which is a conjunction of four claims: that modules underlie our domain-specific mental abilities; that all human cognition, including conceptual processing, is divided into modules; that modules come in different ‘sizes’, down to micro-modules that are specialised for thought about a single concept; and that there is a continuum of cases between, on the one hand, innate modules that may need experience to develop but the basic structure of which is not modified by experience, like the visual perception of depth, and acquired expertises like playing chess that modularise in the brain. Knowledge of English, for instance, is not innate but has a strong innate basis whereas reading is a skill painstakingly acquired but that exploits quite specific innate resources and brain areas.

The classic evidence for input modularity is from illusions such as the way we perceive the Müller-Lyer diagram, and the fact that they persist in the face of evidence. You can measure the two lines in the diagram to be the same length, but one of them still seems longer than the other. Fodor’s conclusion is that some component of your mind – a visual perception module – cannot use some of the information you know: it is informationally encapsulated. Conversely, Fodor’s main argument that central thought is non-modular is that it is unencapsulated: evidence from any domain may be used in central activities such as science and general decision making.

For Sperber, an autonomous mental mechanism for a particular task or domain is a module, and there is no reason to suppose that all of these will be informationally encapsulated in Fodor’s sense. Sperber has suggested that the architecture of the mind may be such that central modules have access to the same input (e.g. representations held in working memory) but compete for limited processing resources.

[A] Epistemic vigilance and the argumentative theory of reasoning

Working with Olivier Mascaró, Hugo Mercier and others (Sperber, 2001; Mascaró & Sperber, 2009; Sperber et al., 2010; Mercier & Sperber, 2011; Sperber & Mercier, 2012), Sperber has proposed that humans have several cognitive mechanisms for ‘epistemic vigilance’ – i.e. filtering out misinformation from what is communicated. Some of these mechanisms evaluate the source of the information: who to believe? Others evaluate the content of the information: what to believe?

Mascaró and Sperber (2009) have studied, in a developmental perspective, epistemic vigilance towards the source and more specifically towards deception. They have found experimental evidence that three abilities – to detect the moral, epistemic, and mindreading aspects of deception – develop separately in childhood. Children prefer the testimony of benevolent interlocutors as early as 3 years old. Around 4 they show understanding that someone described as a liar will provide false information. From about the same age they begin to recognise lies when they are told that the speaker intends to deceive, with significant improvements in this ability up to the age of 6.

Mercier and Sperber (2011) have argued that reasoning is essentially linked to vigilance towards communicated content. Addressees evaluate the coherence of what they are told with what they already believe. Speakers, to persuade their audience, highlight this coherence by showing how new conclusions actually follow from already accepted premises. Mercier and Sperber argue that many biases and other deviations from rationality, well-known to cognitive and social psychologists, are best explained if we assume that human reasoning evolved not as

a general-purpose ability to improve knowledge, but with the specific functions of devising arguments to persuade others and of evaluating such arguments when they are offered. For example, they explain the confirmation bias – a tendency to search only for data that fit with rather than disprove the hypothesis one is currently entertaining – as due to a search for information that one can present to others to support one’s current position. It follows that the bias should be much more strongly manifested in the production of arguments to convince others than in the evaluation of another’s argument. They also provide explanations for other biases, including framing effects and the sunk-cost fallacy; and predict that people may tend to favour decisions that are easier to defend – even if better choices are available. A related claim is that reasoning is best in argumentative contexts, and that groups do better than individuals: reasoning is a social competence (Sperber & Mercier, 2012).

SEE ALSO:

Conversational Implicature
 Pragmatic Inference
 Pragmatics and Cognition
 Pragmatics and/of Irony
 Pragmatics versus Semantics
 Wilson, Deirdre

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