



Reasoning as a lie detection device (Commentary on Mercier and Sperber: 'Why do humans reason? Arguments for an argumentative theory')

Jean-Louis Dessalles

► To cite this version:

Jean-Louis Dessalles. Reasoning as a lie detection device (Commentary on Mercier and Sperber: 'Why do humans reason? Arguments for an argumentative theory'). Behavioral and Brain Sciences, 2011, 34 (2), pp.76-77. hal-00614793

HAL Id: hal-00614793

<https://hal.science/hal-00614793>

Submitted on 22 Aug 2011

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Dessalles, J-L. (2011). Reasoning as a lie detection device (Commentary on Mercier & Sperber: 'Why do humans reason? Arguments for an argumentative theory'). *Behavioral and Brain Sciences*, 34 (2), 76-77.

Available at: http://www.dessalles.fr/papers/Dessalles_10091501.pdf

Commentary on Mercier and Sperber

ABSTRACT: 55 words
MAIN TEXT: 924 words
REFERENCES: 103 words
ENTIRE TEXT: 1100 words

Reasoning as a lie detection device

Jean-Louis Dessalles
Telecom ParisTech
46 rue Barrault – F-75013 Paris – France
Tel. +33145817529
jl@dessalles.fr
<http://www.dessalles.fr>

Abstract:

The biological function of human reasoning abilities cannot be to improve shared knowledge. This is at best a side-effect. A more plausible function of argumentation, and thus of reasoning, is to advertise one's ability to detect lies and errors. Such selfish behavior is closer to what we should expect from a naturally selected competence.

I fully support HM & DS's central claim that deliberative reasoning is a byproduct of argumentative competence. But if the function of reasoning is argumentation, what is the (biological) function of argumentation? According to HM & DS, argumentative reasoning improves "both in quantity and in epistemic quality the information humans are able to share", and thanks to it, "human communication is made more reliable and more potent".

If the biological function of reasoning is to achieve *shared knowledge optimization* (SKO), as suggested in the target article, then why do people show obvious limitations such as confirmation bias? HM & DS answer that information quality is optimized, not at the individual level, but at the group level. It would even be a good thing that individuals specialize on their (probably erroneous) line of reasoning, as long as argument exchange restores global information quality. The problem is that natural selection does not operate at the collective level. Shared knowledge belongs to the phenotype of no one.

How does the speaker benefit from uttering an argument? If the purpose is to correct or update her own earlier beliefs, why go public with it? And if it is to correct or update others' beliefs, what's her advantage? HM & DS explanation for the existence of deliberative reasoning does not escape the general evolutionary paradox of communication: if it benefits listeners only, there should be no speakers; and if it benefits speakers only (e.g. by allowing manipulation), there should be no listeners. Invoking collective benefits does not offer an escape route if we wish to remain on firm Darwinian ground.

To solve the paradox, we must depart from (SKO). My proposal (Dessalles, 1998) is that human-like reasoning started with logical *consistency checking* (CC), and that humans used it as a *lie detection* device (LD). As a response to the risk of appearing self-contradicting, the ability to *restore consistency* (RC) through argumentation emerged. In this game, information quality is not what is at stake. The point for individuals is to *advertise* (AD) their ability to perform or resist (LD). This advertisement behavior makes sense within a costly signaling model of human communication (Dessalles, 2007; 2008).

The main difference with HM & DS's position comes from (AD). HM & DS are close to the (CC/RC) distinction when they speak of *evaluation* vs. *production* (of arguments). They fail, however, to see that these two faculties did not evolve for the sake of any form of public knowledge, but as *signals*. Individuals who can publicly signal lies or errors by naming inconsistencies (CC) get immediate social benefit (Dessalles 2007). Those who publicly restore consistency (RC) get social benefit as well, or regain their momentarily lost status.

Contrary to (SKO), the competitive nature of (AD) explains why reasoning is far from remaining a private activity: argumentation takes up the major part of the 16 000 words spoken daily on average (Mehl *et al.*, 2007). Moreover, various observations by HM & DS make more sense within (AD) rather than (SKO), especially the fact that humans are better at finding inconsistencies in others' line of reasoning and at finding support for their own. Another argument in favor of (AD) is the futility of many conversational topics, which makes no sense from an (SKO) perspective. Yet another good example of the divergence between (AD) and (SKO) is offered by the BBS commentary system: commentators are of course concerned by the overall quality of scientific knowledge, but most of them are even more motivated by the urge to show their ability to point to some inconsistency in the target article. (SKO) would perhaps hold if contributors accepted that their name be omitted.

HM & DS strangely do not mention a fundamental common property between deliberative reasoning and argumentation. Both processes seem to consist in a *sequential* alternation between logical incompatibilities and attempts to resolve them. This property is concisely captured by the Conflict-Abduction-Negation procedure that describes argumentative processes (Dessalles, 2008). The sequential nature of argumentative reasoning supports the central claim of the target article, but it is at odds with any idea of knowledge optimization. Virtually all artificial reasoning devices (from chess players to planning programs) involve parallelism whenever possible (esp. in multi-option comparison). So-called Truth-maintenance systems and argumentation systems make use of graph representations that are *not* limited to sequential processing (e.g., Dung, 1995). In comparison, human argumentative reasoning is skewed. It is bound to start from a logical incompatibility, and then sequentially creeps forward through recursive attempts to solve the current incompatibility and then detect new ones. Such manifestly suboptimal procedure does not make sense if the aim is knowledge optimization. It makes perfect sense, however, in the (LD/AD) context.

The biological importance of informational capabilities is due to the particular political context of our species (Dessalles, 2007). In that context, information is not important as such; it is rather an excuse to show off informational capabilities, such as being the first to point to unexpected events. In the absence of a lie detection system, such communication is bound to checkable, almost immediate, events. The advent of consistency checking capabilities offered a new occasion for individuals to compete, by allowing them to advertise their lie and error detection capabilities. This new competition has side-effects, such as opening the possibility of communicating about past events that cannot be directly checked. Knowledge improvement also turns out to be a side-effect of reasoning and argumentation. When reasoning and producing arguments, speakers follow a more selfish agenda, which is to show off their competence for dealing with anomalies in information.

Additional references

- Dessalles, J-L. (1998). Altruism, status, and the origin of relevance. In J. R. Hurford, M. Studdert-Kennedy & C. Knight (Eds.), *Approaches to the evolution of language: Social and cognitive bases*, 130-147. Cambridge: Cambridge University Press.
http://www.dessalles.fr/papiers/pap.evol/Dessalles_96122602.pdf
- Dessalles, J-L. (2008). *La pertinence et ses origines cognitives - Nouvelles théories*. Paris: Hermes-Science Publications.
<http://pertinence.dessalles.fr>
- Dung, P. M. (1995). On the acceptability of arguments and its fundamental role in nonmonotonic reasoning, logic programming and n-person games. *Artificial Intelligence*, 77, 321-357.
<http://dli.iit.ac.in/ijcai/IJCAI-93-VOL2/PDF/003.pdf>
- Mehl, M. R., Vazire, S., Ramírez-Esparza, N., Slatcher, R. B. & Pennebaker, J. W. (2007). Are women really more talkative than men? *Science*, 317, 82.

This leaves us with the urgent question that any evolutionary account of reasoning must face: *Why us and not other species?* Why do other primates (apparently) lack deliberative reasoning abilities? HM & DS mention the fact, but do not address the issue, though in their view, (SKO) should be beneficial to any species. The usual way to evade the issue consists in invoking some deficiency that would affect all other species: lack of intelligence, lack of theory of mind (Sperber, 2000a), lack of cooperation. . .

As suggested by Bickerton (2009), the plausible sequence of events is the opposite. Some new selection pressure created the need to signal new information to conspecifics; all other unique features of the human mind are consequences, rather than causes, of this fact. This is especially true of intelligence and reasoning abilities (Monod, 1970; Bickerton, 2009).

The sequence of events could be as follows. Due to the advent of weapons that allow killing at no risk at some point in the hominin lineage (Woodburn, 1982), classical primate politics became obsolete. Information replaced muscular strength as a criterion for choosing allies. Individuals started signaling any unexpected event, as a way to advertise their ability to warn for danger. This form of communication was initially limited to checkable events. Then the ability to detect inconsistencies (and to name them) became a new asset (hypothesis LD), and was advertised as such (hypothesis AD). This opened the way for communication about past events that could not be directly checked. Further reasoning abilities (especially abduction) developed as a way to publicly restore previously jeopardized self-consistency (hypothesis CC).

Virtually no evolutionary scenario of language makes communication advantageous both to speakers and listeners at each step (Dessalles, 2007; Bickerton, 2009). This one does. It provides an evolutionary account for HM & DS's central claim that reasoning serves argumentative purposes. Contrary to HM & DS's view, however,

Reasoning is used in the first place to show off one's ability to spot lies and errors; reasoning abilities are then used to demonstrate one's ability to restore logical consistency.

I also agree with the fact that argumentation evolved as an anti-liar device.

BUT:

If individuals are endowed with the ability to detect logical inconsistencies, it is:

- neither “to correct or update earlier beliefs” (otherwise, it would be absurd to go public with those inconsistencies)
- nor to improve “small group cooperation [...by] overcoming disagreements” (unless one relies on the shaky ground of group-selectionist accounts of language).

From the perspective of the signaling theory of language (Dessalles 2000/2007), **we must split the (deliberative) reasoning ability into two:**

- the ability to detect inconsistencies, to name them and to make them public
- the ability to restore consistency

HM & DS are close to this distinction, when they speak of *production* vs. *evaluation*. They fail, however, to see that these two faculties evolved, neither to improve the welfare of the group nor for the sake of any form of ‘truth’, **but as signals**. Individuals who can publicly signal lies or errors by naming inconsistencies get immediate benefit (Dessalles 2000/2007). Those who publicly restore consistency regain their momentarily lost status.

Evidence for the necessity of splitting deliberative reasoning into two signaling behaviors can be found in the following facts:

- deliberative reasoning is frequently public (when individuals are not alone, of course)
- virtually all argumentative discussions involve *sequential alternations* between contradictions and attempts to resolve contradictions
- even private deliberative reasoning is shown to involve the same *sequential alternation*, whereas all artificial reasoning devices (from chess players to planning programs) involve parallelism whenever possible (esp. in multi-option comparison).

Reference

Dessalles, J-L. (2000/2007). *Why we talk - The evolutionary origins of language* (English edition of ‘*Aux origines du langage*’, 2000). Oxford: Oxford University Press.

<http://www.dessalles.fr/WWT/>

My expertise on the subject:

- In the past decade, I have been repeatedly supporting the idea that (deliberative) reasoning is a by-product of argumentation and that argumentation evolved as an anti-liar device.

- I discussed that issue in a paper to appear in 2010 in *Biology and philosophy Symposium on J.-L. Dessalles's Why we Talk* (OUP, 2007): [Precis by J.-L. Dessalles, commentaries by E. Machery, F. Cowie, and J. Alexander, Replies by J.-L. Dessalles](#)
 - My book (2000/[2007](#)) (see above) has two chapters on the topic
 - My recent book ([La pertinence et ses origines cognitives](#), 2008) has two chapters on the topic
-

“The function of an inferential process is to augment and correct the information available to cognitive system.”

Arguments = “representations of relationships between premises and conclusions.”

“Reasoning allows people to exchange arguments that, on the whole, make communication more reliable and hence more advantageous. The main function of reasoning, we claim, is argumentative”

~~“[Reasoning] thus increases both in quantity and in epistemic quality the information humans are able to share” = “main function”~~

“To avoid being victims of misinformation, receivers must therefore exercise some degree of what may be called ‘epistemic vigilance’” (Sperber et al., In press).

“Communication plays an obvious role in human cooperation both in the setting of common goals and in the allocation of duties and rights.”

“The main function of reasoning is argumentative: reasoning has evolved and persisted mainly because it makes human communication more effective and advantageous.”

jld1998: “A possible conjecture is that our ability to check logical consistency evolved from the necessity to protect oneself against lies.”

~~Contradiction:—~~

~~—function of reasoning = maximize epistemic quality~~

~~—people do it only for the sake of their own claims and to challenge others' claims~~

~~“When a group has to solve a problem, it is much more efficient if each individual looks mostly for arguments supporting a given solution.”~~

“This joint dialogic approach is much more efficient than one where each individual on his or her own has to carefully examine all possible solutions”

“It is not just opinions that may have to be defended: people may also have to put forward arguments to defend their decisions and actions, and they may reason proactively to that end. We want to argue that this is the main role of reasoning in decision making.”

“We view the evolution of reasoning as linked to that of human communication. Reasoning, we have argued, allows communicators to produce arguments in order to convince addressees who would not accept what they say on trust; it allows addressees to evaluate the soundness of these arguments and to accept valuable information that they would be suspicious of otherwise. ~~Thus, thanks to reasoning, human communication is made more reliable and more potent.~~”

“More realistically, individuals may develop some limited ability to distance themselves from their own opinion, to consider alternatives and thereby become more objective. Presumably this is what the 10% or so of people who pass the standard Wason selection task do. But this is an acquired skill, and involves exercising some imperfect control over a natural disposition that spontaneously pulls in a different direction.”