

Closet dualism and neuroscience—the implicit effect of philosophical world view on science

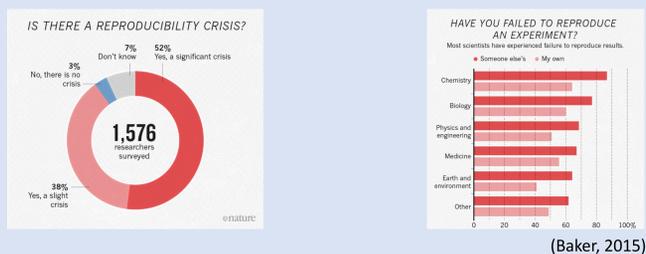
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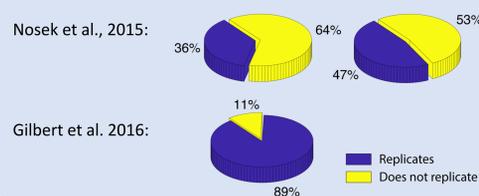
Abstract: The scientific method strives to approach truth despite biases and world views of scientists. Science further increasingly challenges intuitive concepts like the relations between brain and mind (for neuroscience). Thus, while few neuroscientists openly endorse Cartesian dualism, dualistic intuitions appear in prominent neuroscientific texts. We focus on the “double-subject fallacy” (DSF)—treating the brain and person as two independent subjects simultaneously occupying divergent psychological states with complex interactions—e.g., “my brain knew before I did”. Rather than harmless, metaphorical, or figurative short-hand, such confused writing can be seriously misleading. It further demonstrates the deep roots of dualistic intuitions in contemporary thought, affecting even the most rigorous practitioners of the scientific method. **As science increasingly attempts to study high-level concepts—like consciousness and free will—implicit conceptual confusions like the DSF grow ever more problematic and disruptive.**

1 Crisis of confidence

In science:

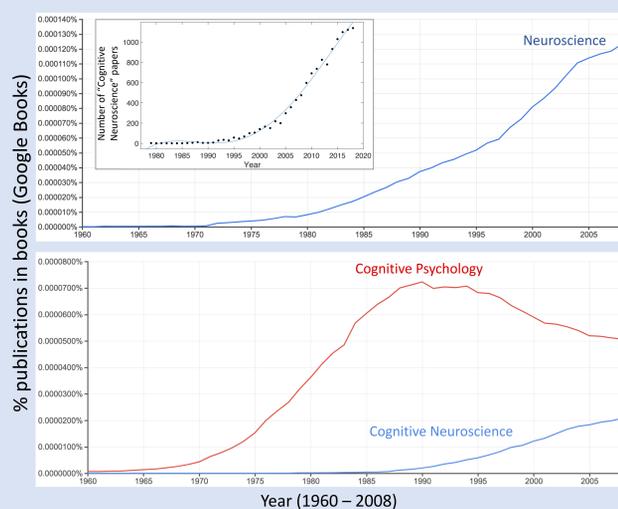


In neuroscience / psychology:

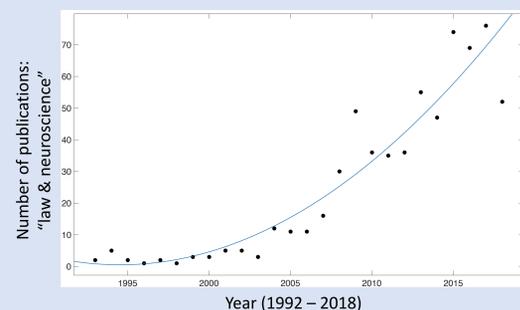


2 Rise of neuroscience

Neuroscience increasingly prominent discipline

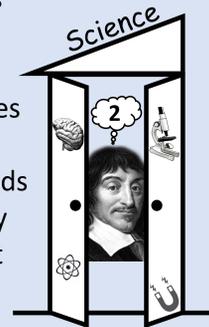


Also outside of science—e.g., legal system



3 Conceptual issues

- Science (& neuroscience) strives for truth despite scientists’ implicit biases and worldviews
- Neuroscience increasingly studies complex topics: consciousness, volition,...—conceptual minefields
- Hence neuroscience increasingly susceptible to scientists’ implicit biases & conceptual confusions
 - In particular: closet dualism



4 Double-subject fallacy (DSF)

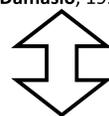
- DSF = ascribing simultaneous, divergent (even opposing) psychol. states to brain & person
- Neither humorous nor metaphoric
- Confusing
- Dualistic: incompatible with any flavor of materialism



(Mudrik & Maoz, 2014)

Compare:

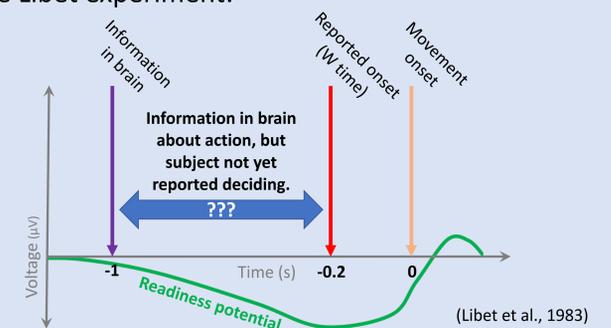
“...our *brains* can often decide well, in seconds, or minutes, depending on the time frame we set as appropriate for the goal we want to achieve, and if they can do so, they must do the marvelous job with more than just pure reason.” (Damasio, 1994, pp. 172–3 ; our emphases)



“...the activity of the *soul* consists entirely in the fact that simply by willing something it brings it about that *the little gland* to which it is closely joined moves in the manner required to produce the effect corresponding to this volition.” (Descartes, 1985, CSM I:343 ; our emphases)

5 DSF examples rephrased

The Libet experiment:



A few more examples (of many):

DSF version	Rephrased	Publication
“... the brain knows our decisions before we do.”	“... decision processes are carried out unconsciously before we have conscious access to them.”	Gazzaniga, 2006
“Does the insula tell our brain that we are in pain?” (article title)	“Does the insula decode/signal the sensation of pain?”	Isnard et al., 2011
“The brain decides when you will experience pain.”	“The brain gives rise to the experience of pain.”	Moseley, 2003
“When your brain decides what you see: Grouping across monocular, binocular, and stimulus rivalry” (article title)	“When neural processes determine the contents of your perception: Grouping across monocular, binocular, and stimulus rivalry”	Pearson & Clifford, 2005
“...the brain had already unconsciously made a decision to move even before the subject became aware of it”	“...unconscious motor-preparatory neural activity began even before the subject became aware of it.”	Soon et al., 2008

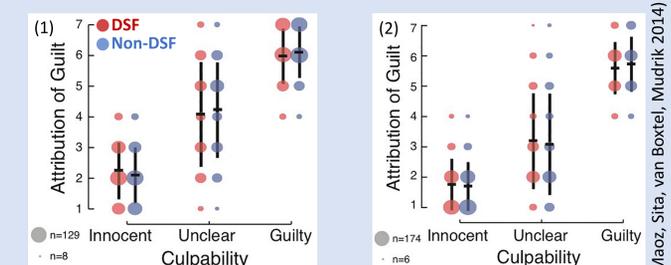
(Mudrik & Maoz, 2014)

6 DSF outside science

Does DSF affect moral responsibility (less guilt)?

Jim struck Bob while driving his car. Charged with vehicular assault with intent to kill

Innocent	Unclear	Guilty
Bob: “Oh no! Look out”	Bob accelerated through red light	Bob: “I’ll kill you, bastard!”
DSF		Non-DSF
Jim’s brain often makes him have aggressive feelings		Jim often has aggressive feelings



We found no effect in original [(1): $F(1,1891) = 0.040, p = 0.84, \eta^2_p < 0.001, BF_{10} = 0.07$] and in alternative scenario [(2): $F(1,1804) = 0.563, p = 0.45, \eta^2_p < 0.001, BF_{10} = 0.07$].

(Maoz, Sita, van Boxtel, Mudrik, 2014)