

Unconscious Knowledge: When We Don't Know That We Know



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‘Knowing,’ in short, may, for aught we can see beforehand to the contrary, be *only one way of getting into fruitful relations with reality* [...].

(James, 1904)

Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz., a physical human subject.

(Quine, 1969)

Unconscious Knowledge



Contemporary psychology speaks of unconscious knowledge in cases in which subjects lack metaknowledge concerning their epistemic states: subjects do not know that they know.

The basis for this ascription is data from experimental research in perception and cognition.

Evidence of Unconscious Knowledge

The data in this work is provided from
experimentation with humans



1. THE TWO VISUAL STREAMS HYPOTHESIS



It is thought that we have two normally interactive, though largely independent, visual streams functioning in parallel:

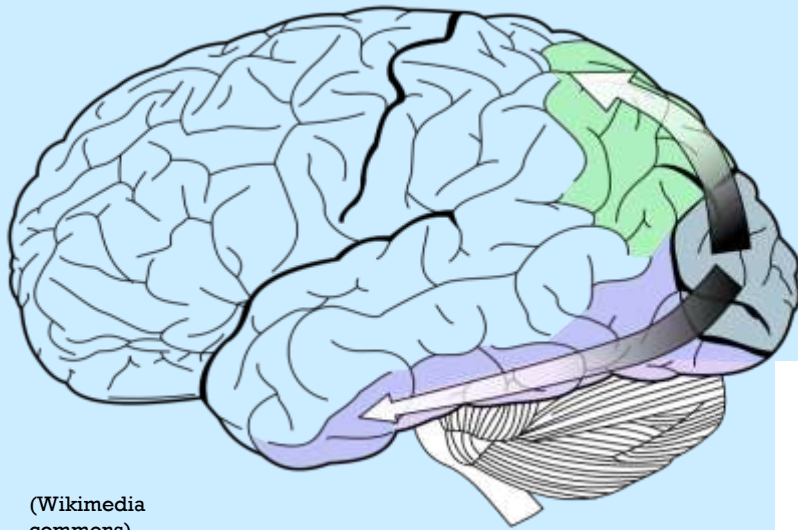
the ***ventral stream***, or *vision for perception* (the “*what*” pathway), whose percepts are—or can become—conscious;

and the ***dorsal stream***, or *vision for action* (the “*where*”/“*how*” pathway), whose percepts are in principle not amenable to consciousness.

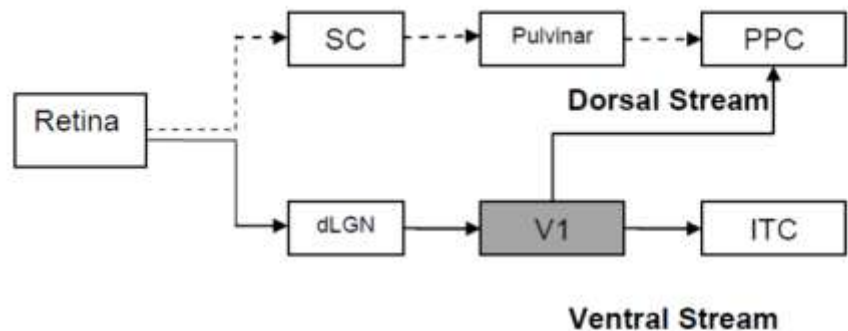
The functional dissociation is accounted for in evolutionary terms.

(Milner & Goodale, 2007)

The dorsal and ventral visual streams



(Wikimedia commons)



(Augusto, 2008b)

Fig. 1 – The Ventral and Dorsal Streams (SC = superior colliculus; PPC = posterior parietal cortex; dLGN = dorsal lateral geniculate nucleus; ITC = inferotemporal cortex; V1 = primary visual cortex)

a. BLINDSIGHT



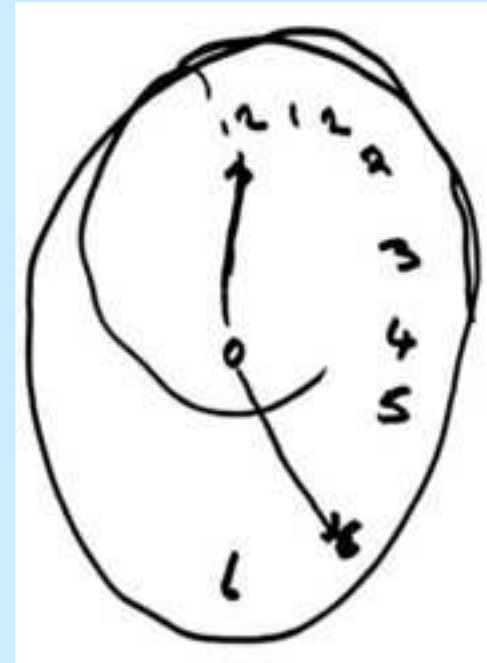
D.B. underwent an operation in which the striate cortex (V1) of the right hemisphere and a part of the adjacent calcarine cortex were removed; this caused an hemianopia on the whole of his left visual field. Despite reporting no consciousness of the stimuli presented in his left field, he can accurately reach or point towards stimuli, makes eye movements when a light is flashed, distinguishes **X** vs. **O**, and is also capable of discriminating line orientations.

(Weiskrantz, 1986)

b. LEFT VISUO-SPATIAL NEGLECT



Patients with this impairment caused by brain damage to the right hemisphere do not acknowledge the left side of space: they do not eat the food on the left side on a plate, they write only on the right side of a sheet, males only shave the right side of their faces. But if asked to navigate among obstacles, they will take obstacles on their left side into consideration.



(Scholarpedia)

(Halligan & Marshall, 1998; Rice et al., 2006)

c. PROSOPAGNOSIA



Prosopagnosics do not recognize faces, often their own included. However, indirect measures indicate 'recognition': shown faces of familiar people, which they claim not to recognize, the patients produce significant SCRs.

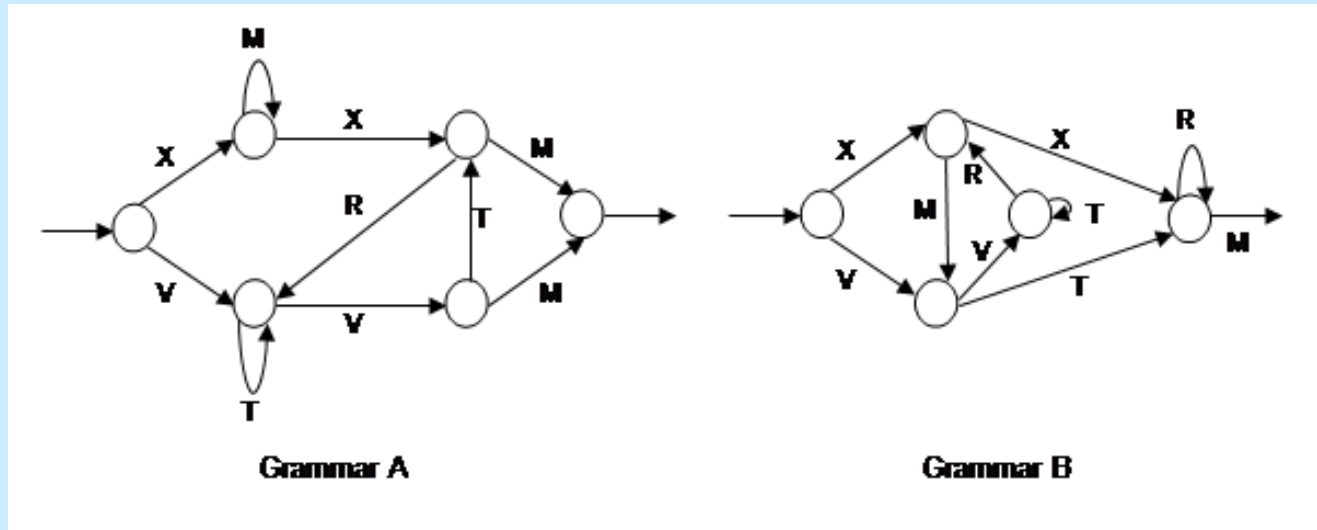
(Tranel & Damásio, 1988)



2. Artificial Grammars



Subjects exposed to artificial grammars without a learning strategy answer correctly well above chance when forced to choose about the grammaticality of sentences.

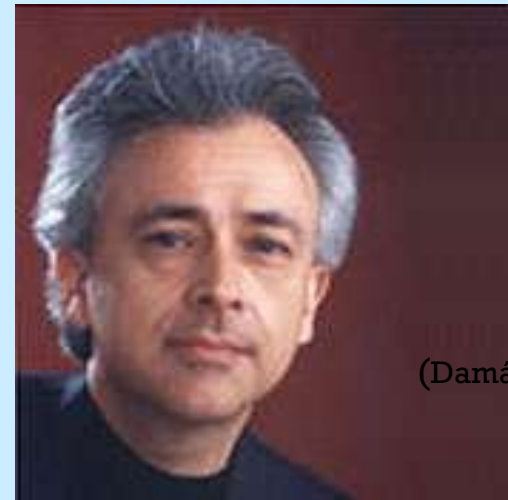
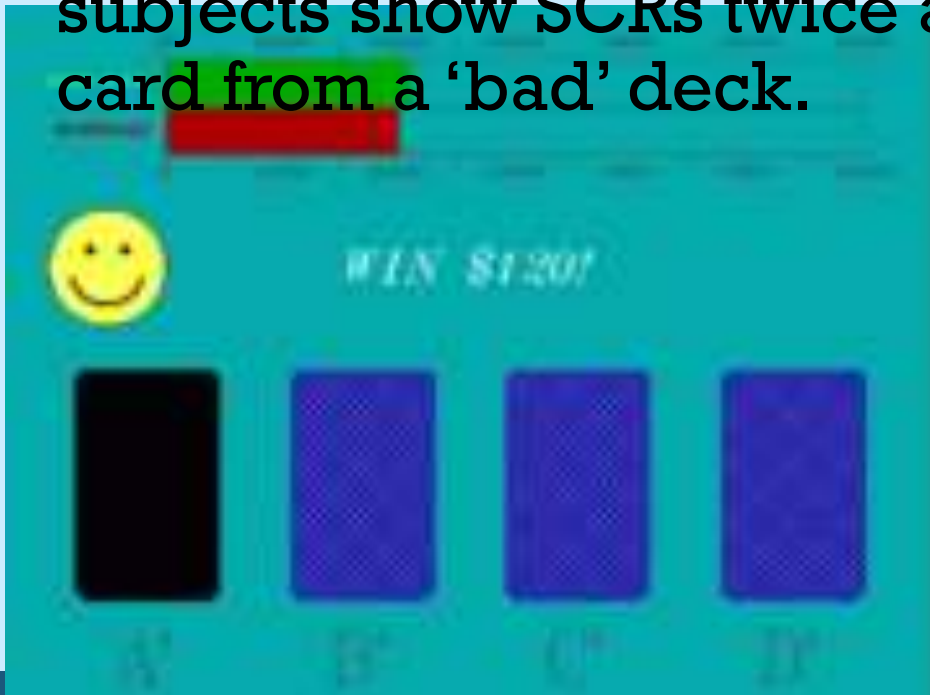


(Dienes et al., 1995)

3. The Somatic Marker Hypothesis



Somatic marker signals help gamblers make advantageous decisions in a gambling task: in the Iowa Gambling Task, even before they have a hunch about what is going on in the game, normal subjects show SCRs twice as high when selecting a card from a 'bad' deck.



(Damásio, 1996)

4. Further evidence



Further evidence comes from research into subliminal perception, sleep-assisted cognition (SAC), and cognition during anaesthesia. However, data from these fields is not well-secured, and in some instances (e.g.: SAC) the quantity of material learned is negligible.

(Adams, 1957; Aarons, 1976; Andrade, 1995)

KNOWLEDGE



From a psychological viewpoint, we can say that, despite lacking metaknowledge,

- D.B. *knows* the shapes presented in his blind field;
- Patients with left visuo-spatial neglect *know* there are obstacles to be avoided on their left;
- Prosopagnosics *know* that the faces they are shown are familiar;
- Subjects unaware that they were learning an artificial grammar *know* some of its rules;
- Gamblers in the Iowa Gambling Task already *know* which decks are good and bad in a pre-hunch period.

'Good' Knowledge



As a matter of fact, cognitive psychology claims to have secured results that suggest that this kind of knowledge is

1. more robust than conscious knowledge;
2. solely procedural (vs. declarative) in nature;
3. holistic, in the sense that it does not distinguish the components of a representation;
4. routinized and inflexible;
5. independent from conscious knowledge.

A Philosophical Defence of Unconscious Knowledge

But, is it Knowledge?



Most philosophers do not think so; epistemologists more often than not assume, explicitly or implicitly, that only conscious beliefs yield knowledge; a mere look at the canonical analysis of knowledge shows this:

(i) p is true.

(ii) S [consciously] believes that p .

(iii) S is justified in [consciously] believing that p .

S [consciously] knows that p .

1. The Overview

Where are their Beliefs?



Many contemporary philosophers see beliefs as propositional attitudes of the kind 'S believes that *p*,' where *p* is a proposition, i.e. beliefs are *linguistic* in nature; they worry about

- 1) the *individuation* of beliefs, and
- 2) their *rational/logical structure*.

Unconscious beliefs simply are not fit for this approach. In most theories of belief as a mental occurrence, it is explicitly/implicitly assumed that the beliefs are held consciously. A notion of belief as simply a disposition/willingness to act in a certain way (e.g. Quine & Ullian, 1970) does not change much in this scenario.

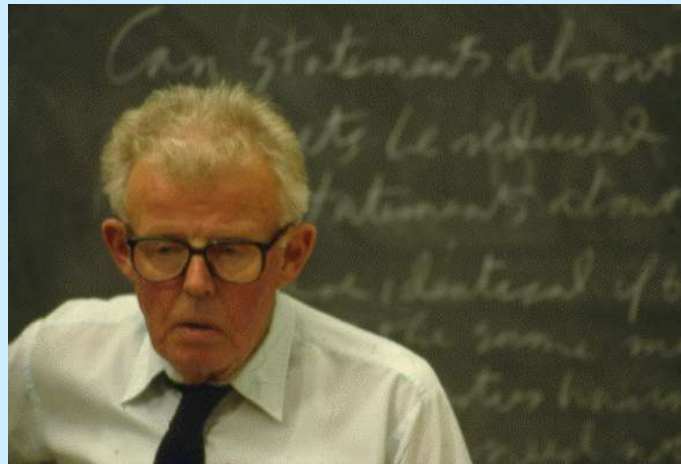
Internalism vs. Externalism (1)



For the sake of the argument, let us grant that there is no knowledge without belief; let us also take it that knowledge is **justified true belief**.

Then, internalism clearly cannot accommodate unconscious beliefs.

(Chisholm, 1977)



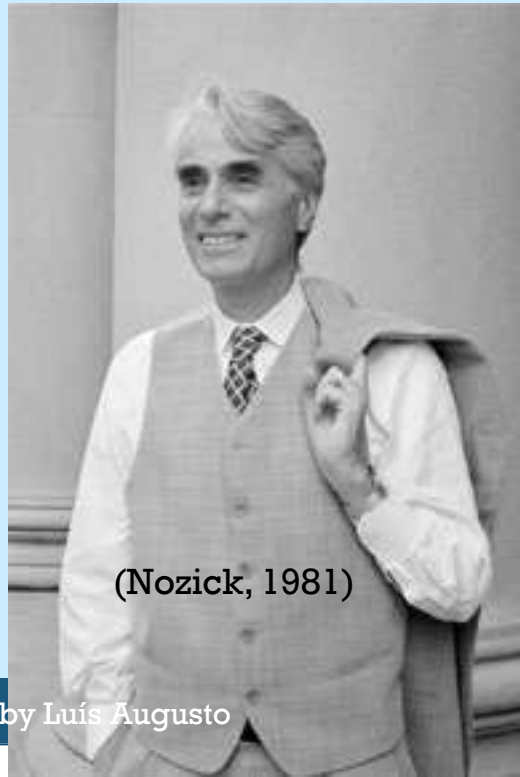
Internalism vs. Externalism (2)



Some of those defending the opposite position known as externalism *appear* to leave room to speak of unconscious beliefs.



(Plantinga, 1988)



(Nozick, 1981)



(Goldman, 1979)



(Dretske, 1989)

Internalism vs. Externalism (3)



But while internalism simply cannot contemplate unconscious beliefs, externalists, too, whether they do or do not require justification, fare no better in that they stick with the canonical tripartite analysis of knowledge.

Epistemic Logic also has a word to say



On top of it all, epistemic logic ‘looks down’ on lack of metaknowledge: the ignorance set $\{p, Kp, \neg KKp\}$ is consistent only in **K**, and $\{Kp, \neg KKp\}$ in **T**, the weakest epistemic systems; this is as good as attributing no positive epistemic status to unconscious knowledge; the strongest systems, **S4** and **S5**, are characterized precisely for describing

INTROSPECTION:

$$(4) \quad Kp \rightarrow KKp$$

$$(5) \quad \neg Kp \rightarrow K\neg Kp$$

2. My Theory of (Unconscious) Knowledge

(Augusto, 2008a; 2008b)

Knowledge & Positive Epistemic Status



A belief has positive epistemic status when it yields knowledge.

We can claim that the unconscious beliefs of the individuals above have positive epistemic status in that they directly or indirectly identify the relevant stimuli and/or their structure (blindsight patients correctly identify stimuli; subjects in artificial grammar tasks identify grammatical sentences; prosopagnosics show autonomic responses to familiar faces), and/or, more importantly, **action grounded on them actually secures the wellbeing of those individuals** (negotiating obstacles, securing long term profit).

a. Beliefs



Thus, the need for a theory of belief ascription that accommodates unconscious beliefs seems justified. My basic assumptions are that

1. Beliefs should be seen *instrumentally*, as useful ‘fictions,’ like the equator.
2. Some beliefs are *propositions/propositional attitudes*; to see all beliefs like that offers analytical advantages.
3. Action / behaviour is a *function* of belief, i.e. beliefs are *causal*.
4. Beliefs are *species-specific* and *culturally determinable*;
5. Thus, they are *sharable*, i.e. (in)directly *observable*.

b. Beliefs Ascription



We ascribe beliefs to others by hearing what they say and/or by seeing what they do. The former is a direct; the latter is an indirect ascription of beliefs, and it is obviously the more problematic one. These are the two principles I find necessary for the ascription of unconscious beliefs to others:

- (1) Acting in a specific way x does not [in certain circumstances] entail that S *only* believes that p , but it entails that S *also* believes that p .
E.g.: Brenda was reading a book when the doorbell rang. She opened the door. Among the many beliefs relevant for Brenda's opening the door is the belief that one can open doors/doors can be opened. One's opening a door is an action that entails the belief—among other beliefs—that one can open doors/doors can be opened.
- (2) When an 'approved' belief-holding subject S belonging to a specific community acts in a specific way x **because** s/he believes that p , S^* , a member of the same community and assumed to be also an 'approved' belief-holding subject, acting in a similar way x , *ceteris paribus*, may be said to *also* believe that p .

c. Positive Epistemic Status, Again



A belief has **positive epistemic status** when it is justified; it is justified when it does not contradict the world.

Clearly, the old canonical tripartite analysis of knowledge won't do; instead of a notion of **justification post veritatem**, we require a notion of **justification ad veritatem**:

(i) *S* believes <that> *p*.

(ii) *S* is justified in believing <that> *p*.

(iii) *p* is true.

S knows *p*.

c*. Justification as Provability



S is justified in believing <that> p iff there is a proof for p :

$$t:p \rightarrow \Box p$$

1. Every p is amenable to justification, because
2. Justification is checkable;
3. Justification of a statement implies knowledge of that statement, and
4. Any justification is compatible with any other justification.

(cf. Artemov & Nogina, 2005)

c**. Truth as Non-Contradiction



There is no A Priori Truth out there; truth is the non-contradiction of the world, or reality.

Let p be any arbitrary belief: then $\neg p$ is the realization that p entailed a contradiction ($p \rightarrow \perp$).

This is attained via an empirical—or empirical-like—method of verification.

Thus, truth simply is justification.

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