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DID I DO IT? -YEAH, YOU DID![*]

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1. READINESS POTENTIAL (RP) AND LIBET'S VIEW

RP is a concept developed by neuroscience to give an account of intentional action. It is basically 'brain electrical activity found to start increasing about 0,8 seconds before voluntary movement' (*Cf.*: Kornhuber and Deecke 1965, Deecke *et. al.* 1969, Deecke *et. al.* 1976 and Libet *et al.* 1983). Libet involves the concept in an experiment (fig. 1) attempting to establish a temporal distinction between the onset of RP and "conscious wish".

Libet's main presupposition is: "If the moment of conscious intention preceded the onset of the RP, then the concept of conscious free will would be tenable: the early conscious mental state could initiate the subsequent neural preparation of movement." (Haggard & Libet 2001, p. 48). Since motor act is not a direct effect of conscious intention (CInt), but of an indirect one of cerebral potential for unconscious initiation of the action (RP) -he concludes, free will (FW) shall be revised.

From Libet's standpoint, intentional actions arrive with RP and then conscious intention follows. Libet did not register electrophysiological evidence of brain states associated with the content of W-judgments (verbal reports just in the moment of awareness of a choice) or, according to his analysis, with the "*first awareness of wish to act*" (Libet, 1999, P. 49) –Libet registered the onset of CInt by W-j's time report.

Two types of data were used by Libet and colleagues to arrive to the hypothesis, namely, *introspective* and *electrophysiological*; the former was constituted by W-j and M-judgments (verbal reports just in the moment we think that our motor act begins), and the later was constituted by EEG's evidence of RP and EMG's evidence of muscular electric activity. His conclusions both combine and depend on these sources of evidence.

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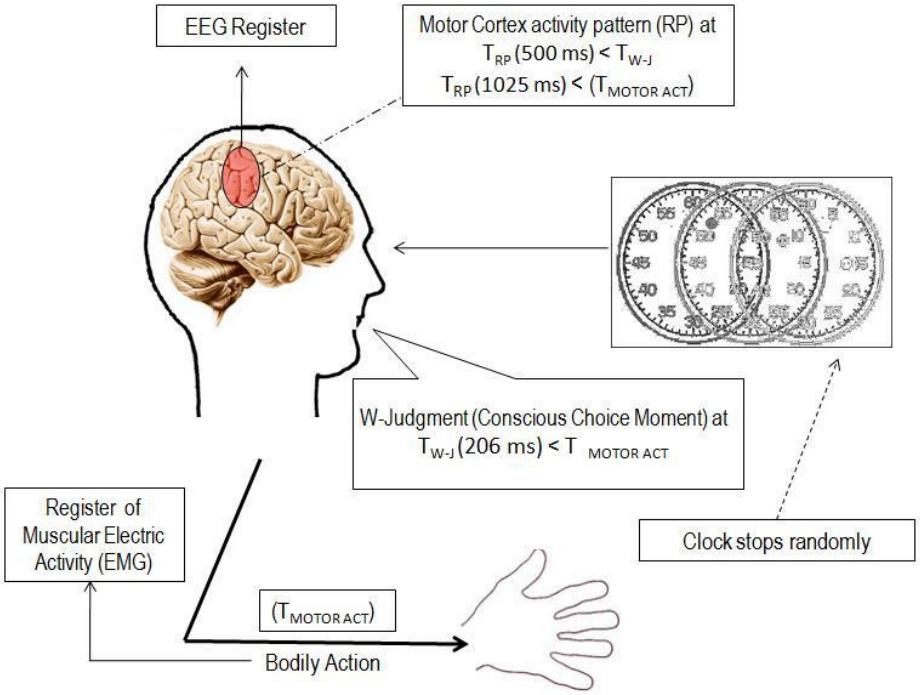

Fig 1. Libet's Experiment for Self -initiated (preplanned) acts (e.g. *vid*.: Libet, 1983)

T_{RP} = RP time, T_{W-j} = W-j time, $T_{MOTOR\ ACT}$ = Motor act time. A subject(***S***) observes a watch which fully rotates every 2.56 sec. ***S*** was instructed to flex his wrist at a time chosen by himself and then to look at the position of the clock just in the moment (W-j time) in which he became aware of his conscious choice (the awareness of his intention) to flex his wrist. The clock continues to freely rotate after the motor act and then stopped. Libet established a *direct causal relation* between RP and the motor act. He arrives at the conclusion that RP precedes temporally motor acts and that there is not a causal relation between our conscious choices and our motor acts. Thus, the awareness of our intentions does not seem to get the volitional process started: free will would then be just an illusion, since our motor acts do not depend on our conscious choices.

The study of free will from Libet´s perspective requires to track causal estimations between two types of data: "if the moment of conscious intention followed the onset of the [RP], the conscious free will cannot exist: a conscious mental state must be a consequence of brain activity, rather than the cause of it" (Haggard & Libet 2001, p. 48). We reject this approach to the explanation of human intentional actions and free will since it seems negatively eclectic.

Libet's findings have lead to a new model (fig. 2) that emerges from a *causal approach* in opposition to the classic model, where intentional action was supposed to be an indirect effect of CInt.

After his rejection of the classic concept of 'free will', Libet posits that there is a "free won´t" (FWN), since an individual can stop the motor act before its completion –overriding the RP and blocking the triggering of its associated action (*Cf*.: Libet 1985 and 2003[3]). He claims that free will still stands since the subject's intentions are involved in his act of FWN as an act of intentional control. Libet found in FWN –as the resulting act of control in monitoring behavior- a concept to support a new notion of free will; in this sense: we are free agents since we can *block our actions*. We think that this negative defense of free will is supported on confusions and then it's unnecessary. This is not to mean that we reject FWN. The veto possibilities implied in FWN are not possible if control act of FWN starts 50 ms

[3] To evaluative critics and commentaries on this issue, *vid*.: Velmans 2003, Libet 1999 and Obhi & Haggard 2004.

before primary motor cortex activates spinal motor cells giving rise to muscle activation (*Cf.*: Libet, 1999). FWN (veto form) still stands, but free will (positive form) could still stand. For us, FWN is just another case of FW.

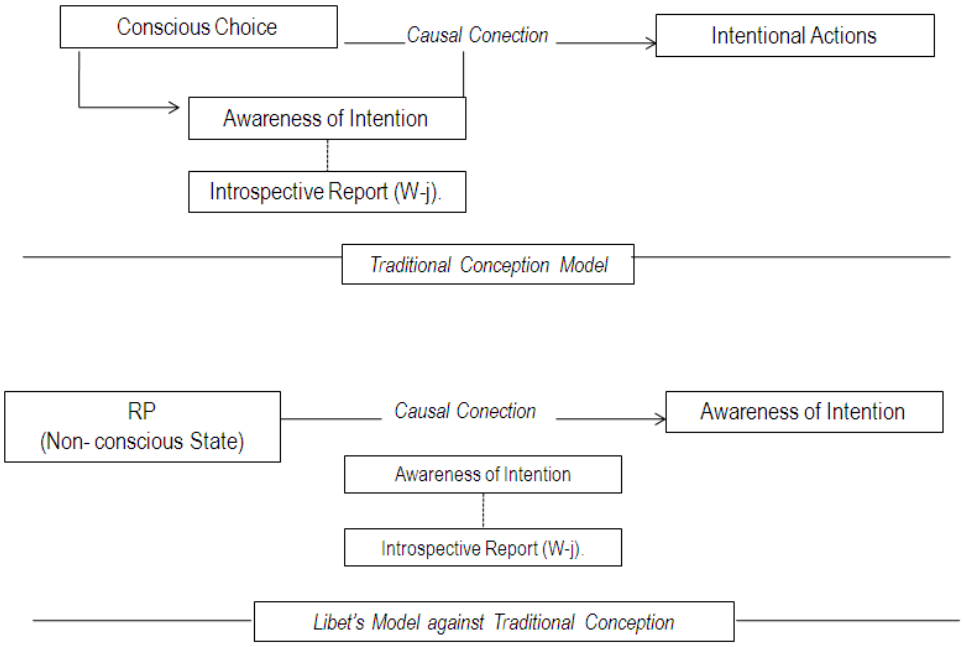

Fig 2. Traditional Conception Model and Libet's New Model

2. WITTGENSTEIN (1916) ON WILL

It is hard to state what Wittgenstein would say about the above mentioned issues –it is already difficult to summarize what one could consider to be his actual stance. The manifold opinions proposed by him in different occasions with respect to free will make it virtually impossible to draw clear conclusions, but there is some previous work (remarkably, Hacker 1996, Vol. 4, part V.) What then, comes out clear about will? Our first claim is that Wittgenstein -though being obscure on will himself- wasn´t all that wrong compared to the trap in which Libet falls by rejecting the classic concepts of FW based upon the temporal precedence of RP over the motor act.

Two concepts can be appreciated in his treatment: «will as an act» and «will as a content of thought» (i.e. an idea). Such concepts reflect the terms of traditional discussion in philosophy: "The will seems always to have to relate to an idea" (8/11/1916; also 11/6/1916) and "The act of the will is not the cause of the action but is the action itself" (*id.*).

Wittgenstein claims that intention (after e.g., flexing a wrist) is properly the *act of the will* in itself, not merely a propositional attitude[4]. This analysis goes from behavior to thought (not inversely). However, Wittgenstein seems to accept that will begins with our desires and with our thought in general (*Cf.*: 21/7/1916); thus, will is not merely a cognitive condition for intentional actions, but also represents the possibility to assign specific contents to thoughts. In Wittgenstein´s words: "this is clear: [...] One cannot will without acting. If the will has to have an object in the world, the object can be the intended action itself. And the will does

[4] For will as a thought, see 14/7/1916.

have to have an object." (Wittgenstein, 08.11.16). In this way, a human being lacking of will seems impossible (see *Id.*): "The will is an attitude of the subject to the world. The subject is the willing subject." (4/11/1916).

Traditionally, one is a free agent if one has intentional actions, i.e. if one's actions depend on one's will. Two concepts are problematic: 'agent' and 'will'. We reject Libet's conclusions because they imply to mistakenly identify subjective choices being equal to beliefs; for Libet, beliefs are not the cause of intentional actions, since the actual cause is the RP (a state over which the agent has not conscious control). We claim that the concept of 'agent' in Libet's study is inadequate. For us, RP could mainly be related to fixation of the reference for our intentional actions and 'agent' to the relevant domain in the scrutiny of what we call 'efficient causal agent' (an agent that could be accurately accounted for an actual causal relation avoiding domain confusions).

3. *RP* REVISITED

3.1. THE REFERENCE OF OUR CHOICES: CONTENT APPROACH AND COGNITIVE PATH

Free will debate differs from that of free actions (*vid.*: Tugendhat 2006). The latter is about conditions of conscious intentions and choices as a particular aspect of volition, while the former is about conditions of intentional actions i.e., actions made and consciously controlled by an agent (someone doing something). We shall focus now on *cognitive* conditions of conscious intentions; in §4 we will focus on *domain* conditions of intentional actions.

In the *square-in-the-mirror* example Wittgenstein posits that free will might be intrinsically related to the focus of attention (*Cf.*: 4/11/1916). Picking intentionally potential stimuli plays a role in the individuation of an act of the will. When you perform any (intentional or not) action it is placed in the context of a particular activity (playing piano, typing on a typewriter etc). The consecution of that activity depends on your implicit monitoring on it; for example, in the same way that your utterances depend on your working memory. We can call this *intention in acting*[5]. Intentional actions are most related to carry on an activity than the actions and motor acts implied in this; we can perform motor acts and these acts are not involved in intentional actions.

The actions that give rise to any activity depend on fixation of attention that gives rise to the monitoring process. The artifacts, agents, contexts, relationships and actions that are relevant to the onset of a motor act are the resulting effect of an attentional process to choose the relevant *intensional* content to perform the activity in which those actions are framed. In Libet's experiment the action is flexing a wrist and the activity comprises other actions like remain sitting, to observe a clock, follow (the instructions of) the experimenter, etc.[6]

This conception seems to derive from an *intensionality-centred-perspective* (ICP) for intentional actions –for which "What is the relevant mental content to perform intentional actions?" is the main question. An ICP standpoint leads to ask for what the mental content controlled by and agent while performing intentional actions is.

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[5] This intention during performance of an activity differs from intention as pretention. This distinction applies to cases as "I had the intention but didn't it".

[6] This thesis is very compatible with Searle's *non-intentional background hypothesis for intentional states*, *vid.*: Searle, 1992.

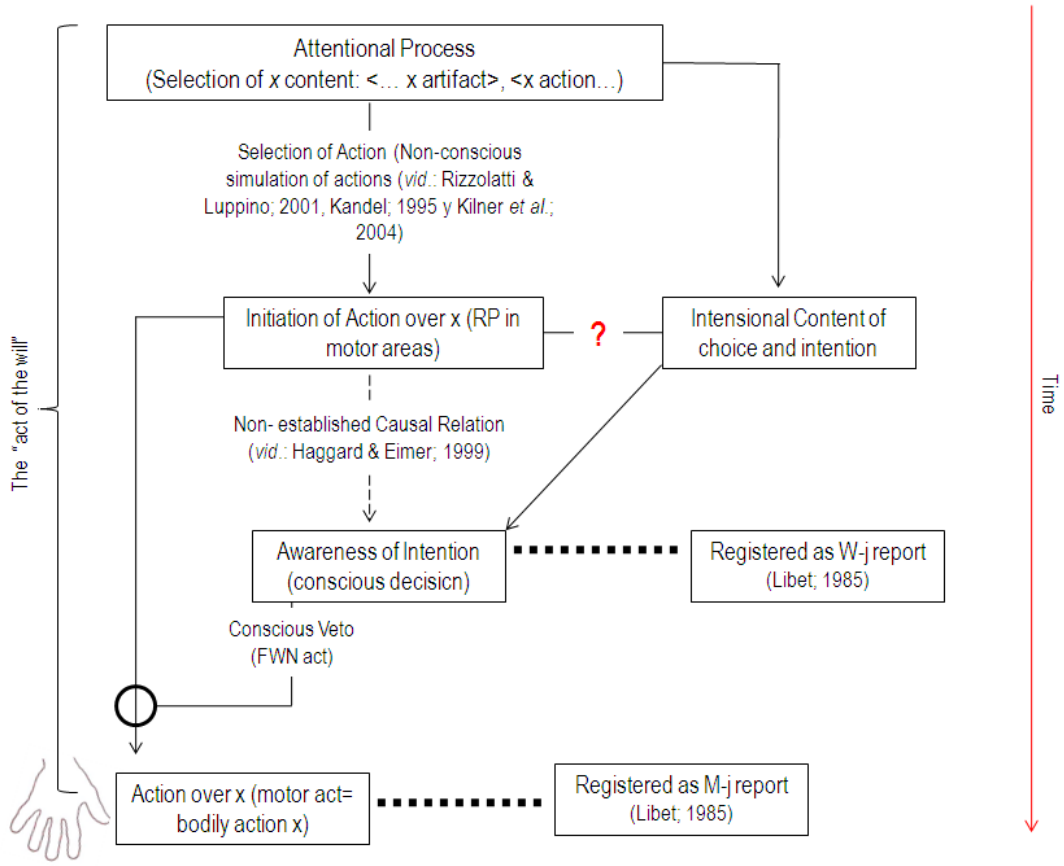

Fig 3. ICP (a content approach –not a causal eclectic approach as Libet's). Attentional content as core factor in fixing the content of choices and intentions.

From a naturalized view of cognition, we propose that focusing attention is a neurocognitive-process depending on an agent's intentions. Agents have control of this process. Free will depends on our dispositions to selectively choose contents of thought and to fix intentions. Temporal precedence of RP over motor acts leads not to conclude that RP does not depend on attentional focusing; otherwise, RP is *content-dependent* and, therefore (in optimal conditions –excluding, say, hallucinations), *context-dependent*. If that is not the case, RP gives rise to random/"mad" actions (e.g. as in the case of Parkinsonism, Huntington's chorea and Tourette's syndrome)[7].

Once we have falsely discarded our common understanding of free will, we still would need to explain why we think about our actions as effects of our beliefs (why we fall in the "illusion of free will". See Fig. 4). *The resulting analysis is not that our intentions are completely isolated epiphenomenal facts*[8]*, but our attentional processes precede our intentions, and plausibly, our RPs.* The contrary would depend on evidence of RP associated with the focusing of attention;

[7] Even in the case of "voluntary acts that become somewhat 'automatic' can be performed with no reportable conscious wish to do so" in which "the RP is rather minimal in amplitude and duration before such automatic acts" (Libet, 1999, p. 50) it seems there is a previous process that involves attentional focus and monitoring.

[8] Libet's rejection of classic concept of 'free will' implies an epiphenomenal conception of the causal role of conscious choice states.

should it be the case. At any rate, "awareness of the wish to move" is not the same as "the act of the will" (fig. 3).

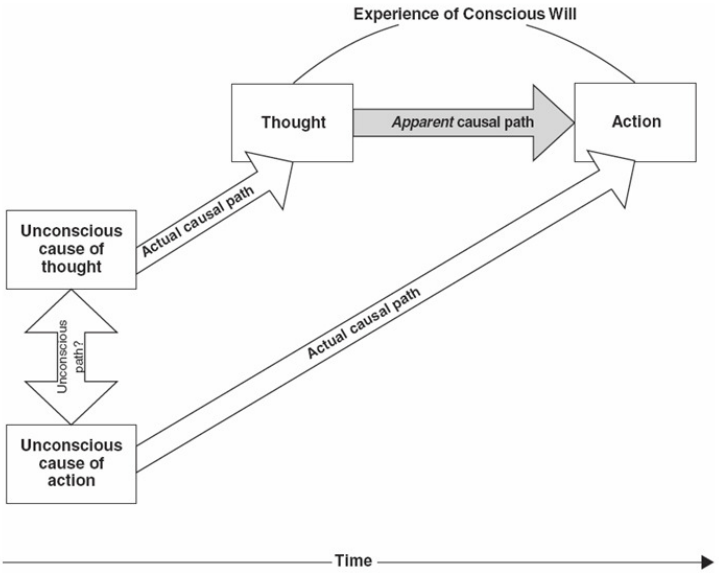

Fig. 4 "The experience of conscious will arises when a person infers an apparent causal path from thought to action. The actual causal paths are not present in the person's consciousness. The thought is caused by unconscious mental events, and the action is caused by unconscious mental events, and these unconscious mental events may also be linked to each other directly or through yet other mental or brain processes. The will is experienced as a result of what is apparent, though, not what is real." (Fig. 3.1 in Wegner 2002. Reproduced under permission of the author).

3B. OURSELVES: AGENTS

You arrive to your neighbor´s house, knock on the door and he opens it and welcomes you. *Who* do you think it was the one that opened the door? Perhaps his brain? Is your neighbor a brain or a *bunch-of-RPs*? Do you actually greet his brain or, rather, a person? There is an apparent confusion between common understanding of free will and that of neuroscientific approach.

RP is not an agent, but a factor involved in motor acts of an agent. We think that the tension arises when an apparently monist stance is mixed with the domain in which our concept of will makes sense. Libet affirms that "The initiation of the freely voluntary act appears to begin in the brain unconsciously, well before the person consciously knows he wants to act!" and then he asks "Is there, then, any role for conscious will in the performance of voluntary act?" (Libet, 1999, p. 51). The former assumption seems to presuppose a stance on the questioned role of conscious will in the latter one. Libet cannot affirm that "…well before the person consciously knows he wants to act!" if he doesn't know what is the role for conscious will in the performance of voluntary acts. Libet seems to presuppose that introspective content of our W-j does not play a causal role in the performance of our intentional actions, then, how then is he asking for this role before?

The main problem, above exemplified, arrives when we try to explain consciousness or introspective content of our subjective knowledge and reasons from a reductionist standpoint; we always will scientifically study physical correlates of subjective knowledge's content as non-introspective or unconscious states, say, microtubules states, synaptic activity patterns, electro-dynamical global synchrony and so forth. So much we have to do lies on designing methods including first-person data (e.g. *vid.*: Gallagher, 2002 and Jack &

Roepstorff, 2002) and stabilizing a framework that permit us a multi-domain analysis without incurring in misconceptions.

Paradox: for a radical monist –accepting physical world's causal closure-, brain processes are not unconscious *per se,* but rather are part of a neurobiological flow that generates a physical event called conscious awareness; for a phenomenist, or an anti-reductionist, the type of relevant objects that give content to your intentional actions are those that you know as a *person* –not as a brain: the door, the doorbell, your friend. Libet's analysis is somewhere between these two domains. If you have adopted a monist view, thus what Libet calls "the volitional process" is not necessarily exclusively unconsciously initiated, for attention focusing is prior to the onset of a particular RP in the context of a particular activity and it also is, at least, partially conscious in the chain of neurobiological processes[9]. We have claimed that the volitional process (i.e.: the act of the will) starts with attentional focusing and other relevant (neuro)cognitive states intervening with the references of our intentional actions.

An obstacle is the fact of the vagueness of traditional use of concepts such as 'will', 'desire', 'wish' and similar as well as its counterparts in German (for instance, 'wollen' and 'Willkur') and Spanish ('querer', 'desear', 'pretender'). Hacker 1996 speaks of "ambiguities that have characterized the efforts of philosophers to illuminate the nature of the will and of human action" and Bennett & Hacker 2005 draw a similar diagnosis in the case of some neuroscientific explanatory efforts.

Hacker also points out that "philosophers have invented a new use for the words 'will', 'want' and 'volition'." Following Wittgenstein: "How is "will" actually used? In philosophy one is unaware of having invented a quite new use of the word, by assimilating its use to that of, e.g., the word "wish". It is interesting that one constructs certain uses of words especially for philosophy, wanting to claim a more elaborated use than they have, for words that seem important to us." (RPP I §51).

To bring meanings of terms from natural language to technical domains is a common habit. Such concepts begin to lose their initial meanings and uses and start to be wrapped by presuppositions of the new domains. Although common, it has not been proven as the best strategy since it seems to be a result of 'traditional anxiety for generality'.

We do not need to track causal connections between a partial state of an agent (e.g. a belief) and its intentional action to destroy the concept of free will; what we need is to undo the causal connection between the agent –be it a whole of neurobiological states or a subject- and his intentional actions. Adopting Libet's approach, the conscious agent seems an epiphenomenal factor reduced to beliefs (registered as W-j) in the causal flow that generates motor act (see Hacker 1996, Id. §2).

There are a lot of processes that biologically compose an agent. It does not have control over most of them, but they are causally involved in its actions. One standpoint against free will lies in identifying an agent's state isolated from the rest of the agent's mental states[10].

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[9] Libet does well in admitting that "Perhaps we should re-visit the concept of awareness, its relation to the content of awareness, and the cerebral processes that develop both awareness and its contents." (Libet, 1999, p. 53) –for awareness is related to the focus of attention. In his own words, referring to an example of a sensory stimulus "may be thought of as applying to the whole volitional process; that would include the content of the conscious urge to act and the content of factors that may affect a conscious veto. One need not think of awareness of an event as restricted to one detailed item of content in the whole event." (*Id.*)

[10] Libet affirms that "RPs have been found by other investigators to precede other more complex volitional acts, such as beginning to speak or to write; they did not, however, study the time of appearance of the

This is not Libet's path: neither he, nor others have demonstrated yet that RP is isolated from other brain states involving conscious content.

In 1963 Walter turned electric brain states (EBS, perhaps RPs) into agents: he connected EBS recorders to the brains of subjects and these to a slide- viewer. Slides were changed by this efficient, but bizarre-electric-agent. In this experiment the efficient causal agent was not human and the subjects' conscious states seemed to be mere epiphenomenal facts. We are not epiphenomenal states placed somewhere between electric-agents and actions. Will does not limit itself to the explanatory domain on motor acts, yet it is not even fully clear how all types of motor acts relate to it (e.g. in a cases of obsessive behavior). Will is to be attributed to agents understood as persons (agents framed in a particular *domain of interaction*), not to electrical brain activity or activation of brain areas (a part of an agent, tacking it as a neurobiological subject). Again, you don´t greet a bunch-of-RPs, but your neighbor.

4.
CONCLUSIONS

Libet´s conclusions on free will represent an instance of *mereological fallacy* (*vid.*: Bennett & Hacker, 2005). The notion of agent is not the same in his works as the one relevant in the dispute for free will. Our *(neuro)cognitive conjecture* is that the processes that lead to focusing our attention are prior to the appearance of RP (Kornhuber & Deecke 1965); focusing our attention is an intentional activity, whereas RP is not such by definition –at least, further research is necessary to settle the dispute (e.g., Kilner *et al.* 2004). Reducing conscious intention's W-j reports is also inappropriate. Subjective conscious choices and intentional *cognitive processes* are not to be reduced to beliefs –though beliefs, intentions and desires have classically been considered as propositional attitudes with the same logical form-. Finally, a causal account based upon tracking temporal precedence between events pertaining to two sources of evidence is wrong; thus, an ICP seems to bring us to prudent conclusions –for empirical reference on a similar direction see Haggard & Eimer 1999.

Again, *we are not epiphenomenal states placed somewhere between electric-agents and actions. Neither Libet, nor others have demonstrated yet that RP is isolated from other brain states involving conscious content*[11].

Philosophers such as Wittgenstein –though not having solved the problem- have contributed with elements that neuroscientists are compelled to consider. Philosophical hypothesis seem to give meta-theoretical feedback to scientific theories of mind and brain, despite the associated despise for them and the frantic and systematic ignorance derived from 'traditional anxiety for generality'.

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conscious wish to begin such acts." (Libet, 1999, p. 54) This not to deny a prior process that includes attention.

[11] For a remarkable account on this topic, *vid.*: Gomes; 2006.

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