

# Willed Action and Mechanisms of Initiation, Production and Control of Cognitive Responses in Schizophrenia: a Cue-based Protocol

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**Focus:** What is the behavior of a subject in response to a baseline condition, as « free » as possible, that engages him to structure his behavior **independently, spontaneously and consequently, willingly**? And how this behavior will progress if one **introduces structuring cues** in the same task? What kind of **dissociations** could raise from this experimental manipulation? What would be the differences between schizophrenics and healthy subjects? In terms of symptoms between schizophrenics? And in terms of the nature of the task (verbal or non-verbal, implying more or less executive functions)?

## 1. Introduction

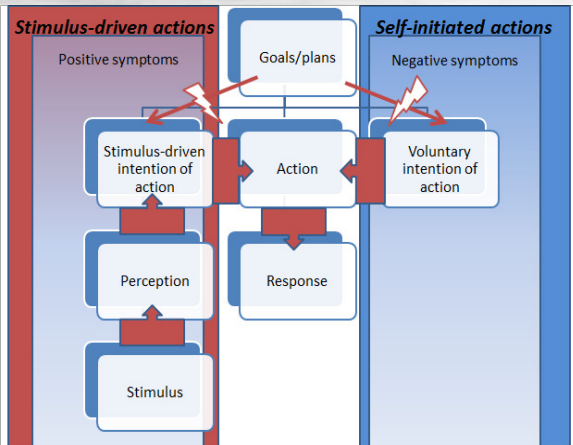
« Presumably, our actions are guided by objectives and goal-directed. Even the simplest non-reflex movement is preceded by the formulation of goals that lead to the intention to act, to "volition" in other words »

Bleuler described the poverty of actions in schizophrenia in 1911. Since then, numerous studies and clinical descriptions have underlined impairments in the action field in schizophrenics

Nowadays, many first-degree deficits are thought to be linked with a broader issue involving action. Nevertheless, for 30 years now, almost all of the experimental studies on volition and action impairments have been dedicated on understanding their neural correlates or focused on simple motor behaviors.

## 2. Theoretical framework

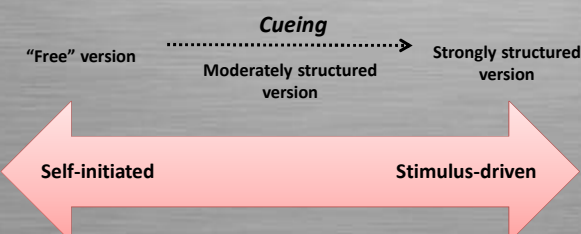
Frith's double-way action model (1992): (1) **Self-initiated actions**: produced from the endogenous formulation of goals and plans (*schizophrenics are not able to link goals with action/negative symptoms*) (2) **Stimulus-driven actions**: provoked by environmental stimuli that the subject may though choose to treat or not (*schizophrenics are not able to inhibit environmental stimuli/positive symptoms*)



## 3. Subjects

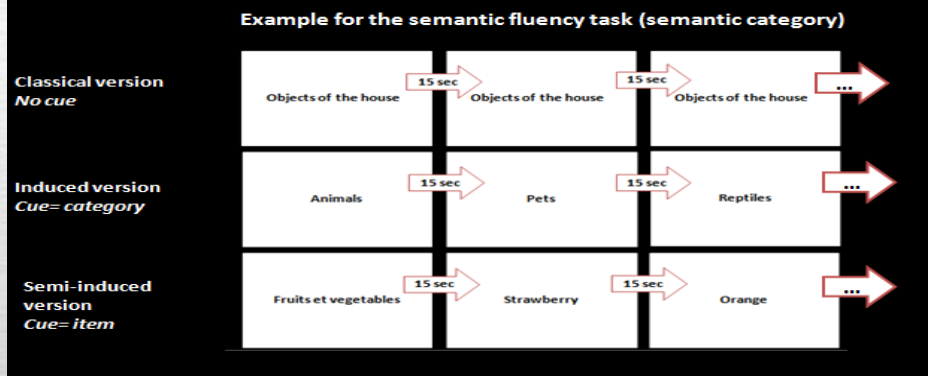
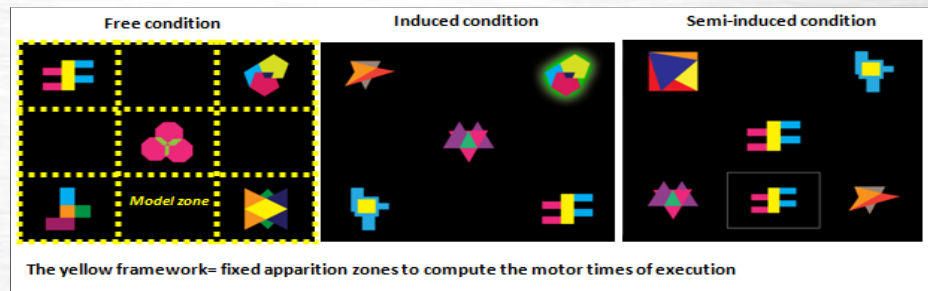
50 < schizophrenics and 50 < healthy subjects matched in terms of demographic data

## 4. Main idea



## 5. Methods

Individual variables	Potential independent variables	Dependent variables (software)
60'	35+15'	25'
<b>Schizophrenics:</b> PANSS MINI (filtering parameter) Age, sex, schooling	1. WAIS 4 Verbal Comprehension Index  2. Test of attentional performance: (1) Go no Go (2) Flexibility (3) Attentional shifting (4) Sustained attention  3. Medication	<b>Verbal paradigm-fluencies</b> Give as many words as possible (a) freely, (b) giving a semantic category or a letter, (c) idem with cues. Cues= words (semantic fluency) or syllables (literal fluency).  <b>Visuo-attentional paradigm-searching targets</b> Touch the targets on a touch screen (a) when (and the which) we want, (b) the surrounded target, (c) the target that corresponds to a given model. Cues= constraints.



## 6. Supplementary focus



Do we assess the subject's performance or his ability to deal with all the implicit elements in the instruction of a task (particularly in the context of volition)? What do "acting freely" really means for a particular subject?

We try to approach the problem in a very single and specific aspect by varying the explicit part of the instruction in the free condition of both tasks, E.g. "give me as many words as you want" versus "give me as many words as possible, don't forget to be as quick as you can"

## 7. References

Frith, C.D. (1992). *The Cognitive Neuropsychology of Schizophrenia*, London: Psychology Press  
McGlashan, T.H., 2011. Eugen Bleuler: centennial anniversary of his 1911 publication of Dementia Praecox or the group of schizophrenias. *Schizophrenia bulletin*, 37(6), pp.1101-3.