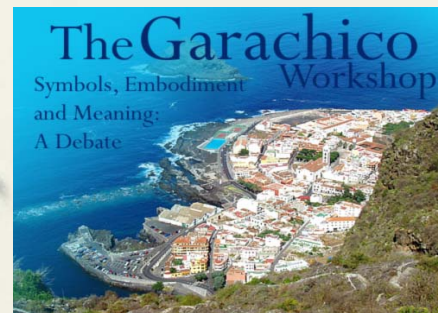


# Interpersonal verbs and approach vs. avoidance behavioural tendencies:

## A question of embodiment?

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“Linguistic meaning is grounded in bodily activity” and “Meaning is based on action” are assertions found on the paper by Glenberg & Kaschak (2002), that can be considered representative of the embodied conception of linguistic meaning. In that paper, the so called action- sentence compatibility effect (ACE) is presented: understanding sentences that involve a movement toward / away from subjects’ body (e. g. “Open the drawer” / “Close the drawer”) can facilitate or interfere with a physical response (their hand movement, toward or away from, to pressing a button). Glenberg & Kaschak presented their subjects with a sensibility judgement. We used the same task, but with a different response system, explained below. And we were interested in another field of semantics, different from the transfer schema chosen by those authors. Our main concern was the understanding of interpersonal verbs, particularly the differentiation between approach (e. g. to support) and avoidance (e. g. to ignore) actions, that can be considered two basic human tendencies (Gray, 1995). The ACE was, in principle, predictable for our materials: understanding a sentence with an approaching action (“Peter supported Mary and stayed with her”) would facilitate a response with a toward movement (step forward), whereas understanding a sentence with an avoiding action (“Peter ignored Mary and left her alone”) would facilitate a response with an backward movement (step backward).

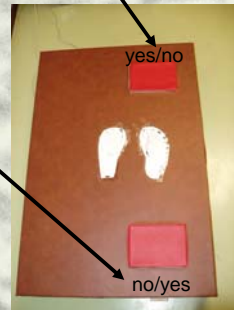
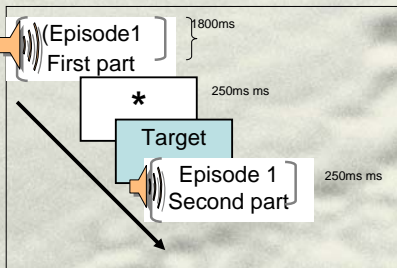
### Method

Participants were presented auditorily with a series of 24 interpersonal episodes (See Example). Each episode include an explicit positive relationship between characters and containing a target verb which described either an approaching vs avoiding action. This target was presented visually on a computer screen. Subject were asked to determine as quickly as possible whether the verb was expected in that context. To answer, subjects (standing on a specific platform) had to press a key (red in the photo) with their right foot, that implying either a forward or backward leg movement. During one half of the experimental session, the “yes” answer was in front of the participant, and “no” one behind him/her. The opposite was true in the other half of the sessions.



#### Example 1

The Campus library is open all day in order to attends the students’ needs. John and Rita are close friends/ Rita has spare time and decides to go to the library. She goes into to the library and she sees John there, who at that moment is sees her and Rita // **waves at vs. avoids** /John and sits down in a free seat

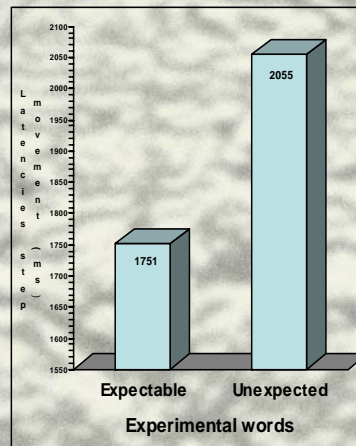


### Pre-test

A pre-test was carried out, to evaluate a possible facilitation of the forward or the backward body movement. The test consisted of responding with a step, either forward or backward, once the word “Forward” or “Backward” appeared on the screen. Due to technical reasons, only 35 participants were involved in this test. The latency of the two kinds of step did not differ significantly (Forward 1124.78 msecs. and Backward 1166.51 msecs).

### Results

An analysis of variance was carried out with two within-subjects factors: Predictability of the verb word (expected or unexpected), and Step direction (Forward or Backward). We only found a significant effect of predictability. [ $F(1,47) = 52.15, p=0.01$ ]. These results do not support our main hypothesis: There was not a facilitation either when the verb was expectable and the step was forward or when the verb was un-expectable and the step was backward. Therefore, one of our research hypothesis was not upheld. Namely, that interpersonal interactions have a value to the participants as either a reward when they are positive (expectable) or a punishment when they are negative (un-expectable). And that this value could be associated with an approaching forward step or an avoidance backward one. To explain this lack of results, we first thought of the possibility that the step response is not a good measure of the involvement of the body in mental processes. To explore this possibility, latencies of responses to filler words were analyzed.



We found two significant effects: (a) Predictability of the verb [ $F(1, 47) = 5.43, p=0.024$ ]; and (b) Step direction [ $F(1, 47) = 6.67, p=0.013$ ]. This last effect support that our measure is able to detect a body expression of the personal involvement in a “decision taking” process.

