



DO PAST AND FUTURE POTENTIAL EVENTS ACTIVATE TIMELINE?

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§ Objectives, hypotheses and predictions

§ Results

§ General discussion

Perceptive access experiences domains **Concrete**



Non perceptive access experience domains **Abstract**



Spatial expressions of time in everyday life extended in languages around the world (Haspelmath research: 53 languages)

E. g. *Regresaré dentro de una hora*

Metaphorical mappings as cognitive mechanism

Time Metaphor

Speakers use their space experience for representing in language their time experience. Specific space and time values become linked on a sequence
(left to right; right to left)

Motion as a spatial feature of time: direction of, perspectives and positions of Ego and Event

Does it works just for non-chronological values of time?

Effects of potentiality on chronological time

Mood has some effects on chronological value of time

Mental simulation for negations (Kaupt & Zwaan, 2003)

Non-merged meanings of unrealism in language (DeHaan, 2012)

Non-prototypical, marked value of past: closed, canceled, possibility:

Yo hubiera desayunado en el café de enfrente

Non-prototypical marked value of future: open, non-canceled, possibility:

Yo habría desayunado en el café de enfrente

Events placed as fictive, counterfactual or alternatives to currency

Reference time seems not as well delimited as it's for prototypical values

Then, it would be not useful recall spatial features of time

Objectives

- 1) Testing the current evidence of space-to-time mappings for processing past and future potential events
- 2) Testing the effects of the epistemic contrast (factive vs. potential) on space-to-time mappings

Hypotheses and predictions

- Speakers are able to activate the timeline for processing past and future potential events
- A binary contrast related to the time of reference survives for processing non-prototypical values of time
- We predict that we register a congruency effect for the non-prototypical values of time

Experimental set

- **E 1:** Mental timeline for past and future potential events (Spanish)
- **E 2:** Introducing epistemic incoherence on timeline for past and future potential events by a non-grammatical causative locution (Spanish)
- **E 3:** Mental timeline for past and future potential events when introducing a grammatical causative locution (German)

Methods and instruments

- **Programming:**

- Response interference paradigm
- Screen-subjects distance: 0,50-0,59 m
- Visual angle of verbal stimuli: 5,39°-6,84°
- Similar computers, monitors and screen in Spain and Germany

- **Experiment design:**

- E1 and E2 with same stimuli in two blocks of opposed hand response set (left vs right); same intransitive Spanish and German verbs in 80 sentences (20, factive past; 20, factive future; 20, potential past; 20, potential future); auditory feedback

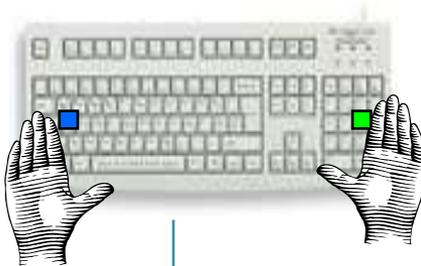
Experimento1

The main aim of this experiment is to examine whether there are left-past and right-future associations for potential verb forms as it has been reported for factive past and future verb forms

28 Spanish native speakers. UAB. 1 left handed. 26-45 years old (M = 32,5, SD = 5,6)

Stimuli

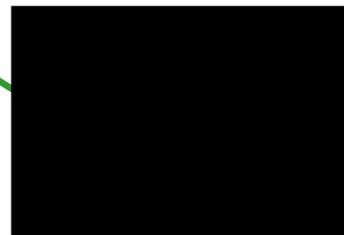
- 80 sentences without temporal items others than conjugated past or future verbs



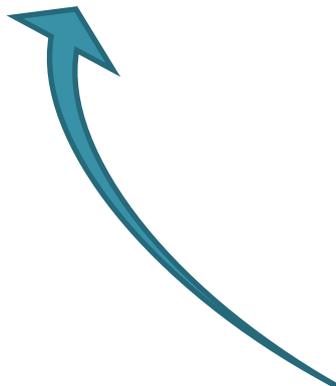
(500ms)



(4000ms)

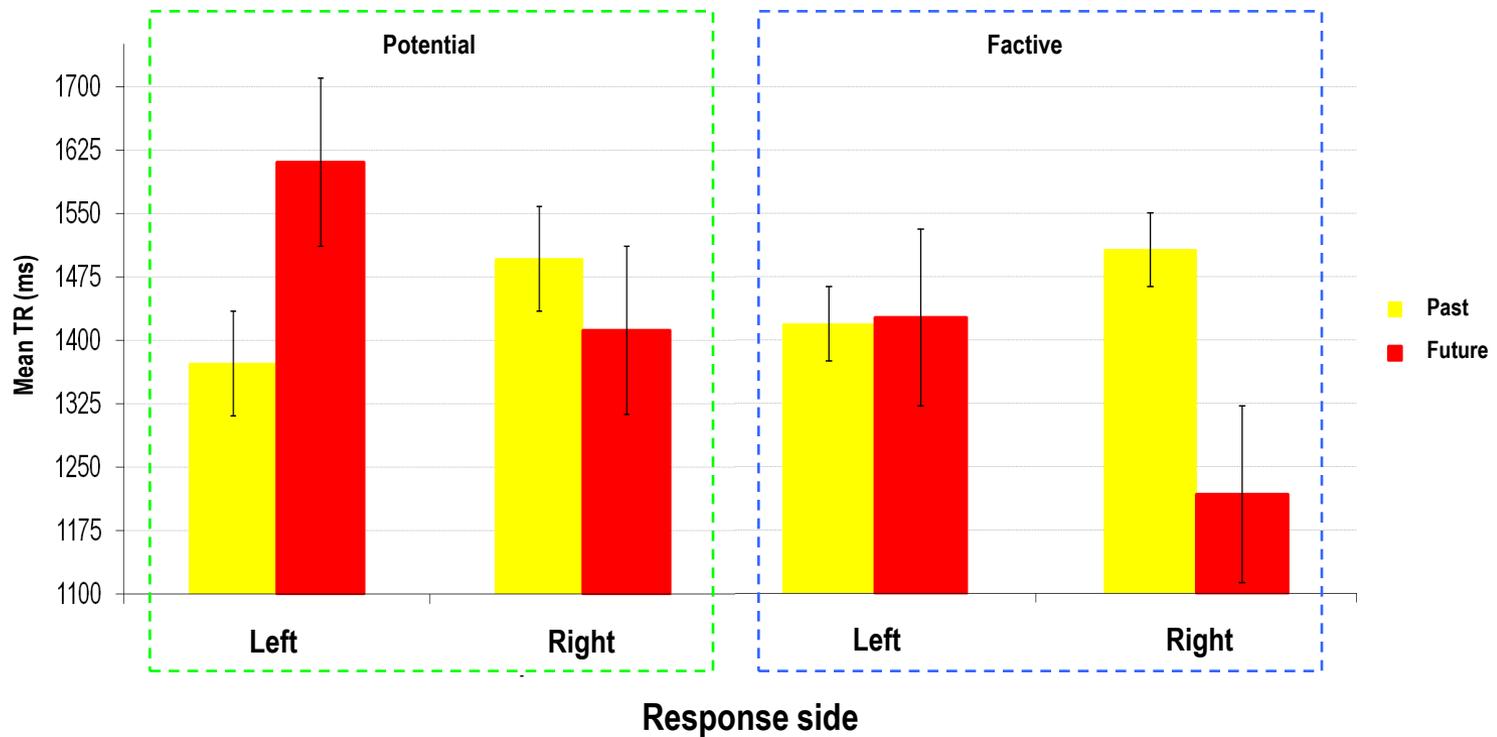


(3000ms)



Auditive Feedback
440 Hz tone (500 ms)

Results and discussion



- Subjects answered faster to factive and potential events when past was related to left hand and future was related to right hand than to the opposed hand mappings
- Maybe a spill over from factive trials to potential trials

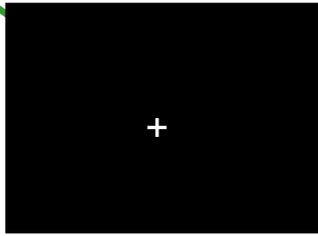
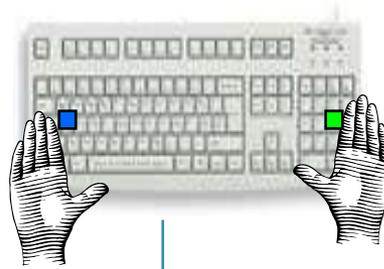
Experiment 2

The aim of this second experiment is to examine whether introducing a causative preposition ruled for factive events deactivates the left-past and right-future associations when subjects process potential events with Spanish potential verb forms

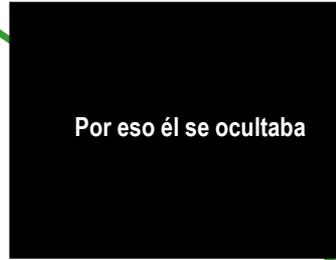
36 native Spanish speakers. UAB. 2 left handed. 19-27 years old (M = 21,4, SD = 2,1)

Stimuli

- 80 sentences introduced by *Por eso* (ejemplo: *Por eso él se ocultaba*)



(500ms)



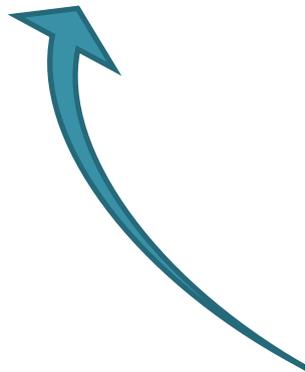
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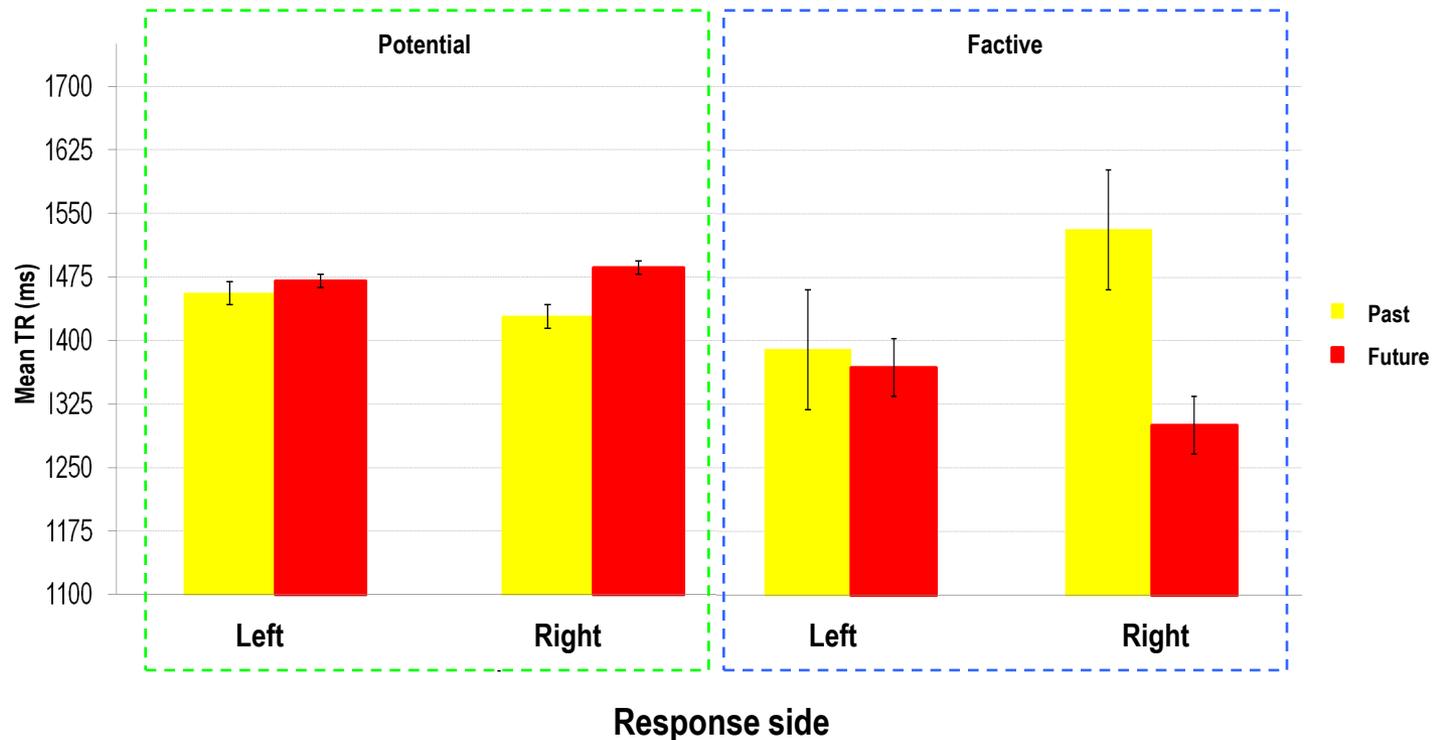
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Auditive feedback
440 Hz tone (500 ms)



Results and discussion



- Adding *Por eso* removed the congruency effect for potential events. This effect remained for factive events. Any spillover
- *Por eso* would be blocked meaning extracting for potential events. It would affect the space-to-time mappings

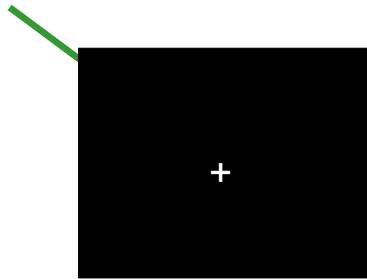
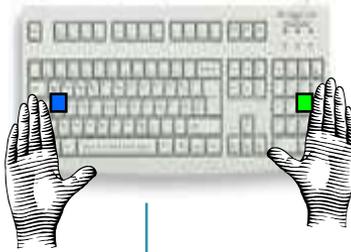
Experiment 3

The aim of this experiment was to examine whether the space-time congruency effect for potential events can be reintroduced when analogous, but grammatical, German sentences are used

26 German native speakers. UTübingen. Right handed. 21-29 years old (M = 23,6, SD = 2,5)

Stimuli

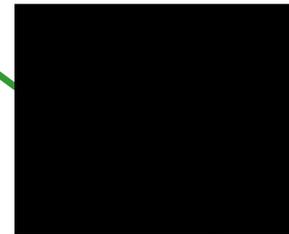
- 80 German sentences introduced by *Deshalb. Deshalb werde ich springen* (Por eso yo saltaré)



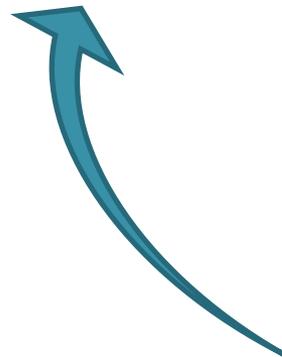
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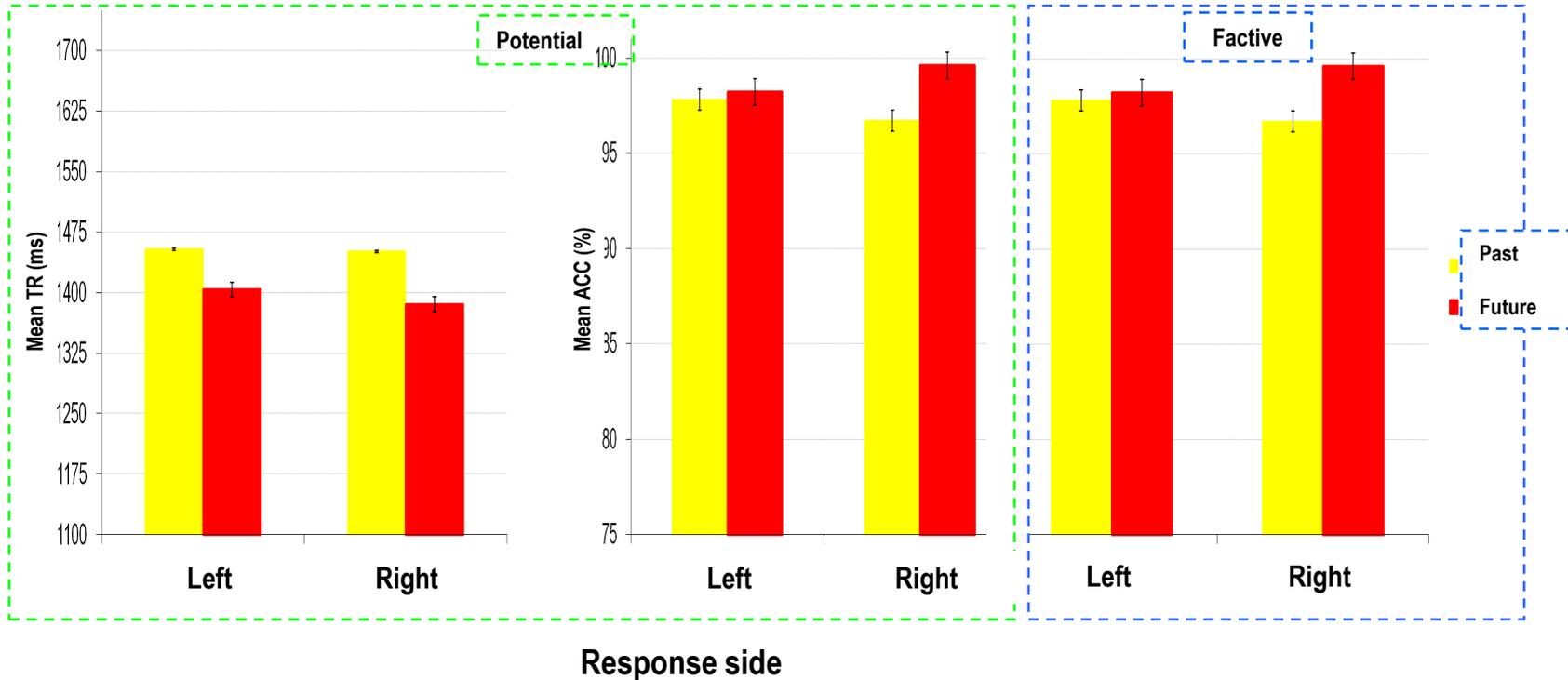


(1000ms)



Auditive feedback
440 Hz tone (500 ms)

Results and discussion



- Any interaction of modal and tense with response side
- “Shallow strategy”. *Deshalb* and the durative profile of German *Perfekt*
- Supporting that *Por eso* didn't block meaning extracting

General discussion: Mental simulation for potential events

- Speakers are able to activate spatial simulations of time when referring to past and future potential events with verb forms
- Non-prototypical values of tense are able to activate mental timeline
- Temporal and non-temporal (causative locution) syntactic factor for representing sequence or for distinguishing the length and size of time spans yielded by verb forms would play a main role on activating space-to-time mappings