Is event apprehension language-specific? A comparison of Spanish and German

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Background: processes of event encoding

Presentation of visual stimulus
- initial phase of visual processing (apprehension) -> extraction of 'gist'
- activation and structuring of concepts to be expressed -> 'language plan'
- retrieval of word meanings and forms -> 'formulation'
- articulation (model cf. Bock & Levelt, 1994)

Approach: analysis of first fixations on stimulus

Placement of first fixation is controlled by an action plan, which is drawn up based on the information extracted during apprehension.
First fixations may indicate *how detailed* the information extracted during apprehension is.

Research questions

1. How flexible is the process of event apprehension?
2. How specific is the information extracted during event apprehension?

Test case

- Manipulation of presentation duration of visual stimuli (cf. Dobel et al. 2007):
Four conditions: 100, 300, 500, 700 ms
- Cross-linguistic comparison:
German and Spanish offer different grammatical means for event encoding.
In Spanish, events may be encoded without explicit reference to
a SPECIFIC AGENT of an ACTION (impersonal constructions, pro drop, etc.)

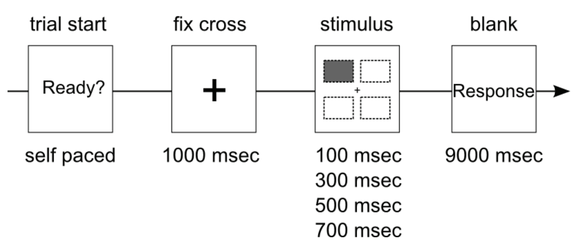
Design

Participants: N = 32 (16 NS of Spanish, 16 NS of German)

Materials: 60 photos of everyday events, performed by a male or female actor (*a man/woman drawing a house*). Materials were pre-tested to ensure homogeneity of event descriptions, and to control for a potential bias of one over the other element (agent, action).

Procedure
"*Describe 'what is happening' in the picture; at least try to mention the elements of the scene that you recognized*"

Pictures appeared randomly in 1 of 4 corners of the screen.
Presentation duration manipulated between subjects.
Sampling rate: 500Hz



Analyses

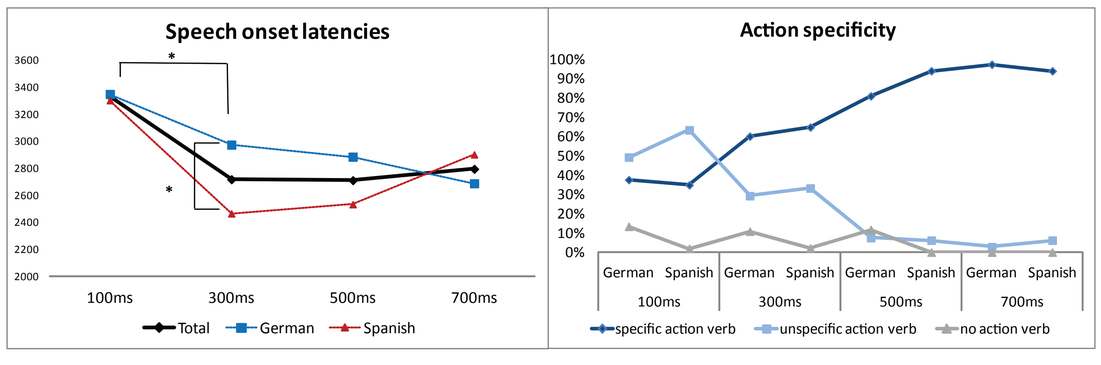
Linguistic data
- Speech onset latencies
- Specificity of event descriptions
- Type of information expressed (related to event or only agent/action?)

Eye tracking data
- Total number of fixations in different conditions
- First fixation latencies in different conditions
- Region of first fixations in different conditions (agent/action/"in between")

Results

Linguistic data

General
- Speech onset latencies sign. longer in 100 ms presentation duration
- Increase in specificity of event descriptions with longer presentation durations (specific action verbs and objects)

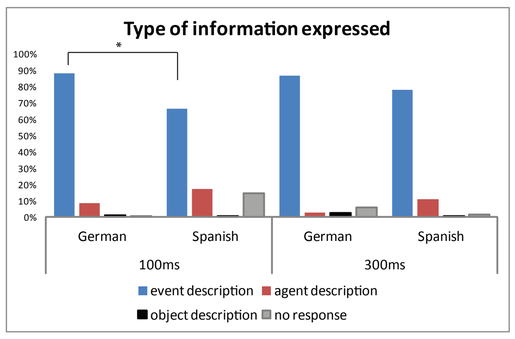


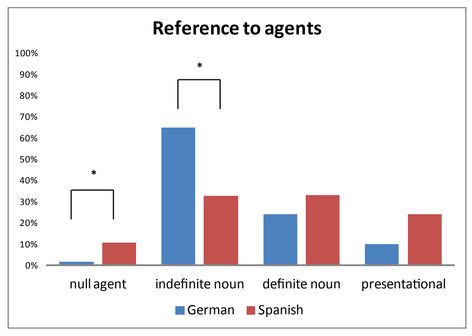
*100 ms > 300ms: SOT total ***
*300 ms, 500 ms: SOT Ger > Spa **

Results ctd.

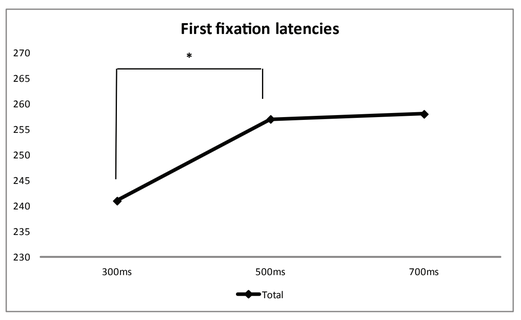
Cross-linguistic comparison

Main differences between languages in short conditions (100 ms, 300 ms)
- German speakers produce more complete event descriptions in 100 ms, compared to Spanish speakers
- Spanish speakers leave out overt reference to agents more frequently than German speakers (overall)



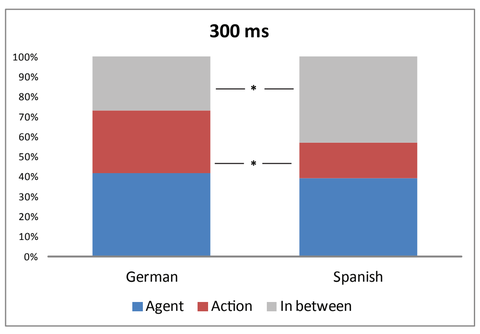


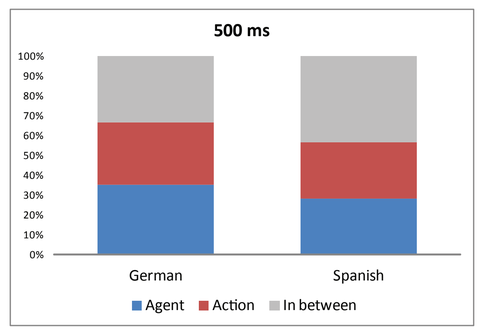
Eye-tracking data

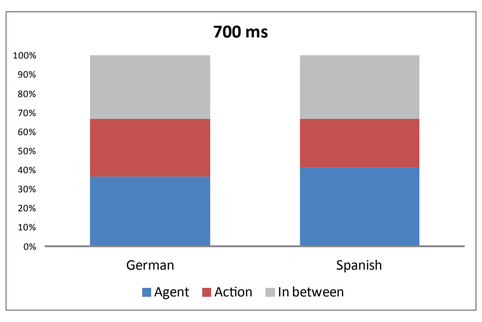


- More fixations in longer presentation durations (no fixations in 100 ms)
- First fixation latencies sign. longer in 500 ms
*(300 ms < 500 ms *)*

- First fixation region differs between languages, only in 300 ms condition







300 ms:
*Span more "in between" First Fix **
*Ger more "action" First Fix **

500 ms: n.s.
700 ms: n.s.

Discussion

1) First fixation patterns

Early overt attention allocation to stimuli is modulated by
a) presentation duration of stimulus
b) language of the speaker
- Distribution of regions fixated first differs between time conditions, whereas the order of elements mentioned remains the same
- First fixations do not generally correspond to order of mention
- First fixation latencies are significantly shorter in 300 ms

--> First fixations in the different conditions may reflect different phases of event apprehension and/or planning processes.

2) Cross-linguistic comparison

German speakers fixate a specific scene element (agent or action) more frequently, whereas Spanish speakers fixate the "in between" region most frequently (300 ms and 500 ms).

--> First fixation differences between languages indicate top-down effects:
Different fulfillments of the task of event construal
German speakers construct "*who does what?*"
Spanish speakers draft a global picture of "*what is happening?*"

Take-home message

Speakers of different languages extract different types of information when under time pressure. Exposure time to the stimulus modulates the time of the execution of the first fixation.

The processes that feed into the linguistic encoding system are specific and flexible.
The top-down flow of information is time- and task-dependent.

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