

Cognitive reflexes of language-specific preferences: evidence from memorization and eye-gazing

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This paper describes an experimental study evaluating the cognitive impact of cross-linguistic preferences in the encoding of locative events (e.g. *The vase is (standing) on the table*) in Dutch, English, and French. Earlier work (Lemmens 2005, 2021; Lesuisse 2022a,b) has shown major encoding differences for such events: Dutch stands out by a marked preference for encoding location via Cardinal Posture Verbs (CPVs, 'SIT', 'LIE', 'STAND') which overtly express the orientation of the Figure, French prefers orientation-neutral existence verbs like *être* 'be', and English straddles the middle with a marked preference for *be* but the possibility to still rely on CPVs. Our experimental study involving L1 speakers of Dutch (N=62), English (N=65), and French (N=60) evaluates the impact of these language-specific encoding preferences on spatial conceptualisation (see also Bosse & Papafragou, 2018; Flecken & Van Bergen, 2019), where we expect a heightened attention to orientation for Dutch speakers, and a low attention for French speakers. It does so via a comparison of memorisation performances and gazing behaviour.

The memorisation task gauges the speakers' overall sensitivity to orientational features. Speakers were asked to memorise three series of twelve locative events; each series was followed by a recognition quiz, where one third of the stimuli were novel items, one third, old items, and one third, test items where the orientation of the Figure had been modified. This third category of stimuli is where Dutch participants, and to some extent English participants, are expected to do better, given their linguistically triggered attention to the orientational features of the locative event. The task is run in two conditions: in the *verbal* condition, the participants describe the locative events out loud; in the *non-verbal* condition the use of language is suppressed via an interference task.

The analysis of eye-movements (in both conditions) compares the speakers' online foci of attention, evaluating on a cognitive level the hypothesis formulated earlier (Lemmens 2005; 2021) that the presence of a base is what triggers the use of *staan* 'stand' in Dutch (even for objects that are more horizontal than vertical) which is motivated by some mental upwards scanning (i.e., away from the base). Dutch participants are thus expected to focus more on the base in their gazing and to display a scanning upwards. Conversely, for French speakers, and to some extent for English speakers, such gazing behaviours are not expected as they are less triggered by their language to attend to the orientational features of the event.

Our findings (supported by binomial mixed-effects logistic regression analyses) show that in both verbal and non-verbal conditions, Dutch stands out from English and French. First, Dutch speakers are better at picking up orientational changes of the Figure than the English speakers who, in turn, are better than the French speakers. Second, Dutch speakers *do* pay more visual attention to the base of the Figure than French and English speakers but, contrary to our expectations, do not display orientational scanpaths on vertical Figures. Strikingly, in the verbal condition, English and Dutch gazing strategies do align more than in the non-verbal condition, confirming the in-between status of English in the domain of location. The observed differences confirm the cognitive impact of language-specific preferences on the conceptualisation of locative events.

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