

Verb-Specific Control Differences Modulate LAN-like Effects: ERP Evidence from Malayalam

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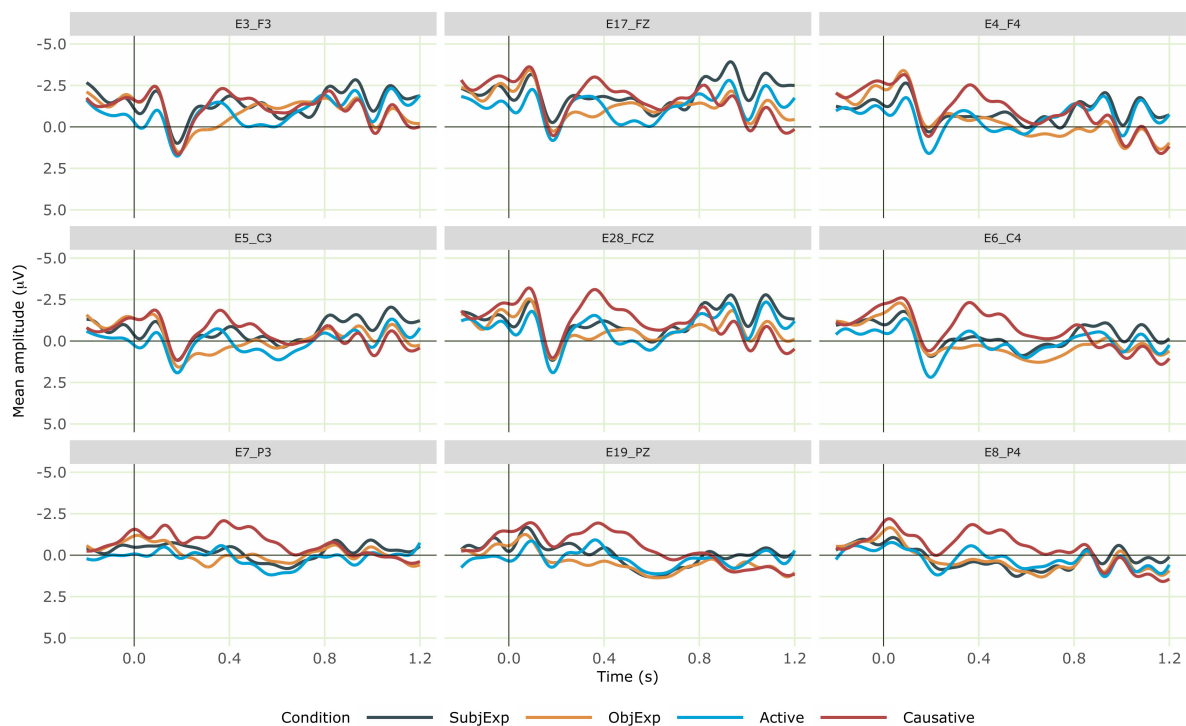
Verb types differ in the underlying semantic contrast they impose, particularly with respect to the $\pm$ control/agency features they entail [2]. However, how such differences are reflected in the online processing of different verb classes remains unclear. A recent ERP study comparing mental and physical experienter verbs reported a Left Anterior Negativity-like effect (LAN-like, because there is no morphosyntactic violation typically associated with a LAN effect involved here) for mental experienter verbs relative to physical experienter verbs, and interpreted this effect as reflecting greater control/agency associated with mental experiences [4]. This interpretation is noteworthy because experienter verbs are traditionally assumed to involve reduced control and less volitional. Therefore, treating the LAN-like effect as an index of the degree of $\pm$ control/agency is not unproblematic. A more targeted investigation, including verbs that more clearly encode high control/agency is needed to determine whether LAN-like effects reliably reflect control-related distinctions across verb classes. To this end, the present study examined the neurophysiological correlates of processing Active, Causative, Subject experienter and Object experienter verbs in Malayalam, a south Dravidian verb-final language. EEG from 30 first-language speakers of Malayalam (mean age = 27.7; age range = 18 – 40; 16 females; 14 males) was recorded when they read transitive sentences with the four types of verbs (Table 1) and performed an acceptability judgement task and a probe detection task. The behavioural acceptability task showed that sentences containing Subject experienter, Object experienter, and Active verbs were rated as highly acceptable, whereas sentences with Causative verbs received comparatively lower acceptability ratings (but nevertheless were above chance). Electrophysiological results at the critical verb position revealed a LAN-like effect in the 200-400 ms time window for Subject experienter and Active verbs, and a more broadly distributed negativity for Causative verbs, compared to Object experienter verbs. The LAN-like effect observed in our study can be interpreted as reflecting the underlying semantic contrasts in $\pm$ control/agency features entailed/required by these verb classes for their argument with the highest thematic role [4]. In fact, this could also at least partly account for the large (albeit broadly distributed) negativity effect evoked by Causative verbs. All three verb types entail a high degree of control/agency for the argument bearing the highest thematic role. For Subject experienter verbs, the experienter-subject is not passive but has some internal control over the mental/emotional state. For Active verbs, the agent-subject directly initiates and governs the action, exercising external control. In case of Causative verbs, the causer-subject is not the direct agent but still instigates the event and causes it to occur, thus having greater control than the patient. Thus, across these verb types, the highest thematic role aligns with the participant carrying greater control/agency expressed through internal states (experienters), direct actions (agents), or indirect actions (causers). By contrast, for Object experienter verbs, the thematically higher experienter has little control, while the thematically lower stimulus has greater control over the state. Thus, our findings suggest that verb-specific differences in $\pm$ control/agency modulate LAN-like effects during the processing of different Malayalam verb types. Nevertheless, further cross-linguistic studies are needed to determine whether such LAN-like effects reliably reflect $\pm$ control/agency distinctions across languages.

References

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Table 1: Sample stimuli for the present study

Condition		Sample Stimulus		Mean Acceptability % (SD)
SubjExp	Ameer	Vineethaye	snehichu.	95.3 (21.2)
	Ameer (An.M.Nom)	Vineetha (An.F)-Acc	love-Pst	
	“Ameer loved Vineetha.”			
ObjExp	Ameer	Vineethaye	ambarappichu.	94.5 (22.7)
	Ameer (An.M.Nom)	Vineetha (An.F)-Acc	surprise-Pst	
	“Ameer surprised Vineetha.”			
Active	Ameer	Vineethaye	adichu.	91.2 (28.4)
	Ameer (An.M.Nom)	Vineetha (An.F)-Acc	beat-Pst	
	“Ameer beat Vineetha.”			
Causative	Ameer	Vineethaye	adi-pp-ichu.	53.4 (49.9)
	Ameer (An.M.Nom)	Vineetha (An.F)-Acc	beat-Caus-Pst	
	“Ameer made (someone) beat Vineetha.”			



Malayalam Language

Malayalam is an agglutinative South Dravidian language with a canonical SOV order, spoken mainly in the state of Kerala and union territories Lakshadweep and Pondicherry, belonging to the Indian union, spoken by about 34.8 million speakers as their first language [4]. Malayalam emerged as a separate language from the west coast dialect of Tamil around the 9th century, and is characterized by its rich inflectional morphology, including a three-way tense marking system (verbs are inflected for present, past and future), three genders (Masculine/feminine/neuter) and two numbers (singular/plural). Both the subject and object arguments can be omitted from a sentence if they can be understood from the context [1]. In Malayalam, like in other Dravidian languages, grammatical relations and semantic roles are indicated through a series of case suffixes. Thus, changing the word order in a sentence typically does not change its meaning, as the roles and relations are primarily conveyed through these suffixes. The case system of Malayalam includes seven cases: nominative, accusative, dative, sociative, locative, genitive and instrumental. Malayalam exhibits non-nominative subject constructions and differential object marking, whereby only animate objects are marked accusative, with inanimates marked accusative only as an exception [1]. The feature that makes Malayalam distinct from other sister languages in the Dravidian language family is the absence of subject-verb agreement.

Malayalam verbs can be categorized into various types, with an important distinction being between experiencer (psych) verbs and active/action verbs [3]. Malayalam has both subject experiencer verbs and object experiencer verbs and both the verbs differ in terms of the realization of experiencer argument. Malayalam has only accusative object experiencer verbs. Further, the subject experiencer verbs in intransitive construction can be further categorized into two, based on their usage within the language as simple verbs and complex predicates [1]. They differ from each other in terms of realization of experiencer argument. In simple construction, the experiencer verb indicating mental experiences (happiness, sadness, etc) require nominative case on subject experiencer argument, and the verb indicating physical experiences (hunger, fever, etc) require dative case marking. However, in complex construction, regardless of whether they indicate mental experience or physical experience, the subject argument receive dative case marking [4].