Planning units in Tagalog sentence production: Evidence from eye tracking

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In transforming thoughts into speech, speakers must encode a pre-verbal message linguistically. We investigated this process in the Philippine language Tagalog, which, unlike most European languages, has a verb-initial basic word order.

The Tagalog verb agrees in semantic role with the "privileged syntactic argument" (simplified: "subject"). Either the semantic agent or the semantic patient may be the "subject" (e.g., [1]); in either case the sentence remains transitive (unlike English where promoting the patient to the subject requires passivization). The subject can occur sentence-finally (VOS: [chase$_{patient.voice}$ woman chicken$_{subject}$] – 'the woman chases the chicken') or sentence-medially (VSO: [chase$_{patient.voice}$ chicken$_{subject}$ woman] – 'the woman chases the chicken'), but in both cases, sentence-initial verb position requires selection of appropriate subject–verb agreement marking. We examined the time course of sentence formulation for descriptions of transitive events [2,3] to test whether these grammatical properties entail early planning of the dependency between verb and subject and whether this dependency planning is temporally dissociated from lexical encoding of the subject argument.

Fifty-three native speakers of Tagalog described 44 target pictures depicting two-participant, transitive events interspersed between unrelated filler pictures while their gaze and speech were recorded (Tobii T120 eye-tracker, 120 Hz sampling rate). The distribution of early eye movements (0–600 ms) to the two characters in the target pictures showed that a character was fixated more often when it was selected to be the subject of a given sentence than when it was selected to be the non-subject (the "object"), regardless of whether the subject character was the semantic agent or the semantic patient in the event and regardless of whether the word order was VOS or VSO. This suggests an early phase of sentence formulation that involves the planning of the dependency between verb and subject in order to select the appropriate agreement markers on the verb and that is independent of word order. The extent to which speakers continued fixating the subject character after 600 ms depended on whether the subject immediately followed the verb or was produced sentence-finally: in sentences with VOS word order speakers fixated the post-verbal object character before they re-fixated the subject character, whereas in VSO sentences speakers continued fixating the subject character until shortly after speech onset and then shifted their gaze to the object character. This suggests that sentence formulation in Tagalog can involve two temporally dissociated phases: rapid planning of the dependency relation between verb and subject, driven by agreement marking, followed by lexical encoding of post-verbal arguments in the order of mention. This is in contrast to English, where rigid subject-initial word order conflates the dependency planning and lexical encoding of the subject so that these two phases are not easily separable.

The results speak against a strictly linear view of sentence planning, which assumes that speakers immediately encode a fixated character lexically [2]. Instead, the presence of a grammatical effect of the subject on early eye movements is evidence of linguistic guidance in the earliest stages of message and sentence formulation and suggests that the time course of these processes can be shaped by the structure of the language.

References

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