

Unaccusative and unergative predicates under ergativity: N400 signaling agent/ergative interpretation difficulties.



Gillen Martinez de la Hidalga, Adam Zawiszewski & Itziar Laka

University of the Basque Country, Vitoria-Gasteiz, Spain

gillen.martinezdelahidalga@ehu.eus



Introduction

This study tests the Unaccusativity Hypothesis (UH) [1] by means of ERPs in Basque, where agents carry ergative case and themes do not. We studied subject-agreement (SV) violations in both unaccusative and unergative predicates and found different signatures for each, with unergatives aligning with previously reported findings for subjects of

transitive sentences [2] [3] [4]: an N400 preceded the P600 component. We suggest that this N400 found in SV violations of unergative and transitive predicates signals difficulties in agent/ergative identification [5]. In addition, we also found supporting evidence for the hypothesis that phi-features are processed differently [2] [6] [7].

Methods and Materials

24 right-handed native speakers of Basque (m.a. 19,5 years, 7 males). Event related potentials (32 electrodes, impedance kept below 5 kOhm) were registered while participants read sentences (word by word, 350 ms; ISI = 250 ms) and performed an acceptability judgment task.

We created four lists, each consisting of 416 sentences (128 unergatives, 128 unaccusatives and 160 fillers). Unaccusative predicate sentences (1) and unergative sentences (2) have been analyzed testing person (a) and number (b) agreement violations.

UNACCUSATIVES

- (a) **Zu** gaur goizean bueltatu **zara/*naiz** Bilbotik. (PERS)
you today morning returned aux2SG/1SG Bilbao.from
- (b) **Hura** gaur goizean bueltatu **da/*dira** Bilbotik. (NUMB)
(s)he today morning returned aux3SG/3PL Bilbao.from

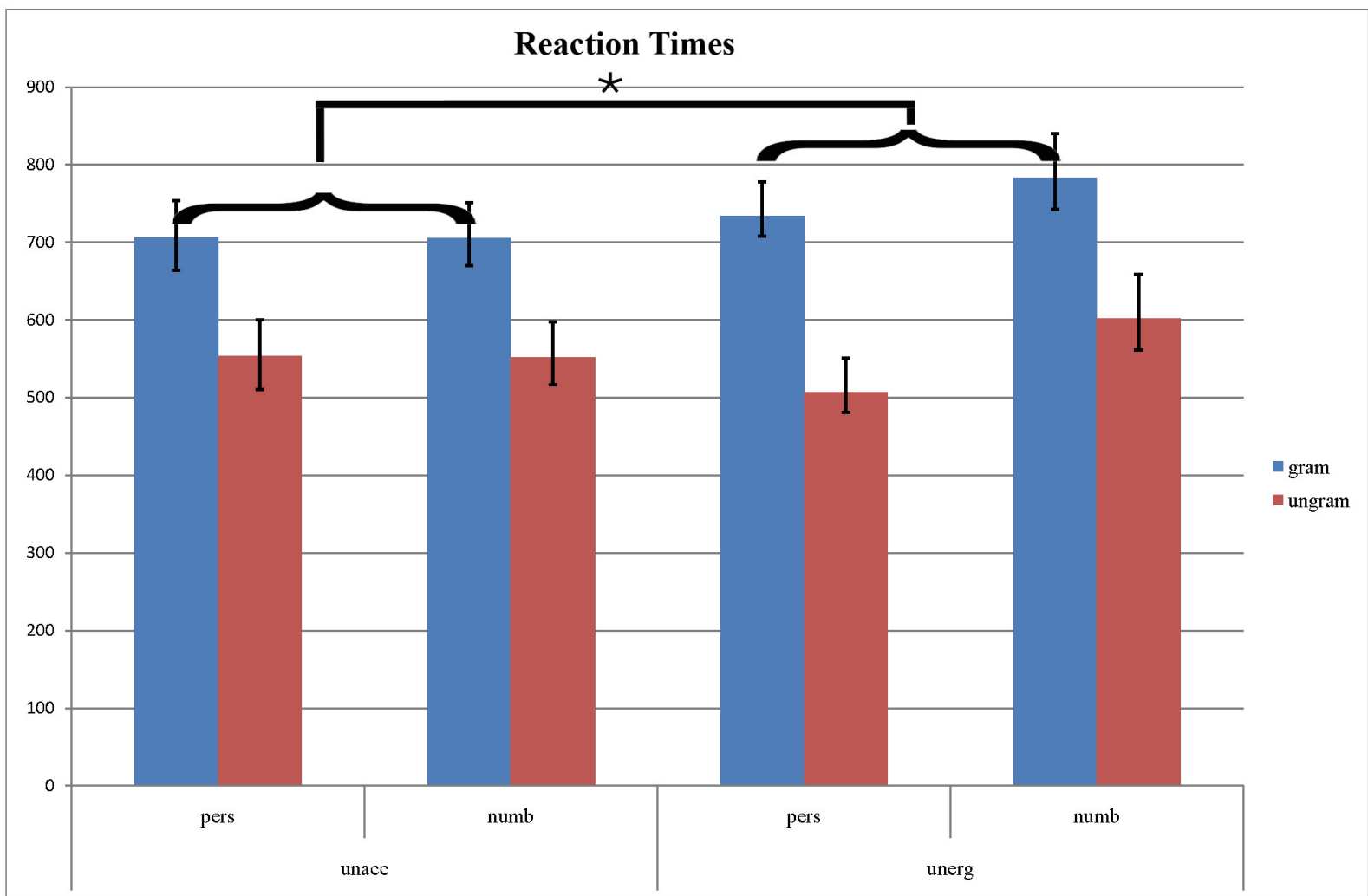
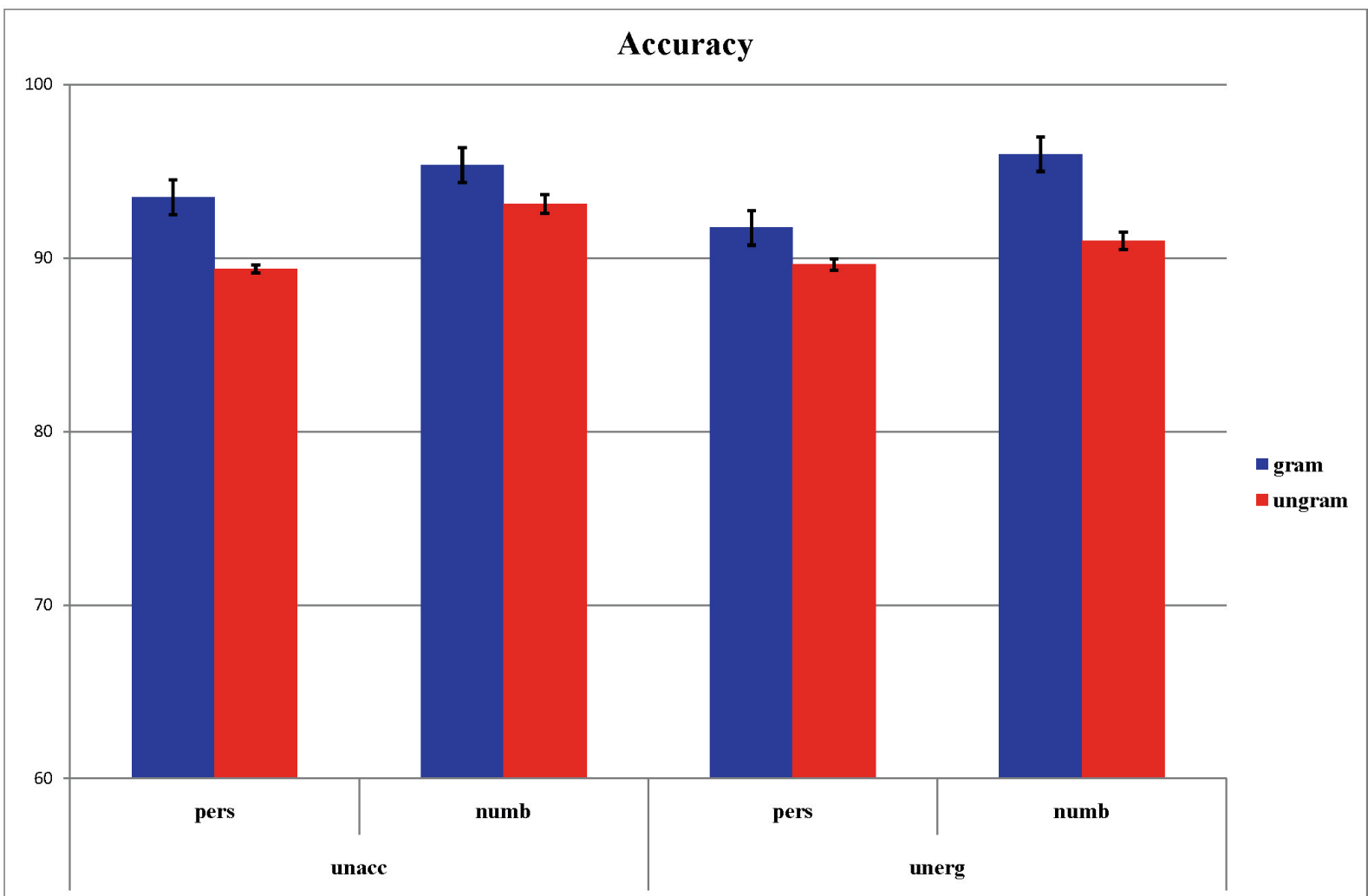
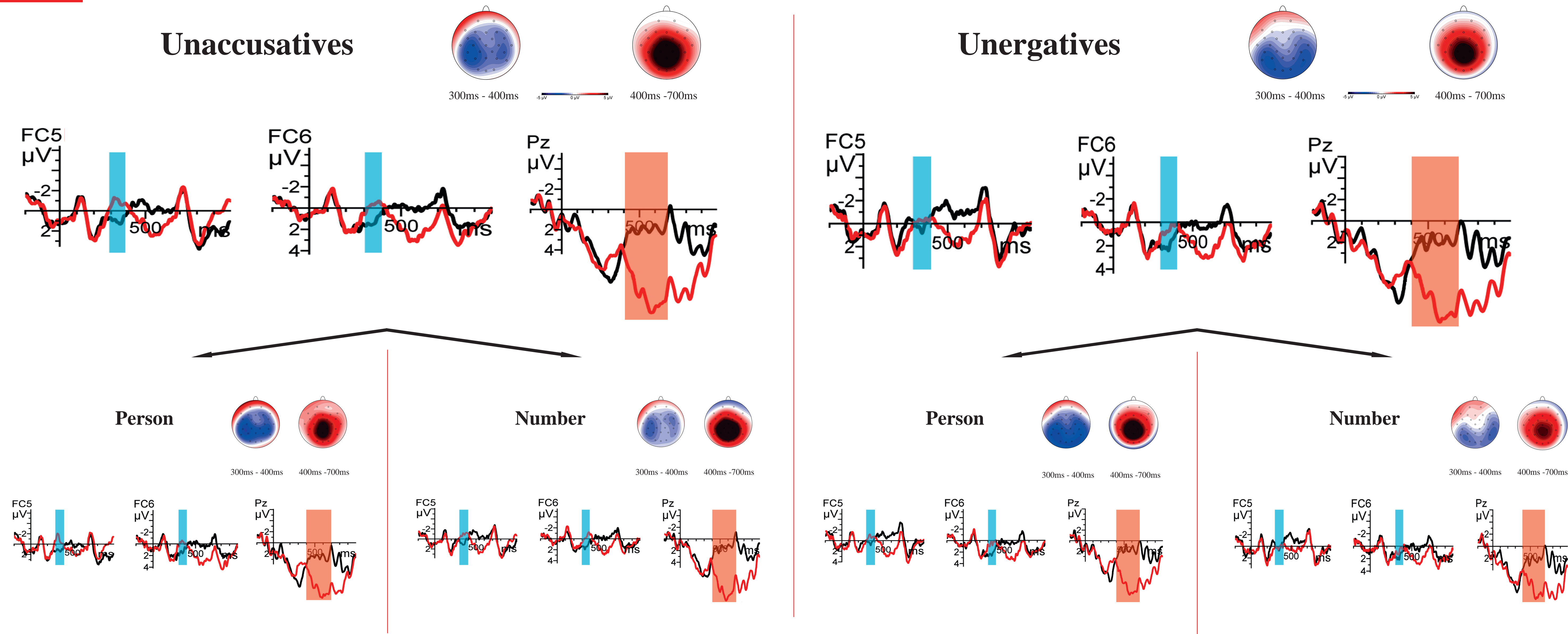
"You_{SG} /(s)he returned from Bilbao this morning."

UNERGATIVES

- (a) **Zu-k** goizean biziki sufritu **duzu/*dut** aurkezpenean. (PERS)
you-ERG morning enormously suffered aux2SG/1SG presentation.in
- (b) **Har-k** goizean biziki sufritu **du/*dute** aurkezpenean. (NUMB)
(s)he-ERG morning enormously suffered aux3SG/3PL presentation.in

"You_{SG} /(s)he suffered enormously at the presentation this morning."

Results



Discussion

We found different ERP patterns for subject agreement violations in unergative and unaccusative predicates. Moreover, the pattern elicited by unergative predicates (N400-P600) is similar to the one obtained in transitives [2]. These results support the UH. We suggest that the N400 found in ergatives and transitives signals agent identification difficulties, related to ergativity [5]. Regarding phi-feature processing, person violation elicits a stronger negativity than number violation, thus supporting the hypothesis that these features are processed distinctly [2] [6] [7].

Acknowledgments

Spanish Ministry of Economy and Competitiveness (FFI2015-64183-P) Basque Government (IT665-13), and a predoctoral grant to Mtz de la Hidalga (BES-2016-076456).

References

- [1] Perlmutter, D. M. (1978, September). Impersonal passives and the unaccusative hypothesis. In annual meeting of the Berkeley Linguistics Society (Vol. 4, pp. 157-190).
- [2] Zawiszewski, A., & Friederici, A. D. (2009). Processing canonical and non-canonical sentences in Basque: The case of object-verb agreement as revealed by event-related brain potentials. *Brain Research*, 1284, 161-179.
- [3] Zawiszewski, A., Gutiérrez, E., Fernández, B., & Laka, I. (2011). Language distance and non-native syntactic processing: Evidence from event-related potentials. *Bilingualism: Language and Cognition*, 14(3), 400-411.
- [4] Zawiszewski, A., Santesteban, M., & Laka, I. (2016). Phi-features reloaded: An event-related potential study on person and number agreement processing. *Applied Psycholinguistics*, 37(3), 601-626.
- [5] Choudhary, K.K., Schlesewsky, M., Roehm, D. & Bornkessel-Schlesewsky, I. (2009). The N400 as a correlate of interpretively relevant linguistic rules: evidence from Hindi. *Neuropsychologia*, 47, 3012-3022.
- [6] Díaz, B., Sebastián-Gallés, N., Erdocia, K., Mueller, J. L., & Laka, I. (2011). On the cross-linguistic validity of electrophysiological correlates of morphosyntactic processing: A study of case and agreement violations in Basque. *Journal of Neurolinguistics*, 24(3), 357-373.
- [7] Mancini, S., Molinaro, N., Rizzi, L., & Carreiras, M. (2011). A person is not a number: Discourse involvement in subject-verb agreement computation. *Brain research*, 1410, 64-76.