

## Variable Past Participles in Portuguese Perfect Constructions

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Some verbs in Portuguese have two past participle forms: one regular, formed by adding *-do* to the stem, and the other irregular, either identical to the 1SG present indicative, or a distinct form. According to traditional grammars (Thomas 1969, Ganho & McGovern 2004, *inter alia*), participle selection for these verbs is rigid. The perfect auxiliaries *ter/haver* ‘have’ take the regular form, while the irregular form occurs with the passive/adjectival ‘be’ auxiliaries *ser/estar*. However, some authors (Perini 2002; Simões 2008) observe that irregular participles may occur with *ter/haver* in contemporary Brazilian Portuguese. Here, we demonstrate that irregular participles are actually used frequently with perfect *ter/haver* and that the variation observed is better described in terms of (1) the behavior of individual verbs, based on frequency considerations, and (2) whether the irregular participle is identical to the 1SG present indicative.

To test our hypotheses, we searched for regular and irregular participial forms of 58 verbs in the *Corpus do Português* (Davies & Ferreira 2006), an online corpus of 45 million words. In order to examine the effects of both dialect and diachrony, spoken and written data from both Brazil (20<sup>th</sup> century) and Portugal (19<sup>th</sup> and 20<sup>th</sup> centuries) were included. An exhaustive search identified a total of 21 verbs displaying participle variation in the 20<sup>th</sup> century data. A total of 1077 tokens of these verbs were coded for ten independent predictors and submitted to mixed-effects multivariate analysis (logistic regression) in R with lexical verb as a random effect.

Our results show that traditional grammar descriptions of participle selection are both inaccurate and incomplete. Irregular participles are actually used more overall with *ter/haver* (54%) than regular participles (46%). Additionally, the lexical verb is the most significant predictor of regular or irregular participle selection. Although this variable lexical behavior goes unmentioned in grammatical descriptions, we found strong correlations between greater lexical frequency of a verb as a past participle and irregular participle choice. Beyond this lexical effect, our mixed-effects regression revealed that verbs whose irregular participle is identical to the 1SG present indicative occur in the irregular form at a rate significantly higher than other verbs, a finding that helps explain why newly-innovated participles in Brazil take this form (cf. Souza 2007). Finally, we identified dialectal differences unattested in the literature. In Brazil, irregular participles were preferred (53%), but in Portugal irregulars were chosen significantly more often (68%) than in Brazil. Moreover, though only the Portugal data allowed for diachronic analysis, we also found a 26% increase in irregular participle selection from the 19<sup>th</sup> to 20<sup>th</sup> centuries.

These results demonstrate that Portuguese past participle variation is governed not by the preceding auxiliary (‘have’ vs. ‘be’) but rather by the interaction of several linguistic factors, chief among which are individual lexical verb frequency and the analogical matching of the irregular participle with the 1SG present indicative. We conclude that the “doctrine of form-function symmetry” (cf. Poplack et al. 2013) for participle choice in Portuguese, so often proclaimed in grammatical descriptions, is wholly indefensible on empirical grounds.