

# A Study in Productivity of Indonesian Causative *per-* and *-kan*

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Indonesian has two rival affixes, *per-* and *-kan*, that attach to adjective (ADJ) bases to derive transitive causative verbs (cf. Roolvink 1965: 334). Semantically, ADJ-*kan* causes the direct object to have the ADJ quality from a non-existence characteristic (e.g., *besar* ‘big’ – *besarkan baju* ‘make shirt big’; the shirt was small), whereas *per*-ADJ is interpreted as increasing the object’s ADJ quality (e.g., *besar* ‘big’ – *perbesar baju* ‘make shirt bigger’; the shirt was big) (cf. Sneddon et al. 2010: 103). However, such subtle semantic contrast is often not recognised by many speakers, especially for *per*-ADJ, which is simply thought as causing the direct object to possess a given characteristic regardless of the prior existence of such characteristic (Sneddon et al. 2010: 103). Historically, *per-* is described as a reflex of the Austronesian causative proto-prefix *\*pa-*, while *-kan* developed out of *-akan* (Ogloblin 1998: 180, 182). While many speakers may indeed vary in their intuition, especially for having an awareness of the subtle semantic nuances, another property of these affixes needs to be investigated. In this study, we analysed the productivity of *per*-ADJ and ADJ-*kan*.

Our database was collected from the *Indonesian Leipzig Corpora* (180,769,204 word-tokens) (Goldhahn, Eckart & Quasthoff 2012). We extracted deadjectival verbs with *per-* and *-kan* in active and passive forms, indicated by *meN-* and *di-* prefixes respectively. An Indonesian morphological parser (Larasati, Kuboň & Zeman 2011) was used to pre-process the data, followed by manual post-editing.

As presented in Table 1 (see column Tokens, Types, and Hapaxes) and Figure 1, ADJ-*kan* is more productive than *per*-ADJ as ADJ-*kan* occurs with more tokens, types, and hapaxes. The qualitative reason for a higher realised productivity of *-kan* could be due to its semantics development from inert to actional causatives (Ogloblin 1998). Moreover, the higher realised productivity of ADJ-*kan* indicates that it is a more entrenched and prototypical causative morphological constructions than *per*-ADJ (see Stefanowitsch & Flach 2016, for the discussion on corpus-based measure of entrenchment). The higher entrenchment of ADJ-*kan* could explain the semantic levelling of *per*-ADJ, that is, many native speakers make no semantic distinction between the affixes and consider the meaning of *per*-ADJ as similar to ADJ-*kan* (Sneddon et al. 2010: 103). The reason could be that ADJ-*kan* would compete with *per*-ADJ for a semantic niche in the causative domain, and the high realised productivity of ADJ-*kan* makes way into generalising the semantics of *per*-ADJ. These assumptions need to be further tested. Interestingly, when we calculated hapax-per-token ratio (HTR) (Baayen 2009), we found that the less productive *per*-ADJ has a higher potential productivity than ADJ-*kan* (see column HTR in Table 1). This suggests that *per*-ADJ is more likely to produce novel forms. Our corpus-based analyses therefore show further evidence that two semantically similar affixes could realise different productivity properties (cf. Denistia & Baayen 2019 for similar discussion on the productivity of Indonesian *PE-* and *PEN-*; and Aronoff & Anshen 2017, for the discussion on English *-ity* and *ness-*).

Table 1 Counts of tokens, types, and hapaxes (word types occurring only once in the corpus) for *per*-ADJ and ADJ-*kan*

Affix	Tokens	Types	Hapaxes	HTR
ADJ- <i>kan</i>	820,370	821	173	0.0211
<i>per</i> -ADJ	78,896	169	50	0.0634

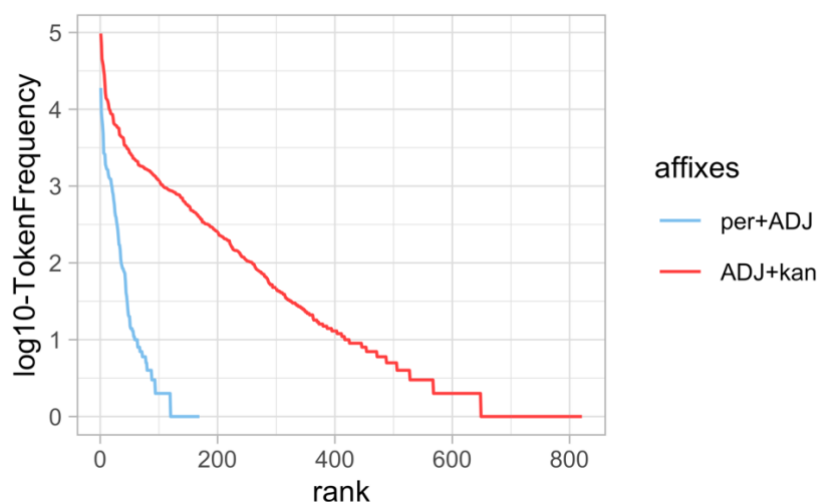


Figure 1. Rank-frequency curves for ADJ-*kan* (red line) & *per*-ADJ (blue line). *Per-* is less productive than *-kan*

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