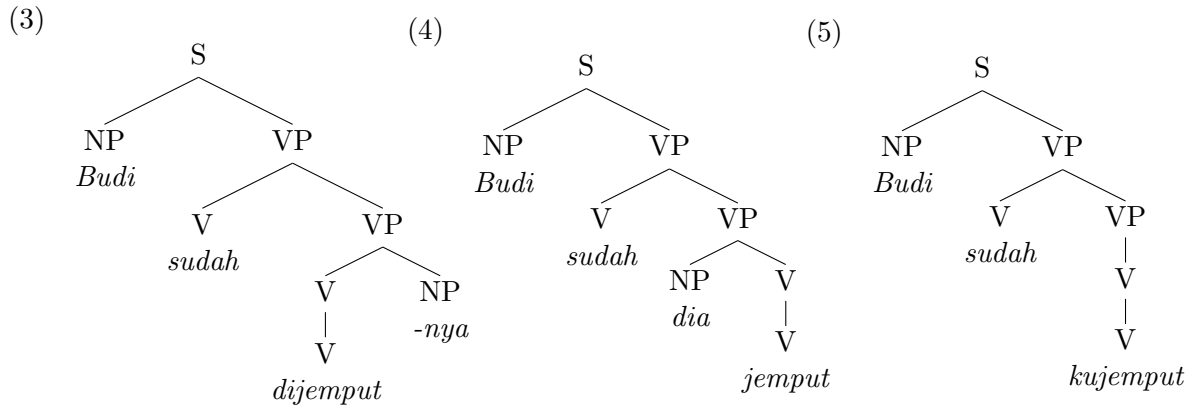# Analysis of Indonesian Passives in HPSG
and Its Implementation in INDRA

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This study aims to analyze and develop a detailed model of syntax and semantics of passive sentences in standard Indonesian in the framework of Head-Driven Phrase Structure Grammar (HPSG) (Sag et al., 2003) and Minimal Recursion Semantics (MRS) (Copestake et al., 2005), explicit enough to be interpreted by a computer. The analysis is computationally implemented in the Indonesian Resource Grammar (INDRA) (Moeljadi et al., 2015) to parse and generate sentences. Research on Indonesian passives has been done by many linguists, such as McCune (1979), Voskuil (2000), Arka & Manning (2008), Cole et al. (2008), and Nomoto (2013). However, to the best of my knowledge, no research on Indonesian passives has been done in the HPSG framework. There are two main types of passive in Indonesian, following Sneddon et al. (2010, pp. 256-260) and Alwi et al. (2014, pp. 352-356). They are called 'passive type one' (as shown in (1a) with full pronoun agent *dia* "3sg"; and (1b) with bound pronoun agent *=nya* "3sg") and 'passive type two' (as shown in (2a) with full pronoun agent *dia* "3sg"; and (2b) with bound pronoun agent *ku-* "1sg")).

(1) a. *Budi sudah dijemput (oleh) dia.*
         Budi PRF PASS-pick.up by 3SG
         "Budi has been met by him." (lit. "Budi has been picked up by him.")
         (based on Sneddon et al. (2010, p. 257))

     b. *Budi sudah dijemputnya.*
         Budi PRF PASS-pick.up=3SG
         "Budi has been met by him." (lit. "Budi has been picked up by him.")
         (the parse tree is shown in (3))

(2) a. *Budi sudah dia jemput.*
         Budi PRF 3SG pick.up
         "Budi has been met by him." (lit. "Budi has been picked up by him.")
         (the parse tree is shown in (4))

     b. *Budi sudah kujemput.*
         Budi PRF 1SG-pick.up
         "I have met Budi." (lit. "Budi has been picked up by me.")
         (the parse tree is shown in (5))

(3)

(4)

(5)

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