An Event-Based Account of *–kan* Constructions in Standard Indonesian[*]

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Abstract

A widely held position in the literature on verbal meaning is that the lexical semantic representation of verbs involves complex event structures with semantic primitives like CAUSE and BECOME (e.g., Dowty 1979). A growing number of recent works on predicate decomposition have shown that there is a close correlation between the semantics of event structure and the syntax (e.g., Hale and Keyser 1993; Harley 1995; Travis 2000; van Hout 2000). This paper presents an additional empirical argument for the view that there is a direct mapping between semantic decomposition of predicates and the (morpho-)syntax by developing an explicit analysis of the semantics and syntax of the verbal suffix -*kan* in Standard Indonesian. We argue that -*kan* is a morphological reflex of the RESULT head, the semantics of which gives rise to a causative interpretation. By treating -*kan* as being sensitive to a syntactic configuration involving a result state, the current analysis not only provides important empirical support for the event decomposition of predicates in the syntax but also leads to a unified semantic and syntactic account of -*kan*, which straightforwardly captures distributional properties of the suffix.

1. Introduction

It has long been noted in the literature (Vendler 1967; Carter 1976; Dowty 1979, *inter alia*) that verb meanings involve inherent aspectual (and temporal) properties and that the internal aspectual properties (i.e., *aktionsart* or event structure properties) are important factors that make a difference to linguistic behaviors such as verb taxonomy (e.g., Vendler 1967), argument structure alternation such as inchoative vs. causative alternation and telic vs. atelic alternation (e.g., Borer 1994; Ritter and Rosen 1998; Travis 2000; Davis and Demirdache 2000; van Hout 2000; Folli 2001; Folli and Harley 2002; Ramchand 2003), and adverbial modification (e.g., von Stechow 1996; Tenny 2000; Beck and Johnson 2004). A growing body of literature (e.g., Hale and Keyser 1993; von Stechow 1995; Harley 1995, 2002; Travis 2000; van Hout 2000) has further claimed that such aspectual structures (or event structures) of verb meanings are directly reflected in the syntax. This paper provides additional empirical evidence in favor of the argument that there is a direct mapping between the semantic decomposition of predicates with complex event structure and the (morpho-)syntax by developing an event-based account for the verbal suffix –*kan* in Standard Indonesian.

The suffix –*kan* gives the appearance of being several homophonous morphemes since it occurs in a number of different constructions; -*kan* is used primarily to derive causatives

whose base forms include various grammatical categories (e.g., adjectives and unaccusative verbs) and applicatives, mostly those associated with a benefactive interpretation. The distribution of *–kan*, however, is not clear-cut. It is also found in a number of transitive sentence types combined with a directional PP (hereafter, goal-PP constructions). In this construction, the presence of *–kan* is optional and does not affect the interpretation or argument structure of base sentences. The distribution of the suffix is further complicated by its occurrence in inherently ditransitive sentences, which require two internal arguments (e.g., *give* in English).[1] In inherent ditransitives, unlike goal-PP constructions, the presence of *–kan* is obligatory.[2]

The diversity of uses associated with *–kan* might suggest that the variety of uses of the morpheme is merely an instance of accidental homophony: the suffix has more than one independent function. We shall argue, however, that it is not coincidental that the same morpheme occurs in these four constructions. We shall suggest that the occurrence of the same morpheme in these constructions is due to the semantic-aspectual properties that they have in common; they are all interpreted as causatives, the aspectual meaning of which involves a causing event and a caused eventuality (or a result state). The suffix *-kan* is a morphological reflex of the aspectual component associated with the result state. We argue that distributional properties of *-kan* can be explained quite straightforwardly once this claim is accepted.

We will start our discussion by illustrating the seemingly varied uses of *-kan* in the following section. In Section 3, we will spell out the main problems presented by *-kan* that our analysis is intended to account for. In Section 4, we review briefly the issue of the position of external arguments and show that Indonesian exhibits an overt instantiation of Voice in the sense of Kratzer (1996). In Section 5, we examine how the phrase structure of Indonesian reflects event structure and what gives rise to the seeming diversity of uses affiliated with *-kan*. Our discussion will be based on the assumption that complex event structures are encoded in the lexical semantic representation of verbs and that these event structures are explicitly represented in the phrase structure. In Section 6, we provide a detailed articulation of how our proposal unifies the function of *–kan* both semantically and syntactically. In subsequent subsections, we demonstrate that the proposed syntax and

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[1] We make a distinction between two types of ditransitives, ditransitives derived from monotransitive stems by means of suffixation (e.g., benefactives) and inherent ditransitives, in which the verb stem thematically requires two arguments, the presence of which must be marked on the verb by the suffix -kan or -i. Inherent ditransitives also manifest a systematic alternation of these two suffixes to show different argument structures, NP NP and NP PP structures. In contrast, ditransitives derived from existing monotransitive verbs do not show such alternation. The differing distributions will be described later.

[2] In inherently ditransitive sentences, -kan alternates with the suffix –i in different argument structures: when –kan is present, the unmarked argument is the theme and the goal must be an oblique argument. When –i is present, however, the goal becomes the unmarked argument and occurs adjacent to the verb, which yields a double object construction (or NP NP structure). These facts are described in detail in such works as Dardjowidjojo (1967), MacDonald and Dardjowidjojo (1967), Dardjowidjojo (1983), Arka (1992), Kaswanti Purwo (1995), Kaswanti Purwo (1997), Sneddon (1996) and many others.

semantics of *–kan* can be implemented in each *–kan* construction in a quite straightforward way.

2. Distribution of *-kan*

In this section, we discuss four different *–kan* constructions: causatives in which *–kan* is used most productively with various grammatical categories (e.g., adjectives and inchoative verbs), benefactives, goal-PP constructions, and inherent ditransitives.[3] It will be shown that in the first two constructions, causatives and benefactives (§2.1), the presence of *–kan* is responsible for (in)directly introducing an additional argument to the argument structure of a base verb. In contrast, in the latter two constructions, goal-PP constructions and inherent ditransitives (§2.2), *-kan* is shown to be neutral with respect to the argument structure of a base verb.

2.1. *-kan* has an effect on argument structure

2.1.1. Causative Constructions

Let us first consider examples in which the suffixation of *-kan* to existing verbs derives causative sentences and increases the number of the verb's syntactic arguments. This is shown in (1) through (3).

(1) a. Cangkirnya pecah.   b. Janet memecah-kan   cangkirnya.
         cup-3   break   Janet meN-break-KAN cup-3
         'The cup broke'   'Janet broke her cup.'

(2) a. Banyak orang tewas.   b. Kecelakaan itu menewas-**kan**   banyak orang.
         Many   people dead   accident   that meN-dead-KAN many   people
         'Many people died.'   'The accident killed many people.'

(3) a. Wajahnya putih.   b. Ia memutih-**kan**   wajahnya.
         Face.3   white   3Sg meN-white-KAN face.3
         'His face is white.'   'He whitened his face (caused his face to
                                      become white).'

As shown above, the causative verbs in the (b) sentences are formed by attaching the suffix *–kan* to unaccusative predicates like *pecah* 'break' and *tewas* 'die/dead' or adjectives like *putih* 'white'. In addition, the causativized sentences in (b) involve the addition of an argument to the argument structure, one that is interpreted as a causer of the event described by the base predicate (e.g., *Janet* in (1b)).[4, 5] A variety of grammatical categories form their

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[3]Although we are aware that –kan can also be used as an objective marker (e.g., Sneddon 1996) and a particle (e.g., Dikken 1995), due to space limitations we limit our discussion to these four constructions in this paper.

[4]This is described in the literature as an instance of morphological causativization (e.g., Arka 1992; Kaswanti Purwo 1995).

causative counterparts by means of –*kan* suffixation. These categories, among others, include unaccusative verbs (shown in (1) and (2)), stative predicates (e.g., adjectives) (shown in (3)) and psychological predicates (e.g., *bosan* 'be bored'). More examples of each category are provided in (4).[6]

(4)   Types of Base Predicates with Causative –*kan* (Sneddon 1996)

a.   Adjectives

Non-Causatives		Causatives	
bersih	'clean'	*members**kan***	'clean x'
lebar	'wide'	*melebar**kan***	'widen x'
kering	'dry'	*mengering**kan***	'dry x'
bebas	'free'	*membebas**kan***	'set x free'

b.   Unaccusative Verbs

Non-Causatives		Causatives	
jatuh	'fall'	*menjatuh**kan***	'drop x'
kembali	'return'	*mengembali**kan***	'return x'
naik	'go up'	*menaik**kan***	'raise x'

c.   Psychological Predicates

Non-Causatives		Causatives	
bosan	'be bored'	*membosan**kan***	'bore x'
puas	'be satisfied'	*memuas**kan***	'satisfy x'
kejut	'be startled'	*mengejut**kan***	'startle x'
senang	'be pleased/happy'	*menyenang**kan***	'please x'

2.1.2. Benefactive (Applicative) Constructions

While the examples in (1) through (4) illustrate the use of –*kan* as a causative morpheme, the following examples are sentences in which –*kan* introduces an additional benefactive argument to the argument structure of a base verb. Hence, they are often described in the literature as benefactive (applicative) constructions (e.g., Arka 1992). When –*kan* is attached to transitive verb bases, the beneficiary, which is expressed as an optional adjunct phrase in the (a) sentences, can occur as a bare NP adjacent to the derived verb (hereafter, NP+NP frame).

(5)   a.   Tika memanggang   roti   itu   (**untuk**   Eric).

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[5]Indonesian exhibits both periphrastic and morphological causatives. Periphrastic causatives employ the separate lexical verb *membuat* 'make', while morphological causatives are formed by affixing the suffix –*kan* to a verb stem. The semantic differences between the morphological causatives and the periphrastic causatives are described in detail in Arka (1992).

[6]Arka (1992) and Kaswanti Purwo (1995) provide many examples of –*kan* causatives, the base forms of which range from nouns to prepositional phrases. Due to space limitations, we will restrict our discussion to causative verbs whose base forms are predicates (e.g., verbs and adjectives).

		Tika	meN-bake	bread	the	for	Eric

'Tika baked the bread for Eric.'

	b.	Tika	memanggang-**kan**	Eric	roti	itu
		Tika	meN-bake-KAN	Eric	bread	the

'Tika baked Eric the bread.'

(6) a. Eric membuat rumah-rumahan (**untuk** anak-nya).
Eric meN-make RED-house for child-3
'Eric made a toy house for his child.'

  b. Eric membuat-**kan** anak-nya rumah-rumahan.
Eric meN-make-KAN child-3 RED-house-AN
'Eric made his child a toy house.'

In the (a) sentences, the benefactive PP is an optional adjunct phrase that is not a part of the argument structure of the base verb. In contrast, the benefactive argument in the (b) sentences occurs as a bare NP adjacent to the derived verb and is a subcategorized argument of the verb plus –*kan* combination; hence, the claim that –*kan* introduces a new syntactic argument into the argument structure of the base verbs. The status of the benefactive argument as a subcategorized constituent in (b) may be obscured by the fact that Indonesian allows phonologically null constituents, making the occurrence of the benefactive NP appear to be optional. However, when the benefactive NP is omitted in (b), the only interpretation possible is that the action was carried out for the benefit of some implicit individual, an interpretation not available with the sentences without –*kan* if the 'for' phrase is omitted. This interpretational contrast between sentences with –*kan* and those without –*kan* is shown in (7) and (8).

(7) a. Tika memanggang-**kan** roti itu.
Tika meN-bake-KAN bread the
'Tika baked the bread for ***someone***.'

  b. Eric membuat-**kan** rumah-rumahan.
3SG meN-make-KAN RED-house-AN
'Eric made a toy house for ***someone***.'

(8) a. Tika memanggang roti itu.
Tika meN-bake bread the
'Tika baked the bread.'

  b. Eric membuat rumah-rumahan.
3SG meN-make RED-house-AN
'Eric made a toy house.'

Furthermore, when the <mark>benefactive</mark> argument occurs as a bare NP adjacent to the derived verb, it <mark>behaves like a primary object</mark> of the derived verb. This is shown by the fact that it is the benefactive NP that can <mark>be passivized,</mark> not the theme argument, as shown in (9).[7]

(9) a. Eric dipanggang-**kan** roti itu (oleh Tika).
         Eric DI-bake-KAN   bread the (by Tika)
         'Eric was baked the bread (by Tika).'

     b. *Roti itu dipanggang-**kan** Eric (oleh Tika).
         bread that DI-bake-KAN   Eric (oleh Tika)
         'The bread was baked for Eric (by Tika).'

On the basis of the examples we have seen thus far, *-kan* might appear to be an applicative suffix with a distribution similar to that of prototypical applicatives in such language groups as Bantu (see Baker 1988; Marantz 1993, *inter alia*). However, the consideration of a fuller range of data suggests that Indonesian benefactives with <mark>*–kan* differ from prototypical applicatives with respect to the effect of the affix on argument structure.</mark> In prototypical applicatives, the NP corresponding to the object of the preposition in the base sentence must occur as the primary object and must be adjacent to the derived verb. In Indonesian, however, the <mark>applied benefactive NP may also occur in a prepositional phrase</mark> (hereafter, NP+PP frame). This is despite the presence of *–kan* on the verb, as shown in (10).[8]

(10) a. Tika memanggang-**kan** roti itu *untuk Eric*.
          Tika meN-bake-KAN   bread the for   Eric
          'Tika baked the bread for Eric.'

      b. Eric membuat-**kan**   rumah-rumahan itu *untuk anak-nya*.
          Eric meN-make-KAN RED-house-AN the for   child-3
          'Eric made the toy house for his child.'

Furthermore, on the assumption that it is the primary object that undergoes movement to the subject position by passivization, the theme, not the beneficiary, is the primary object in the NP+PP frame. This is exemplified in (11).

(11) a. Roti itu dipanggang-**kan** untuk Eric.
          bread the DI-bake-KAN   for   Eric
          'That bread was baked for Eric (by him).'

      b. Rumah-rumahan itu dibuat-**kan**   untuk anak-nya.
          RED-house-an the DI-make-KAN for   child-3
          'The toy house was made for his child (by him).'

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[7]By 'primary' (or direct) object we mean the internal NP object, the NP that receives structural case from the functional head, Voice, and that can be passivized.
[8] Voskuil (1990) presents similar distributional facts about –kan benefactive constructions (from Malay).

It should be noted that the NP+PP variant of –*kan* benefactives in (10) must be distinguished from the NP+PP structure without –*kan* (e.g., (5a)–(6a)) in terms of its syntactic and semantic properties. First, when –*kan* is absent, the *untuk* phrase is an optional adjunct phrase, as indicated by the parentheses in (5a) and (6a). In contrast, when –*kan* is present, the PP is an obligatory oblique complement; it is a subcategorized constituent that is internal to the argument structure of the derived verb. This is shown by the fact that when the PP in (11) is omitted, as shown in (12), the sentence has a null benefactive interpretation, as in the active shown in (7).

(12)   a.   Roti   itu   dipanggang-**kan**.
               bread   the   DI-bake-KAN
               'The bread was baked *for someone* (by him).'

       b.   Rumah-rumahan itu   dibuat-**kan**.
               RED-house-an   the   DI-make-KAN
               'The toy house was made *for someone* (by him).'

When –*kan* is absent, the interpretation with an implicit beneficiary is not available in the passive if the *untuk* phrase is omitted, as shown in (13).

(13)   a.   Roti   itu   dipanggang.
               bread   the   DI-bake
               'That bread was baked (by him).'

       b.   Rumah-rumahan itu   dibuat.
               RED-house-an   the   DI-make
               'The toy house was made (by him).'

The facts shown in (12) and (13) thus suggest that the presence of –*kan* in the NP+PP frame of benefactive constructions affects the argument structure of the base sentence; -*kan* makes the PP in the base sentence a subcategorized constituent.

      Another distinction between the sentences with –*kan* in (11) and those without –*kan* is differences in their interpretation. An NP+PP frame of the –*kan* benefactive has the same truth value as that of an NP+NP frame in spite of their different surface structure; the NP+PP frame with –*kan* is synonymous with the NP+NP frame shown in the (b) sentences of (5)–(6). When –*kan* is present on the verb, the benefactive argument is construed as a prospective possessor of the theme argument in both the NP+NP and the NP+PP frame. For instance, sentence (5b), repeated as (14a), carries a strong implication that Eric possesses the bread that Tika baked, and only this interpretation is possible. The corresponding NP+PP frame, given in (14b), has the same interpretation: Eric is expected to possess the bread as a result of Tika's baking event.

(14)   a.   Tika   memanggang-**kan**   Eric   roti   itu.
               Tika   meN-bake-KAN   Eric   bread   the
               'Tika baked Eric the bread.'

b. Tika   memanggang-**kan**   roti   itu   **untuk Eric**.
    Tika   meN-bake-KAN   bread   the   for   Eric
    'Tika baked the bread for Eric (to have it).'

An implication of possession is not required in the corresponding transitive sentence without –*kan* in (5a), repeated as (15); the sentence is ambiguous with respect to two readings, a possessive reading, as shown in (15a), and a purely benefactive reading, as shown in (15b).

(15) Tika   memanggang   roti   itu   **untuk   Eric**.
      Tika   meN-bake   bread   the   for   Eric
      a. 'Tika baked the bread for Eric to have/to give it to Eric.'
      b. 'Tika baked the bread in place of Eric (since he does not know how to bake).'

The beneficiary in (15) has a significantly wider range of roles than does the beneficiary in (14). It is possible to understand (15) to describe a situation in which Tika baked the bread in place of Eric, since Eric does not know how to bake but is supposed to bring some to a party. But this reading is absent in (14), which can only mean that Tika baked the bread for Eric to have.

The truth-conditional difference between sentences with –*kan* and those without –*kan* is parallel to the semantic contrast between double object and oblique complement constructions in English which has been noted by a number of researchers (e.g., Green 1974; Kayne 1975; Oerhle 1976; Gropen, Pinker et al. 1989; Pesetsky 1995; Harley 1995, 2002; Beck and Johnson 2004). Consider (16), for example.

(16) a.   Sally knitted Paul a sweater.   (Only possession reading)
           (i)   Sally knitted a sweater for Paul to have.

      b.   Sally knitted a sweater for Paul.   (Ambiguous)
           (i)   Sally knitted a sweater for Paul to have.
           (ii)   Sally knitted a sweater in place of Paul (since he doesn't know how to knit.)

It has often been noted (e.g., Green 1974; Oerhle 1976; Pesetsky 1995; Beck and Johnson 2004) that the double object construction in English shown in (16a) has a meaning component that is not necessarily found in the oblique complement construction shown in (16b), namely a possession, or HAVE, component. Sentence (16a) thus can be expressed roughly as (16a-i) in which the benefactive NP, *Paul*, is expected to possess the sweater as a result of Sally's knitting event, hence the possessor account (e.g., Pesetsky 1995; Harley 2002; Beck and Johnson 2004). In contrast, the oblique complement construction in (16b) is ambiguous with respect to whether Paul is expected to have the sweater that Sally knitted. (16b) can be true under both the possessive (16b-i) and the purely benefactive (16b-ii) reading.

We argue that the 'possessor' account proposed for the English double object construction applies to both variants of the –*kan* benefactives as well, since there is an

animacy restriction on the applied argument, which has been a basis for justifying the possessor account for English. This is shown by the examples in (17) and (18).

(17) a.   *Saya men-(p)anggang-***kan perayaan ulangtahun Eric*** biskuit itu.
1SG   meN-bake-KAN   celebration birthday   Eric   biscuit   the
'I baked a biscuit for Eric's birthday.'

b.   *Dia   mem-buat-***kan perayaan Halloween*** rumah-rumahan itu.
3SG   meN-build-KAN celebration Halloween RED-house-AN   the
'He built a toy house for Halloween.'

(18) a.   Saya men-(p)anggang-***kan*** biscuit itu untuk perayaan   ulangtahun Eric.
1SG meN-bake-KAN   biscuit the for   celebration birthday   Eric
'I baked *someone* the biscuit for Eric's birthday.'

b.   Dia   mem-buat-***kan***   rumah-rumahan itu untuk perayaan   Halloween.
3SG meN-build-KAN RED-house-AN the   for   celebration Halloween
'He built *someone* the toy house for Halloween.'

As shown in (17), an inanimate object cannot appear as an applied argument in the NP+NP frame of –*kan* benefactives. The animacy restriction on the benefactive argument also applies to the NP+PP frame, as shown in (18); although it may appear that the NP+PP frame with –*kan* allows a wider range of benefactive arguments including inanimate referents in (18) (e.g., Eric's birthday), the sentences are understood as involving an implied 'animate' entity as a prospective possessor of the theme argument. Additional evidence along these lines can be found in the following examples. [9]

(19) Saya   menyulam   baju   hangat ini   untuk   bayi   kita.
1SG   meN-knit   shirt   warm   this   for   baby   1PL
'I knitted this sweater for our baby.' (The baby need not exist in the real world.)

(20)   a.   Saya
menyulam-***kan***   bayi
kita   baju
hangat   ini.
1SG   meN-knit-KAN
baby   1PL   shirt
warm   this
'I knitted our baby this sweater.'

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b. Saya menyulam-***kan*** baju hangat ini untuk bayi kita.
1SG meN-knit-KAN shirt warm this for baby 1PL
'I knitted this sweater for our baby.' (The baby must exist in the real world to be a prospective possessor of the theme.)

In (20), both frames of the –*kan* benefactive have the implication that the baby exists. If the baby must bear a possessor role in (20) by virtue of appearing in the –*kan* construction, it must be animate (i.e., alive), and hence has already been born. In (19), in contrast, when –*kan* is absent, the baby may or may not exist in the real world; the female speaker may simply be pregnant, or plan to be.

On the basis of the causative and benefactive constructions described above, it has often been claimed that the primary function of -*kan* is to increase the valence of a VP by introducing an extra argument in the argument structure; -*kan* is a 'valence increasing' morpheme (e.g., Kaswanti Purwo 1997) or a transitivizer (e.g., Arka 1992; Sie 1998; Postman 2002).[10]

It must be noted, however, that these accounts of –*kan* as a transitivizer take only some of its uses into consideration. For instance, there are instances where the presence of –*kan* is optional without affecting argument structure, i.e., goal-PP constructions. Furthermore, the obligatory presence of –*kan* on inherently ditransitive verbs like 'give' are generally not mentioned in this regard. These two constructions, which demonstrate that the suffix –*kan* does not always change argument structure, are described in the following section.

2.2. -*kan* has no effect on argument structure

2.2.1. Goal-PP Constructions

Let us first consider sentences in which –*kan* is optional and its presence on a verb does not change argument structure. The following set of examples, which we call goal-PP constructions, following the terminology of Beck and Snyder (2001), shows that in this construction, unlike causative and benefactive constructions, the suffix –*kan* does not affect the argument structure of base verbs.

(21) a. Dia mengikat tali itu.
3SG meN-tie rope the
'He tied the rope.'

b. Dia mengikat-(***kan***) tali itu ke anjing.
3SG meN-tie-KAN rope the to dog
'He tied the rope to the dog.' (Sneddon 1996)

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[10] It should be noted that previous accounts of –kan that treat it as a transitivizer deal with only the NP+NP frame of –kan benefactives. The facts regarding the NP+PP frame have not been mentioned in the previous studies.

(22) a.   Dia   menempel   gambar itu.
             3SG   meN-patch   picture   the
             'He glued the picture.'

      b.   Dia   menempel-(**kan**)   gambar itu **ke tembok**.
             3SG   meN-patch-KAN   picture the to wall
             'He stuck pictures on(to) the wall.'   (Sneddon 1996)

As shown in the (b) examples, when the PP expressing a direction or a location (e.g., *ke tembok* 'to the wall') is added in a sentence, the presence of –*kan* on the verb is allowed. The suffix is optional and does not affect the argument structure or the meaning of the sentence.[11]

    In the previous literature (e.g., Arka 1992; Sneddon 1996; Postman 2002), constructions like (b) in (21) and (22) are often incorrectly labeled as instrumental –*kan* constructions. The instrumental –*kan* analysis makes the tacit assumption that the base form of (21b), for example, repeated as (23b), is (23a) with an optional prepositional phrase.

            (Sneddon 1996)
(23) a.   Dia   mengikat   anjing   itu   (dengan   rope)
             3SG   meN-tie   dog   the   (with   rope)
             'He tied the dog with a rope.'

      b.   Dia   mengikat-(***kan***)   tali   itu   ke   anjing.
             3SG   meN-tie-KAN   rope   the   to   dog
             'He tied the rope to the dog.'

The NP 'the rope' expressed in a prepositional phrase in (23a) is understood to be an instrument of the action performed by the subject (e.g., Sneddon 1996). When –*kan* is attached to the verb, the argument of the preposition in (23a) is realized as an unmarked argument adjacent to the verb plus –*kan* combination (as in (23b)). Due to the argument alternation in which the "instrumental" PP in (23a) becomes the primary object of the derived verb in (23b), it has often been claimed (e.g., Sneddon 1996) that -*kan* in (21) and (22) marks the object as the instrument with which the action is performed, hence the term instrumental –*kan*. However, we argue that such a generalization is an overstatement since not all sentences with an instrumental PP allow –*kan*. Consider (24) and (25), for example.

(24) a.   Dia   menulis   dengan pensil tumpul.
             3SG   meN-write   with   pencil dull
             'He wrote with a blunt pencil.'

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[11]Our informant reports that in the (a) sentences, verbs with –kan are also grammatical. However, when these verbs occur with –kan, they are interpreted as having a phonologically null benefactive argument. That is, when –kan is allowed, it is used as a suffix associated with a benefactive interpretation. With our intended meaning in (b), however, the verb form of 'V+ -kan' is not well-formed in the (a) sentences.

    b.   *Dia menulis-kan   pensil   tumpul.
           3SG meN-write-KAN pencil   dull
           'He wrote with a blunt pencil.'   (Sneddon 1996)

(25) a.   John membuka pintu dengan kunci.
           John meN-open door   with   key
           'John opened the door with a key.'

      b.   *John membuka-kan   kunci ke pintu.
           John meN-open-KAN key   to door
           'John opened the door with a key.' (Intended)

As shown in the (b) sentences above, instruments that are not displaced or moved by the action of the verb are unacceptable in the –kan construction. This suggests that what is essential for the type of –kan constructions shown in (21) and (22) is that the theme object of the verb must undergo physical movement, as also noticed by Sneddon (1996) and Kroeger (2002).[12] Additional evidence for this claim is provided in (26), taken from Kroeger (2002).

(26) Non-displaced instruments

    a. *menghitungkan   sempoa   b. *menimbangkan   dacing/neraca
       meN-add.up-KAN   abacus   meN-weight-KAN   scale
       'add up with an abacus   'weight with a scale'

    c. *menuangkan   corong   d. *meminumkan   sedotan
       meN-pour-KAN   funnel   meN-drink-KAN   straw
       'pour/fill with a funnel'   'drink with a straw'

As shown above, the stationary instrumental objects (e.g., *sempoa* ' an abacus') cannot appear with the verb plus –kan combination.

    Further evidence against the claim that –kan is an instrumental suffix is found from the following sentences in which non-instrumental NPs can also occur as primary objects of the –kan construction.

(27) a.   Tika melempar-(*kan*) **bola itu** ke   dalam   keranjang sampah.
           Tika meN-throw-KAN ball   that to   in   can   trash
           'Tika threw the ball into the trash can.'

      b.   Wim menuang-(*kan*) **air** ke   dalam   ember.
           Wim meN-pour-KAN water to   in   bucket
           'Wim poured the water into the bucket.'

---

[12] Sneddon (1996) notes, in passing, that sentences with instrumental NPs that are not physically moved (or manipulated) do not allow –kan on their verbs. However, he continues to label sentences like (21) and (22) as instrumental –kan constructions without explicit discussion of why only instrumental NPs that undergo movement are allowed in those constructions.

The NPs adjacent to the verbs derived by –*kan* suffixation, 'the ball' in (27a) and 'the water' in (27b), are understood to be theme objects that undergo a change of location, rather than instrumental objects. Nonetheless, the sentences in (27) have the same argument structure as (21) and (22); when a directional PP is present, -*kan* is allowed on the verbs and is optional.[13] The examples shown from (24) through (27), therefore, provide sufficient evidence in favor of the argument that characterizing –*kan* as simply an instrumental morpheme misses the correct generalization.

Based on the observations made thus far, we characterize the –*kan* constructions shown above as a type of goal-PP construction in the sense of Beck and Snyder (2001), rather than as an instrumental construction. As noted earlier, the commonality of the theme arguments allowed in constructions like (21) and (22) is that they all undergo movement from one location to another. This means that there must be a final location of the theme that is moved, i.e., the goal, and it is expressed by a prepositional phrase, hence the goal-PP. By 'goal-PP constructions', therefore, we mean the combination of a simple transitive verb with a prepositional phrase indicating the final location of the theme that undergoes movement (cf. Beck and Snyder 2001).

2.2.2. Inherent Ditransitives

The following are examples of inherently ditransitive sentences, sentences which obligatorily take two internal objects. Unlike goal-PP constructions, the presence of -*kan* is obligatory in these sentences, as shown in the (a) sentences of (28) and (29).

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[13] Kaswanti Purwo (1997, 2002) divides –kan occurring in the examples shown in section 2.2.1 into two different types: the instrumental –kan and the locative –kan. The division is based on the optionality of the suffix and the possibility of an alternation with the suffix –i. For example, -kan in (22b) and (27) is categorized as the locative –kan in the sense that the verb combined with –kan takes a locational PP (e.g., 'into the bucket' in (27b)). When –kan is used as a locative suffix, it is optional and alternates with –i, which indicates different argument structure (see Kaswanti Purwo (1997, 2002) for examples with –i suffixation). In contrast, when –kan is used as an instrumental suffix, he claims that the presence of –kan on the verb is obligatory and does not alternate with –i. However, the optionality of the suffix and the possibility of an alternation with –i do not seem to provide correct diagnostics for classifying the suffix as one type or the other for various reasons. First, even when it does not alternate with the suffix –i, -kan can be optional, as seen in (21b); the verb combined with –i, mengikat-i 'meN-tie-I', does not form a legitimate verbal complex in Indonesian. This would predict, according to Kaswanti Purwo's classification, that –kan is categorized as an instrumental suffix, and hence is obligatory. Contrary to the prediction, however, the suffix is optional. Secondly, sentences with -kan in section 2.2.1 have too much in common to be regarded as two independent constructions; they all contain an NP object that undergoes physical movement and a prepositional phrase that expresses a locational endpoint. Thus, sentences that are argued to involve an instrumental -kan may also be considered to be a locative type if the meaning of a PP is a criterion for characterizing -kan as a locative suffix.Although the obligatory presence of –kan on some verbs seems puzzling (but not problematic for our analysis), we uniformly characterize sentences with –kan in this section as a type of goal-PP construction due to the various problems that arise otherwise (see Son (2005) for detailed discussion on goal-PP constructions and examples in which –kan is obligatory).

(28) a. John memberi-*(**kan)** surat itu   kepada   Peter.
       John meN-give-KAN   letter the   to   Peter
       'John gave a letter to Peter.'

    b. Surat itu   diberi-**kan**   kepada   Peter (oleh John).
       letter the   DI-give-KAN   to   Peter (by   John)
       'The letter was given to Peter.'

    c. *Peter   diberi-**kan**   surat itu   (oleh John).
       Peter   DI-give-KAN   letter the   (by   John).'
       'Peter was given the letter by John.'

(29) a. Dia   menyerah-*(**kan)**   perkerjaan itu   kepada   saya.
       3SG   meN-entrust-KAN   job   the   to   1SG
       'He entrusted the job to me.'   (Dardjowidjojo 1967)

    b. Perkerjaan itu   diserah-**kan**   kepada   saya (oleh dia).
       Job   the   DI-entrust-KAN   to   1SG (by   3SG)
       'The job was entrusted to me (by him).'

    c. *Saya diserah-**kan**   perkerjaan itu (oleh dia).
       1SG   DI-entrust-KAN job   the   by 3SG
       'I was entrusted the job (by him).'

For inherently ditransitive verbs, no corresponding (simple) transitive verb exists. In addition, only an NP+PP frame is compatible with –*kan*, unlike the pattern found with benefactives, which are compatible with both an NP+NP and an NP+PP frame. When –*kan* is present, the unmarked argument is the theme, and only this NP can be passivized, as in the (b) examples. The goal is expressed as an obligatory oblique complement in a prepositional phrase.

      As described so far, goal-PP constructions and inherently ditransitive sentences militate against the idea that the suffix –*kan* invariably increases the number of the verb's arguments. In both constructions, the presence of –*kan* does not require the introduction of an additional syntactic argument.

3. Problems

We have seen that the suffix –*kan* appears to be multiply ambiguous by occurring in four seemingly different constructions: causatives, benefactives, goal-PP constructions, and inherent ditransitives. In the first two constructions, -*kan* appears to function as a transitivizer and adds an extra argument regardless of whether the added argument is an NP or a PP in the case of benefactives. In the latter two constructions, goal-PP constructions and inherent ditransitives, -*kan* has been shown to be neutral with respect to the valency of a verb.

      Based on the facts associated with -*kan* described so far, the issues that must be addressed are the following: (1) What characterization of -*kan* gives rise to the observed occurrence of the suffix in four seemingly unrelated constructions? (2) In the benefactive construction, unlike prototypical applicatives in many languages, -*kan* has the effect of

making either an NP or a PP benefactive into an internal argument. When doing so, it allows two different argument structures, an NP+NP or an NP+PP structure. How do we account for the compatibility of both structures with –*kan* and for the fact that –*kan* has the effect of allowing either type of argument to be a subcategorized constituent? (3) In the goal-PP construction, there seems to be a dependency between the addition of a goal prepositional phrase and the acceptability of –*kan* on the verb. Why is it the case that –*kan* is allowed only when the goal-PP is present in these constructions?

In order to correctly identify the function of –*kan* and the diversity of its uses in the constructions under investigation, we make use of an event-based approach. We argue that the presence of –*kan* in the aforementioned constructions is not an instance of accidental homophony. Rather we attribute it to the common event structures of these constructions; the suffix –*kan* is a morphological reflex of the aspectual component, i.e., a result-state, that is shared by those constructions. All the distributional facts noted above are claimed to fall out naturally from our event-based approach irrespective of the specific implementation provided for each construction.

Before discussing our main proposal, let us briefly turn in Section 4 to the question of the position of external arguments in Indonesian. We will then review the theory of event decomposition in the semantics and syntax that our analysis is based on. Our proposal is outlined in Section 6 and is explicitly executed with respect to each –*kan* construction in the subsequent subsections.

4. External Arguments and Overt Realization of Voice

Kratzer (1996), drawing on Marantz (1984), proposes that external arguments are not arguments of verbs, but rather arguments of a separate functional element, namely VoiceP, equivalent to *v*P in the Minimalist framework, to Predicate Phrase in Bowers (1993), and to a neo-Davidsonian predicate Agent (x, e); the external argument is introduced by the inflectional head Voice in the projection immediately above VP. Kratzer notes that external arguments seem to have a special status because they are rarely able to trigger a special interpretation of the verb (e.g., idiomatic readings), unlike internal arguments. Therefore, she suggests that there is a distinction between the internal arguments of verbs, which are part of the lexical entry and appear in the lexical semantic representation as arguments of the main predicate, and external arguments, which are introduced by a separate functional head Voice. According to Kratzer (1996), the external-argument-introducing-Voice is interpreted as a thematic relation that holds between the individual (e.g., the agent) and the event described by its complement (i.e., VP), as shown in (30).[14]
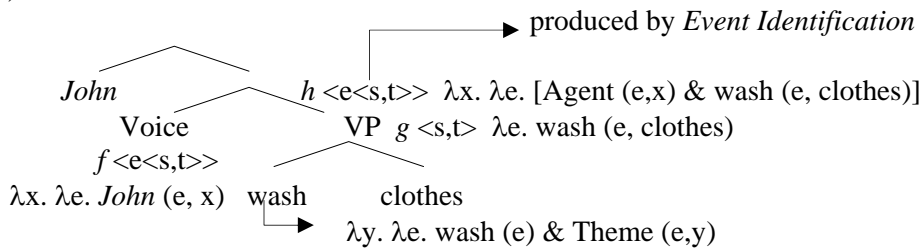
(30) Voice: λx. λe. Agent (e, x)

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[14]The semantic analysis presented in this paper is rendered in neo-Davidsonian fashion using event variables, which are always bound by an existential quantifier since, unlike other thematic arguments of verbs, event arguments have no syntactic correlates. In this account, verbs are taken as one-place predicates of events to individuals. These are the individuals who participate in the events, and the semantic and lexical content of the thematic role indicates the nature of the participation.

In order to ensure that the agent introduced by Voice is a participant of the same event denoted by the verb, Kratzer further proposes that the external-argument-introducing Voice combines with VP by a rule of semantic composition that she dubs "Event Identification". This compositional rule is a special kind of conjunction operation that chains together various conditions for the event described by a sentence. In other words, event identification allows us to relate a participant introduced by Voice (e.g., an agent) to the event described by the verb, not some other event. The compositional rule of Event Identification is stated and illustrated in (31) and (32), respectively.[15]

(31) **Event Identification (Kratzer 1996)**:

$$\begin{array}{ccc}
f & g & \rightarrow & h \\
<e\ <s,t> & <s,t> & & <e,\ <s,t>> \\
\lambda x.\ \lambda e.\ \text{Agent (e, John)} & \lambda e.\ \text{wash (e, clothes)} & \rightarrow & \lambda x.\ \lambda e.\ [\text{Agent (e, John) \& wash (e, clothes)}]
\end{array}$$

(32)

produced by *Event Identification*

$$\begin{array}{l}
John \qquad\qquad h <e<s,t>>\ \lambda x.\ \lambda e.\ [\text{Agent (e,x) \& wash (e, clothes)}] \\
\qquad \text{Voice} \qquad \text{VP}\ g <s,t>\ \lambda e.\ \text{wash (e, clothes)} \\
\qquad f <e<s,t>> \\
\lambda x.\ \lambda e.\ John\ (e, x) \quad \text{wash} \qquad \text{clothes} \\
\qquad\qquad\qquad \lambda y.\ \lambda e.\ \text{wash (e) \& Theme (e,y)}
\end{array}$$

As seen above, when we introduce the external argument, we merge Voice, which expresses a thematic relation between an individual *John* and an event *e*, with the VP. The compositional rule of event identification identifies the event in which John is an agent with the event in which clothes get washed. In more technical terms, the verb combines with its object to produce $g <s,t>$, a function from an event argument to a truth value. The voice head f of type $<e<s,t>>$ is a function taking an individual *e* and an event *s* as arguments. Event identification combines these two functions, g and f, and unifies their event arguments. This is why *John* ends up being the agent of the washing event and not some other event, just as would be the case if John were a "true" argument of *wash* in a traditional sense. Hence the compositional rule of event identification resolves an interpretive problem that arises when external arguments are introduced by a separate verbal head outside the VP.

Kratzer argues that the functional head that introduces external arguments, Voice, is also responsible for the assignment of structural case to the object (accusative case). Similar assumptions are made in Chomsky (1991, 1995) and Johnson (1991), and adopted by Cole and Hermon (1998, 2000) for Toba Batak and by Guilfoyle, Hung, and Travis (1992) (henceforth, GHT), Adisasmito-Smith (1998), and Aldridge (1999) for Indonesian. The absence of accusative case thus is accompanied by the absence of an external argument, reflecting Burzio's generalization (Burzio 1986).

We accept the general intuition that there is an important distinction between internal and external arguments and adopt Kratzer's proposal that external arguments are introduced by a

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[15]The semantic types involved here are e for individuals, t for propositions, and s for eventualities.

separate functional element, Voice. Kratzer's external-argument-introducing Voice head can be applied naturally to Indonesian, since the relationship between external arguments and Voice is represented explicitly in the language. Indonesian manifests a clear morphological distinction between active sentences, in which the agent is the subject, and passive sentences, in which the patient or the theme is the surface subject, as shown in (28), repeated as (33).

(33)   Active
　　　a.　John ***mem*beri-kan**　　surat itu kepada　Peter
　　　　　John meN-give-KAN letter the　to　　　Peter
　　　　　'John gave a letter to Peter.'

　　　Passive
　　　b.　Surat itu　***di*beri-kan**　　kepada　Peter (oleh John).
　　　　　letter the DI-give-KAN　to　　　Peter (by John)
　　　　　'The letter was given to Peter by John.'

As in (33), transitive active verbs are formed with the prefix *meN-* in (33a), whereas the passive verb is prefixed with *di-* in (33b). Therefore, we assume that *meN-* and *di-* are overt instantiations of the Voice head (cf. Cole and Hermon 1998, 2000). We further argue that Voice in active transitive sentences licenses an internal argument, as also assumed in GHT (1992), Adisasmito-Smith (1998), and Aldridge (1999).

　　　Following Ramchand (2003), among others, we will assume that the external argument introduced by the Voice head is interpreted as a participant involved in the initiating or causing event, rather than as an agent. Ramchand (2003), drawing on Rappaport and Levin (2002), among others, notes that external arguments can be volitional agents (34a-b), instrumentals (34c), or abstract causes/sources (34d-e), showing the generality and abstractness of the external argument relation.

(34)　a.　John broke the window.
　　　b.　John built that house.
　　　c.　The hammer broke the house.
　　　d.　The videotape from the secret camera demonstrated the truth of the matter.
　　　e.　The wind broke the window.

In Indonesian sentences with *-kan*, various thematic relations are also possible with respect to external arguments, as illustrated in (35).

(35)　a.　Kebakaran itu (Badai Tsunami)　　menewas-**kan**　　banyak　orang.
　　　　　Fire　　　that (hurricane Tsunami) meN-die-KAN　　many　　people
　　　　　'The fire/hurricane killed many people.'

　　　b.　Janet memecah-**kan**　　cangkirnya.
　　　　　Janet　meN-break-KAN cup-3

'Janet broke her cup (by accident).' – non-volitional

    c.   Wawancara itu memberi-**kan** ide untuk sebuah buku pada Taufik.
          interview that meN-give-KAN idea for one book to Taufik
          'That interview gave the idea for a book to Taufik.'

    d.   Operasi yang sukses itu memberi-**kan** harapan pada Taufik.
          surgery YANG successful the meN-give-KAN hope to Taufik.
          'The successful surgery gave Taufik hope.'

As shown above, the external argument in causative or ditransitive sentences is not restricted to a volitional agent, but can be an abstract cause or source. Therefore, we assume that agency does not directly determine the locus of causation or initiation even though an agentive interpretation of the external argument might be relevant for an appropriate interpretation in certain contexts. An interpretation of the external argument will thus not be restricted to an agent. Rather, it receives a broader range of thematic roles and is represented as θ_{EXT}, following the notation introduced by Pylkkänen (2002). θ_{EXT} is understood as a variable ranging over different thematic relations such as an agent, a source, etc., as depicted in (36).

(36)   VoiceP

      θ_{EXT} ♣ $<e<s,t>>$
        Voice   VP g $<s,t>$
      $f <e<s,t>>$
    $\lambda x.\ \lambda e.\ \theta_{EXT}(e,x)$
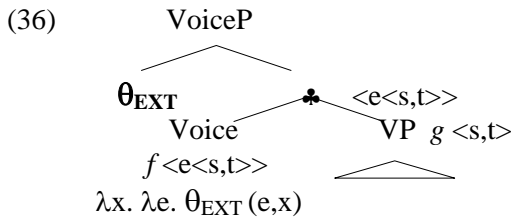
Voice in active sentences, the head of which is overtly realized as *meN-* in Indonesian, is interpreted as introducing an external argument, notated as θ_{EXT}.[16] As discussed earlier, the interpretation of the active Voice then combines with the denotation of VP by event identification. We will assume that the syntax and semantics of Voice represented in (36) apply to all sentences with *meN-* throughout the paper.

5. Semantic and Syntactic Decomposition of Predicates and CAUSE

In this section, we will outline briefly the theory of event decomposition in the semantics and syntax and develop important aspects of our proposal.

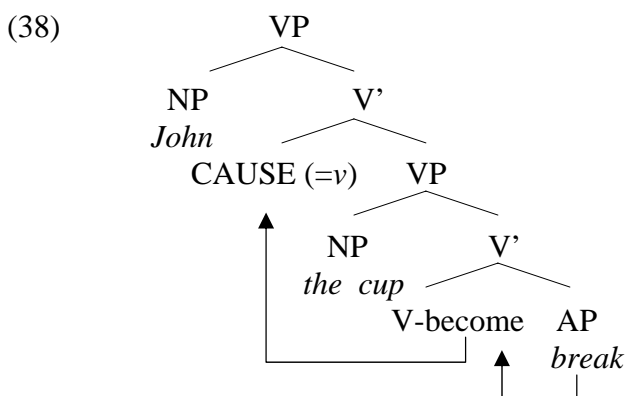### 5.1. Event Decomposition in the Syntax

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[16] When Voice is realized as di- (i.e., a passive Voice), we assume that no external argument is projected in the specifier of VoiceP. However, unlike unaccusative sentences, passive sentences still involve an agent interpretation which is optionally expressed by an agentive 'by' phrase. When the 'by' phrase is omitted, we assume that the agent interpretation is obtained by a process akin to existential closure, i.e., existential closure over agents, as have normally been assumed in the literature (e.g., Embick 2004; Son 2005). We further assume that the passive Voice lacks a case feature, adopting Burzio's generalization. Thus, internal arguments move to a higher verbal projection (e.g., [Spec, TP]) to get case. Due to the interpretive complications that arise from NP movement, we leave aside semantic representations of the passives in this paper.

A growing number of recent studies on verbal meaning have demonstrated that a direct mapping of lexical/logical semantics into syntax with respect to event structure can advance our understanding of numerous linguistic phenomena (e.g., Hale and Keyser 1993; von Stechow 1995; Harley 1995, 2002; Ritter and Rosen 1998; Borer 2000; Travis 2000; Davis and Demirdache 2000; van Hout 2000; Folli 2001; Folli and Harley 2002; Ramchand 2003; Beck and Johnson 2004). The idea of representing lexical semantics associated with event structure in the syntax goes back to the work of McCawley (1968) in the Generative Semantic framework, where he proposed that *kill* be represented in the phrase structure with several abstract predicates like CAUSE and BECOME. These two predicates then combine into a semantically larger predicate via a syntactic rule of predicate raising. Dowty (1979) and Parsons (1990) translate many of the observations of the Generative Semantics into Montague's framework, again using predicates like CAUSE and BECOME in the lexical-semantic representation of eventive verbs like 'break'. There is no associated syntactic structure in this framework, nor are there syntactic rules like the rule of predicate raising proposed by McCawley (1968). Although we will not provide a detailed historical path from the phrase structure of Generative Semantics through pure semantics and back to a syntactic account of event structure, a now widely held position in the literature on verbal meaning is that the lexical semantic representation of verbs involves complex event structure with semantic primitives like DO, CAUSE, and BECOME (e.g., Dowty 1979); events are not unanalyzable atomic units, but are decomposable into subparts of events. Furthermore, a growing number of recent studies reflecting different approaches, like lexical/logical semantics and syntax, have converged on the view that complex events are structured into an inner and outer event, where the outer event is associated with causation and agency, and the inner event is associated with telicity and change of state (e.g., Dowty 1979; Levin and Rappaport 1988, among many others). For instance, the meaning of causative verbs like 'break' involves complex event structures with semantic primitives like CAUSE and BECOME. The logical form of 'break' thus can be represented along the lines of (37), which can be paraphrased as 'x causes y to change into a state of becoming broken.'

(37)   [x CAUSE [y BECOME [$_{AP}$ broken]]

　　　　　Outer Event　　Inner event　　　(Dowty 1979, *inter alia*)

A number of syntacticians have attempted to map the semantics of events encoded in the verbal meaning into the syntax. Hale and Keyser (1993), for example, who have contributed crucial insights to the theory of syntactic decomposition of predicates, proposed that all English verbs contain a more complex syntactic structure than was previously recognized. For instance, a causative sentence like 'John broke the cup' can be syntactically represented as (38), where the semantic primitives, CAUSE and BECOME in (38), are treated as abstract morphemes present in the syntax.

(38)
```
                    VP
          ┌─────────┴─────────┐
         NP                   V'
        John         ┌────────┴────────┐
              CAUSE (=v)               VP
                           ┌───────────┴───────────┐
                          NP                        V'
                        the cup          ┌──────────┴──────────┐
                                      V-become               AP
                                                            break
```

In (38), the single verb 'break' is represented by two syntactic verbal heads, each of which contributes the subparts of the verb meaning; the upper VP with the agent *John* in its Spec position expresses causation, and the lower VP with the theme in its Spec position expresses the change of state that the cup undergoes, i.e., the cup's being broken. By separating the meaning of 'break' into two sub-eventive parts headed by separate verbal projections, the result state—'the cup being broken'—of the whole event is made explicit in the syntactic structure. Hale and Keyser (1993) further propose that the theta-roles of the arguments are determined by the position they occupy: agents are always generated in the Spec of the upper V, which takes a VP complement, equivalent to Kratzer's Voice head or to *v* in the Minimalist framework. The theme is always generated in the Spec of the lower V, which takes either a PP or an AP as its complement.

Hale and Keyser's idea of mapping the lexical-semantic representation of verbs into the syntax was subsequently developed and extended by a number of researchers (e.g., Harley 1995; Pylkkänen 2002; Ramchand 2003), providing the consequence that it was possible to capture a number of linguistic phenomena such as ambiguity of adverbial modification (e.g., von Stechow 1996; Tenny 2000) and alternation of argument structure (e.g., Levin and Rappaport 1988; Folli and Harley 2002), to name a few.

The postulation of CAUSE in (38) was supported empirically by the fact that CAUSE associated with an external argument is morphologically overt in many languages (Harley 1996; Travis, 2000; Davis and Demirdache 2000, among others). Travis (2000), for instance, has shown that the causative represented by the topmost verbal head in (38) may receive grammatical realization by overt morphemes in languages like Malagasy and Tagalog: *-pag-* in Malagasy and *–an-* in Tagalog. Japanese (e.g., Harley 1995) and Korean (e.g., Son 2004) have also been shown to display an overt morphological instantiation of the verbal head that is associated with an external argument and a causative meaning: the suffixes *-sase* and *–i* in Japanese and Korean, respectively.

5.2. *-kan* is not an instantiation of CAUSE

Given the cross-linguistic similarity in causative constructions in which causation is marked by overt morphology, it would be natural to hypothesize that the suffix *–kan* is an instance of the overt realization of the CAUSE predicate in (38). However, we reject this proposal for the following two reasons:

First, let us suppose that *–kan* is a functional head that roughly corresponds to CAUSE in (38), as would normally be assumed for causative constructions derived by an overt causative morpheme associated with an external argument. We noticed, however, that in Indonesian there exists a separate functional element that licenses an external argument, i.e., the prefix *meN-* as a realization of an active Voice (see §4). This would suggest that CAUSE must occur as its own syntactic head independent of Voice, roughly represented as (39).

(39)

         Voice P
         /   \
    x   Voice
         /   \
  Voice (*meN-*) CAUSEP
          / \
    CAUSE (*-kan*) VP
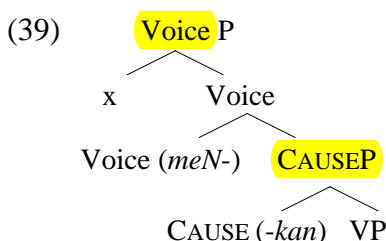
The idea of separating CAUSE from Voice is not new, but has already been proposed by Pylkkänen (2002) based on certain facts drawn from Japanese and Finnish. Advocating a bi-eventive analysis of causative constructions, Pylkkänen (2002) argues that what universally distinguishes causative verbs from their non-causative counterparts is a syntactically implicit *event argument* ranging over causing events. That is, a universal property of CAUSE is to introduce an implicit event argument (i.e., a causing event) to the event of a base sentence (hence the bi-eventive approach), rather than an external argument. She claims that separation of CAUSE from Voice follows crucially from the existence of unaccusative causatives in some languages (e.g., Finnish desiderative causatives). In unaccusative causatives, CAUSE only introduces a new event argument into the semantics of a non-causative counterpart expressed by VP; there is no individual (e.g., no agent) involved in the causing event. A syntactic structure for unaccusative causatives as proposed by Pylkkänen (2002) is given in (40).[17]

(40) Unaccusative Causatives
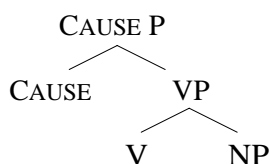
      CAUSE P
      /   \
  CAUSE   VP
         / \
        V   NP

Pylkkänen (2002) further argues that languages that do not exhibit unaccusative causatives (e.g., English) would not allow the structure in (40), in which CAUSE is separate from Voice.[18]

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[17] See Pylkkänen (2002) for examples of unaccusative causatives found in Japanese and Finnish.

[18] Pylkkänen (2002) argues that cross-linguistic variation has two sources, one of which has to do with Voice-bundling. Voice-bundling refers to variation in the syntactic realization of CAUSE: CAUSE can occur either as its own syntactic head separate from Voice (e.g., Finnish) or it can be "bundled"

In Indonesian, we <mark>do not observe</mark> any empirical evidence for the existence of <mark>unaccusative causatives;</mark> all apparent causative constructions discussed in §2.1.1. involve new external arguments (e.g., agents) that are not present in their non-causative counterparts.[19] This may <mark>suggest that Indonesian behaves like English:</mark> according to Pylkkänen (2002), causatives in English have a structure that has <mark>only one functional head</mark> containing properties of both Voice and CAUSE, i.e., <mark>Voice-bundling CAUSE,</mark> which must introduce an external argument along with a causative meaning. The Voice-bundling CAUSE <mark>corresponds roughly</mark> to the CAUSE predicate in <mark>Hale and Keyser's</mark> framework shown in (38). However, we have already seen the morphological make-up of Indonesian that the putative CAUSE morpheme, which contributes the meaning of causation to causative constructions, must be separate from an external-argument-introducing Voice morpheme; we argued that the prefix *meN-* is responsible for an external argument and that *–kan* is associated with a causative meaning. The question, then, is whether we should maintain the structure in (40) with CAUSE separate from Voice and make a stipulation about why Indonesian does not allow unaccusative causatives. Alternatively, we could <mark>abandon the idea of postulating *–kan* as a CAUSE</mark> head and take a different approach. We adopt the second option due to an additional problem, discussed below.

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together with Voice into one syntactic node (e.g., English). See Pylkkänen (2002) for the theory of the parameterization of the relationship of CAUSE and Voice necessary to explain the cross-linguistic variation.

[19]The external argument need not be syntactically expressed; we can have a passive structure, as seen in (9a), where Voice is overtly marked by the passive morpheme di-. Even then, an implicit external argument (e.g., an agent) should be diagnosable in the usual way, for example, by the possibility of a 'by-phrase' (although the 'by-phrase' can often be dropped). The existence of an implicit external argument in the passive is evidenced by the ungrammaticality of the following sentence with sendiri <mark>'by itself',</mark> the expression of which is often used as a diagnostics for <mark>inchoativity (i.e., spontaneous eventiveness).</mark>

(i)   *Cangkirnya   dipecahkan
                                        sendiri.
                                      Cup-3SG
                                   DI-break-KAN   by itself
                        'The cup was broken by itself.'

In contrast, the bare verb, i.e., the non-causative counterpart, is natural with sendiri, as seen in (ii).

(ii)   Cangkirnya
                                        pecah
                                       sendiri.
                                      Cup-3SG
                                        break
                                       by itself
                           'The cup broke by itself.'

The contrast between (i) and (ii) thus indicates that when –kan is present on the verb a sentence always expresses an event that is brought about by some external individual, rather than an event that happens spontaneously. This is regardless of whether the sentence takes active or passive morphology.

Another line of <mark>argumentation</mark> that could be employed <mark>against</mark> the treatment of –*kan* as a <mark>CAUSE</mark> predicate comes from the type of syntactic argument added by –*kan* suffixation. In spite of the necessity of postulating an external-argument introducing Voice separate from CAUSE, <mark>-*kan* may also appear to be responsible for the introduction of an external argument.</mark> This is due to the fact that the <mark>presence of *meN-* in apparent causatives is contingent upon the</mark> <mark>suffixation of -*kan* to base verbs:</mark> the prefix *meN-* can be attached to certain base verbs only when –*kan* is present. Affixation of *meN-* alone to verbal roots leads to ungrammaticality, as seen in (41).[20]

(41) a. *Janet <mark>meme</mark>cah cangkirnya.
Janet   meN-break cup-3
'Janet broke her cup.'

 b. *Kecelakaan itu <mark>me</mark>newas banyak orang
accident   that meN-dead many   people
'The accident killed many people.'

 c. *Ia <mark>memu</mark>tih   wajahnya.
3Sg meN-white   face.3
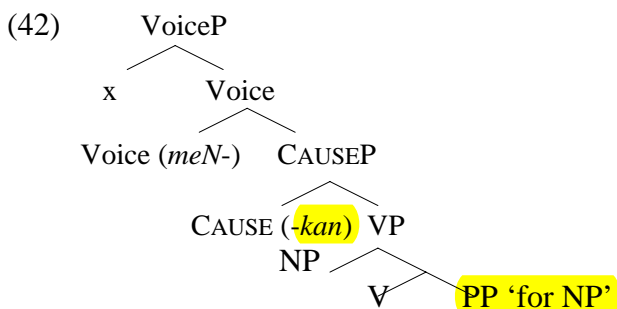'He whitened his face (caused his face to become white).'

However, when considering other –*kan* constructions, the suffix is not always associated with the introduction of an external argument. In –*kan* benefactives, for instance, the presence of an external argument is independent of the presence of –*kan*; in the transitive bases of the benefactive constructions discussed in §2.1.2. (e.g., (5a) and (6a)), the external arguments are already present in the base sentences, and thus the presence of *meN-* on the base verbs is independent of –*kan* suffixation. Furthermore, unlike the situation in apparent causatives in which an external argument is introduced, in <mark>benefactive constructions -*kan*</mark> adds an <mark>"internal"</mark> argument of the derived verb, regardless of whether it is an NP or a PP. If –*kan* is assumed to

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[20]The verb form memecah in (41a) is legitimate with a different meaning, i.e., 'split', as illustrated in (iii).

(iii)   Janet
                          memecah
                            papan   itu
                          menjadi
                            dua.
                          Janet
                        meN-pecah
                            board   that
                          becoming
                            two
          'Janet split the board into two pieces.'

However, the verb memecah without –kan for our intended meaning 'break (trans.)' leads to ungrammaticality.

be a CAUSE head generated above VP, it is hard to explain the dependency between the suffix and the applied benefactive argument, particularly when the added argument is a PP, as shown in (42) (see § 2.1.2 for examples).[21]

(42)
```
        VoiceP
       /      \
      x       Voice
             /      \
     Voice (meN-)  CAUSEP
                  /      \
          CAUSE (-kan)   VP
                   NP   /   \
                       V    PP 'for NP'
```

The structure in (42) indicates that V licenses the PP as its complement. However, we have seen that it is the suffix *-kan* that licenses the presence of the PP in benefactive constructions; *-kan* makes the benefactive PP a subcategorized constituent (e.g., (10)). The structure given in (42), however, fails to capture the dependency between the suffix and the benefactive PP, presumably due to locality conditions. Thus we discard the possibility of generating *-kan* as a CAUSE predicate external to VP.

As discussed thus far, the treatment of *–kan* as a CAUSE predicate generated above VP would make it hard to correctly identify the function of *–kan* in the four seemingly unrelated constructions under consideration. In order to resolve the problems identified above, we take a radically different approach to the function of *–kan* and offer a unified semantic and syntactic account, which straightforwardly captures the distributional properties of *–kan* observed in Section 2. Our proposal is outlined in the following section and is implemented explicitly for each *–kan* construction in the subsequent subsections.

6. The Proposal: *–kan* as an Instantiation of RESULT

In order to explain successfully the properties of *–kan* observed earlier, we adopt an expansion and a slight modification of the version of event structure in (38). We assume that the result state of a causative construction is explicitly represented in the syntax by a Result Phrase (RP), analogous to the Resultative Phrase proposed by Ramchand & Svenonius (2002). The basic structure that we propose for sentences associated with *–kan* is schematized roughly as (43).

(43)
```
        VoiceP              CAUSING EVENT
       /      \
  θ_EXT      / \
```

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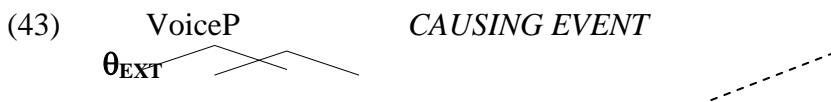
[21]Postman (2002), who treats –kan as a transitivizer whose syntactic position is situated above VP, attempts to account for a close relation between –kan and benefactive arguments by NP movement. However, her analysis is restricted to an NP+NP frame and fails to account for the licensing of PP benefactives by –kan due to the violation of movement condition that she employs. See Postman (2002) for details of her syntactic account and Son and Cole (2005) for an argument against it.

```
Voice          VP                          RESULT STATE
meN-
            V        RP

                  R (-kan)   XP
```
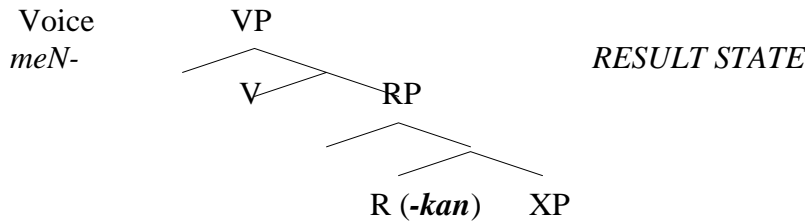
Instead of treating *–kan* as a CAUSE predicate (e.g., as proposed by Voskuil 1990), or as a transitivizer (e.g., Sie 1988), which is usually assumed to have a position somewhere above VP in the syntactic structure (e.g., Postman 2002), we claim that *–kan* is an overt realization of the head of a Result Phrase, a verbal projection embedded low in the VP, as shown in (43). We further argue that, despite their seeming differences, the four aforementioned constructions, causatives, benefactives, goal-PP constructions, and inherent ditransitives, share certain event properties: they all involve the same aspectual components of a causing event and a result state which correspond to separate verbal projections in the syntax. Thus, all *–kan* constructions are assumed to have the syntactic structure of (43). We propose that the verbal head projecting a result-state-encoding constituent, i.e., a Result head, is explicitly expressed by the suffix *–kan* in Indonesian. Therefore, the occurrence of *–kan* in the constructions under investigation is not coincidental.

We further propose that it is the semantics of the Result head that gives rise to a causative interpretation in *–kan* constructions; RESULT is interpreted as building a causal chain between two eventualities, a result state and a causing event, so as to derive a causative meaning. In other words, in order to derive a correct interpretation of a causative sentence (e.g., *Janet broke the cup*), the semantics of RESULT ensures that eventuality A (e.g., *the cup is broken*) is a result state that is caused by eventuality B (e.g., *Janet does something to the cup*). The causal relation between two eventualities that RESULT establishes can be translated more technically as: the semantics of RESULT takes two functional arguments that describe a causing event *e* and a caused eventuality *e'* and states that the two eventualities are connected in a causal relation, i.e., *e'* is a result state of *e*, but not some other event *e''*. The semantics of RESULT is formalized in (44).

(44)   Semantics of R^0(-*kan*)
- Causatives: λf <e,<s,t>> λx. **λg <s,t>** λe. ∃e' [Result (e',e) & f (e',x) & **g (e)**]
- Other *–kan* constructions: λf <e<s,t>> λx. **λg <e<s,t>** λe. ∃e' [Result (e',e) &
                                                                          f (e',x) & g (e,x)]

RESULT in the formula is defined as 'for all eventualities *e* and *e'*, Result (e', e) is true if and only if *e'* is a result state of *e*. [22] RESULT, therefore, establishes a causal chain between two eventualities, a causing event and a result state, expressed by functional arguments *g* and *f*, respectively. Notice that the semantic type of *-kan* can vary depending on the type of the

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[22] RESULT (e', e) is more or less the same as CAUSE (e, e') in other people's semantics (e.g., Pylkkänen 2002). However, we choose RESULT over CAUSE since the caused eventuality is always a state for the –kan constructions under investigation. With the proposed semantics of R, which covers the function of CAUSE in other people's semantics, the postulation of an abstract CAUSE predicate in the semantic-syntactic representation of causatives is not necessary.

functional argument *g*. Contingent upon the base predicate with which *–kan* combines, the semantic type of function *g* is either <s,t>, a function from an event to a truth value, or <e<s,t>>, a function from an individual to a truth value. If the base verb is intransitive, as in the case of causatives, *g* is of type <s,t>, which only has an event argument. If the base verb is transitive, *g* is of type <e <s,t>>, which has an individual argument and an event argument, as in the case of other *–kan* constructions (e.g., benefactives). Given that ==*–kan* has a different type depending on whether a base verb is intransitive or transitive,== the ==semantic function== of *–kan* may ==appear== to be only ==semi-uniform.== However, the core meaning of *–kan* is unified in the sense that in all *–kan* constructions it is interpreted as ==establishing a causal relation== between two eventualities.

6.1. Representation of Causatives

Let us consider first how the idea of treating *–kan* as an overt instantiation of the Result head can be implemented for causative constructions. Example (1) is repeated as (45).

(45) a. Cangkirnya pecah.   b. Janet memecah-**kan**   cangkirnya.
         cup-3   break   Janet meN-break-KAN cup-3
         'The cup broke'   'Janet broke her cup.'

Adopting the idea of lexical decomposition of events, we assume that (45b) has a lexical semantic representation as (46).

(46) [_{VoiceP} Janet VOICE [_{VP} V-do (something) [_{RP} **RESULT** [AP the cup broken]]]]

(46) can be paraphrased roughly as 'the event in which Janet is doing something brings about a result state in which the cup is broken.' Based on the lexical semantic representation in (46) and the semantics of RESULT proposed in (44), the causative sentence receives a fully specified semantic and syntactic representation as (47).

(47)   VoiceP λe. ∃e' [Result (e',e) & broken(e') & Theme (e',cup) & Agent (e, Janet) & do (e)]

      θ_{EXT}   λz. λe. ∃e' [Result (e',e) & broken(e') & Theme (e',cup) & Agent (e,z) & do (e)]
      Janet   by *Event Identification*
              Voice *meN-*   VP λe. ∃e' [Result (e',e) & broken(e') & Theme (e',cup) & do (e)]
      λz. λe. θ_{EXT} (e,z)
                    V   RP λg.<s,t> λe. ∃e' [Result (e',e) & broken (e') & Theme (e', cup)
              λe. do (something) (e)   & g(e)]
                    cangkirnya 'cup'   R' λx. λg.<s,t> λe. ∃e' [Result (e',e) & broken(e') &
      Agree [ACC]   Theme (e',x) & g(e)]

                       -kan   AP <e,<s,t>>
                                  pecah 'break' λy. λe". broken (e") & theme (e",y)

$$\lambda f <e, <s,t>> \lambda x.\ \mathbf{\lambda g <s,t>}\ \lambda e.\ \exists e'\ [\text{Result } (e', e)\ \&\ f(e', x)\ \&\ \mathbf{g(e)}]$$

In (47), the result state, 'the cup is broken', is expressed inside the RP, the head of which is overtly realized as *–kan*. Based on the proposed semantics of R in (44), the RESULT takes the function *f* as its first argument which corresponds to the result state (e.g., *the cup being broken*). The result state is represented by AP in the syntax. The R further takes the function *g* which denotes a causing event as a solution for deriving the correct semantic composition.[23] The causing event denoted by the functional argument *g* is represented by verbal projections above RP in the syntax. The semantics of R then states that the two eventualities are linked together in a causal relation. The compositional interpretation of (47) proceeds as indicated in the proposed structure. The interpretation based on the semantic composition in (47) can be expressed as 'a set of eventualities *e* such that Janet is the agent of doing something in *e* and there is *e'* such that the cup is broken in *e'*, and *e'* is the result of *e*.'

Notice that the V(erb) in (47) is not semantically vacuous but is assigned the meaning 'do-something'. This is because the causation expressed in (45b) need not involve a direct (physical) action imposed on the theme that undergoes a change of state; (45b) can be interpreted as either 'Janet deliberately broke the cup (by throwing it away or dropping it on the floor)' or 'Janet broke the cup by shaking the table on which the cup was placed.' We assume that such an unspecified action is represented in the logical form of V, which tells us that Janet did the breaking and the cup broke, but it does not specify exactly what Janet did to break the cup.

Another key assumption adopted here is that all arguments receive case in their base position, as was hypothesized for case assignment in Tagalog by Rackowski (2002). Case is assigned either by the licensing head (i.e., inherent case) or through a structural case mechanism via Agree, in the sense of Chomsky (1998, 1999) (i.e., accusative and nominative). Chomsky (1998, 1999) argues that feature checking, the mechanism of syntactic licensing (i.e., case assignment), takes place via an abstract operation called Agree, as stated in (48).

(48) **Agree**: establishes a relation (agreement, Case checking) between an LI (lexical item) α and a feature F in some restricted search space (its domain).

In Chomsky's terms, the Voice head *meN-* probes for the feature [+ accusative case] in its c-command domain. When it finds this feature it establishes an Agree relation with the NP bearing the feature, i.e., *cangkirnya* 'the cup' in (47). The direct object is thus assigned accusative case by the agreeing head, Voice. T assigns nominative case to the subject via Agree; T is also a Probe looking for a [+ nominative case] goal. T^0 is in an Agree relation with the subject NP, which is in T's c-command domain and which is closer to T than is the object NP. The subject raises to [Spec, TP] to satisfy the EPP feature of T^0. (The projection of TP is presupposed in all sentential representations, although for presentational simplicity it is omitted throughout the paper.)

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[23]This approach, in which -kan takes a VP as its argument, is inspired by the interpretation of low applicative heads proposed by Pylkkänen (2002).

6.2. Representation of Benefactives

The idea that *–kan* is a realization of the Result head, which is deeply embedded in the VP structure, can be extended fairly straightforwardly to benefactive constructions.

A growing body of literature (e.g., Harley 2002; Beck and Johnson 2004) has argued that benefactive double-object verbs like 'make' are parallel in lexical meaning and underlying structure to explicit causatives. In particular, Harley (2002), building on Pesetsky (1995), has claimed that double-object verbs like 'make' and 'cook' (e.g., (16)) are lexically decomposable into two heads: an external argument-selecting CAUSE predicate and a prepositional element P$_{HAVE}$ which encodes a result state. If we adopt the idea of treating (benefactive) double-object verbs as parallel to explicit causatives in Indonesian, the structural configuration and semantics proposed for apparent causatives can extend naturally to the *–kan* benefactives. For example, the logical form of the benefactive sentences in (6a) and (10b), repeated as (49), can be construed as (50), in perfect analogy to causatives.

(49) a. Eric membuat-**kan**   anak-nya rumah-rumahan itu.
          Eric meN-make-KAN child-3   RED-house-AN the
          'Eric made his child a toy house.'
      b. Eric membuat-**kan**   rumah-rumahan itu **untuk**   anak-nya.
          Eric meN-make-KAN RED-house-AN the for   child-3
          'Eric made a toy house for his child.'
(50) [$_{VoiceP}$ Eric VOICE [$_{VP}$ making (toy house) [$_{RP}$ **RESULT** the child has the toy house.]]]

In the earlier section (§2.1.2.) , we observed that the two variants of the *–kan* benefactive, an NP+NP and an NP+PP frame, involve a necessary possession relation. We assume, therefore, that the logical representation of the benefactive 'make' in (50) implies, as part of its lexical meaning, that the verb stem plus *-kan* denotes causation of change of possession, as represented in (50). (50) can be paraphrased as 'the event of Eric's making (the toy house) brings about a result state in which the child is the possessor of the toy house.' The result state denoting the possession relation between two individuals is encoded in the meaning of PP, which is taken as a complement of RESULT.

Given that the two variants of the *–kan* benefactive show a different syntactic pattern in terms of passivization (see §2.1.2), we take a base-generation approach to the two different structures compatible with *–kan* (cf. Harley 2002; Ramchand 2003; Beck and Johnson 2004). We assume that the benefactive argument can be realized either in [Spec, RP] as a subject of the result state, as shown in (51a), or as a complement of PP selected by the R head, as shown in (51b).

(51)   a. NP+NP Frame   b. NP+PP Frame

We assume that the semantic representation of the NP+NP frame is identical to that of (52), except for the reversed order of the theme and the benefactive argument that is first interpreted. As shown in (51a), we further postulate a phonologically null P for the NP+NP frame, which corresponds to an overt 'with' (cf. Pesetsky 1995). We assume that the phonologically null category P is not semantically vacuous but has a semantic denotation identical to that of the overtly realized P in (52).[26] The structure in (51a), however, makes it hard to derive our intended semantics. We therefore propose that the null P head is incorporated into R, as depicted in (53), in order to derive the correct semantic composition.

(53)   Syntactic and Semantic Incorporation of P to R^{0} [27, 28]

a.
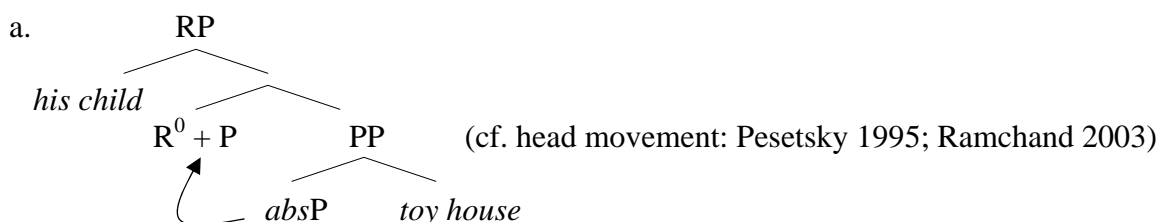
b. $\mathbf{R^{0} + P}$: λx. λz. λg <e<s,t>. λe. ∃e' [Result (e', e) & possession (e', x, z) & g (e, x)]]

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assuming the syntax and semantics of the benefactive –kan construction as exactly parallel to those of the apparent causatives (§6.1) makes an incorrect prediction about obtaining the result state of the benefactive –kan construction. One way to resolve this interpretive problem is to intentionalize the semantics of the benefactive –kan construction; we posit an intentional operator PROG, as illustrated in (iv). The semantic representation given in (iv) no longer entails that the child has or had the toyhouse.

(iv)   [VoiceP Eric VOICE [VP making [PROG [RP RESULT the child has the toy house.]]]
PROG is defined as:
(v)   5PROG6(P)(e)=1 iff e could plausibly have continued and become a larger event f such that P(f)=1
Here we adopt the intentional operator PROG of Beck and Johnson (2004) which was proposed for English (benefactive) double object constructions. They notice a similar interpretational complication for English (benefactive) double object constructions and show that the double object constructions involve intuitions similar to the imperfective paradox that is normally exhibited by progressives. Thus, they conjecture that PROG is the same meaning component as Landman's (1992) intentional operator posited for progressives. See Beck and Johnson (2004) for detailed discussion.
[26]Positing a phonologically null category P in the NP+NP frame is conceptually plausible, since it allows the core part of the logical form of –kan to be uniform in apparent causatives and other –kan constructions (e.g., benefactives and goal-PP constructions): -kan takes a function of type <e<s,t>> denoting a result state as its first argument.
[27]   The incorporation of P into R applies only when P is phonologically null.
[28]For the sake of interpretation, we assume that when a head is phonologically null an incorporation process does not leave a trace.

Applied to RP, (53) then yields our intended semantics for the NP+NP frame as follows:

(54) a. ⟦R'⟧ = λz. λg <e<s,t>. λe. ∃e' [Result (e',e) & possession (e',x, toy house)
        & g (e, **toy house**)]]

   b. ⟦RP⟧ = λg <e<s,t>. λe. ∃e' [Result (e',e) & possession (e', child, toy house)
        & g (e, **toy house**)]]

   c. ⟦VP⟧ = λe. ∃e' [Result (e',e) & possession (e', child, toy house) & making (e)
        & theme (e, toy house)]

   d. ⟦Voice'⟧ = λx. λe. ∃e' [Result (e',e) & in possession (e', child, toy house) &
        making (e) & Theme (e, toy house) & Agent (e,x)] (by ***Event identification***)

   e. ⟦Voice P⟧ = λe. ∃e' [Result (e',e) & in possession (e', child, toy house)
        & making (e) & Theme (e, toy house) & Agent (e,x)]

The interpretation based on the semantic computation given in (54e) where incorporation has applied can be expressed as 'a set of eventualities *e* such that *e* is making the toy house and Eric is the agent of *e* and there is an *e'* such that his child is in possession of the toy house in *e'* and *e'* is the result state of *e*.'

   When the applied object is realized in [Spec, RP], as in (55a), it is licensed structurally by the functional head Voice via Agree, i.e., accusative case. When the benefactive PP is realized as a complement of –*kan*, it is the theme argument in [Spec, RP] that is licensed structurally by the functional head Voice via Agree, as illustrated in (55b).

(55) Case Assignment
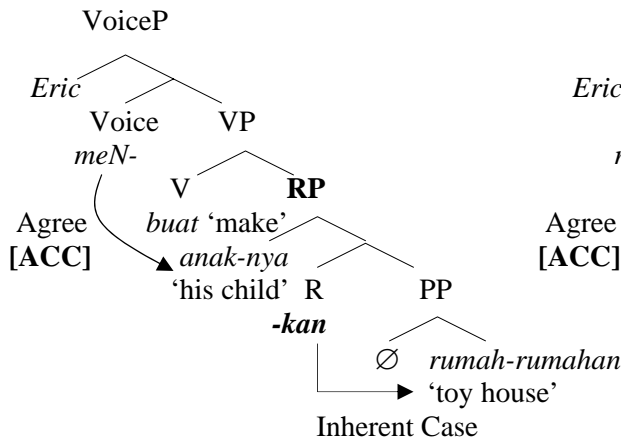
      a.   NP+NP Frame   b. NP+PP Frame
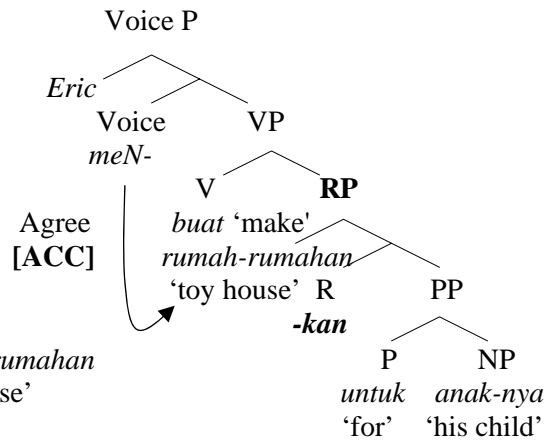
Voice probes for the uninterpretable feature, [+acc], in its c-command domain. When it finds the first overt NP bearing this feature, i.e., the beneficiary in (55a) and the theme in (55b), it establishes an Agree relation with it. The NP checks its uninterpretable Case feature against the functional head by Agreeing with it. We further assume that the theme argument in (55a) is assigned inherent case by the licensing head *-kan.* The benefactive argument in (55b) is assigned inherent case by overtly realized P, *untuk* 'for'.

6.3. Representation of Goal-PP Constructions

Let us now consider how the proposed analysis of *–kan* accounts for the (optional) presence of *–kan* in goal-PP constructions. Example (27b) is repeated as (56b) with its base sentence in (56a).

(56) a.   Wim   menuang   air   itu.
             Wim   meN-pour   water   the
             'Wim poured the water.'

      b.   Wim   menuang-(**kan**)   air   itu   **ke dalam ember itu**.
             Wim   meN-pour-KAN   water   the   to   in   bucket the
             'Wim poured water into the bucket.'

The pair of examples in (56) looks very much like the English goal-PP construction discussed, for example, by Beck and Snyder (2001): As shown in (57), when an activity verb like 'run' combines with a directional PP like 'to the summit', the additional PP turns the activity verb into an accomplishment verb, which by definition has an endpoint (or a culmination point) of the action.

(57)   a.   John ran to the summit in 5 min./ *for 5 min.   (Beck and Snyder 2001)
        b.   Mary pushed the cart to the mall.

Analogous to Beck and Snyder's account for this kind of constructions in English, we treat goal-PP constructions in (56) as a type of resultative. We further argue that the directional PP has the effect of creating an additional aspectual constituent, which expresses a result state of the theme that undergoes a change of *location* (cf. Ramchand 2003). Therefore, the logical form of (56b) with an additional goal-PP can be represented along the lines of (58), similar to the semantic representation of causatives and benefactives.

(58)   Lexical Semantic Representation of *menuang-(**kan**)* + Goal PP
        [$_{VoiceP}$ Wim Voice [$_{VP}$ pouring (the water) [$_{RP}$ **RESULT** [the water is AT the bucket]]

(58) can be paraphrased as 'the event in which Wim is the agent of pouring the water brings about a result state in which the water is in the bucket.' (58) receives a fully specified semantic and syntactic representation as (59).

(59)   Voice P $\lambda e. \exists e'$ [Result (e',e) & AT (e', water, bucket) & pouring (e) & Theme (e, water) & Agent (e, Ali)]

Ali   λx. λe. ∃e' [Result (e',e) & AT (e', water, bucket) & pouring (e) & Theme (e, water)
                              & Agent (e, x)]   by ***Event Identification***

          Voice   VP   λe. ∃e' [Result (e',e) & AT (e', water, bucket) & pouring (e) & Theme (e, water)]
          ▼*meN-*

λx. λe. **θ**_{EXT} (e,x)   V   RP λg<e<s,t>>. λe. ∃e' [Result (e',e) & AT (e', water, bucket) & g (e, water)]
          tuang 'pour'

λx. λe. pouring(e) & theme (e,x) *air*   R' λz. λg<e<s,t>>.λe.∃e' [Result (e',e) & AT (e',z, bucket) & g(e,z)]
                    'water'

                    (-kan)   PP λx. λe". x is AT bucket in e"

                              P   NP
                    ke dalam 'into' *ember itu* 'bucket'
                    ▶ λy. λx. λe". x is AT y in e"

R^0(*-kan*): λf<e<s,t>>. λz. λg <e<s,t>. λe. ∃e' [Result (e',e) & f (e',z) & g (e,z)]

We interpret prepositions that take locational NP objects in goal-PP constructions as uniformly meaning 'AT' in logical structure. The predicate AT expresses an abstract notion of a final location of the theme that undergoes movement. AT may surface in various forms depending on the dimension of the final location (e.g., at, in(to), on, etc.); while the P in benefactives encodes a possession relation between the goal and the theme, AT expresses a rather abstract notion of a locational end point. On the assumption that the addition of a goal-PP has the effect of adding an RP to the syntactic structure of the base predicate, the explanation for the presence of –*kan* in this construction follows naturally;   –*kan* is an overt realization of the R head, and thereby explains the acceptability of the sentence with –*kan* when a goal-PP is added.

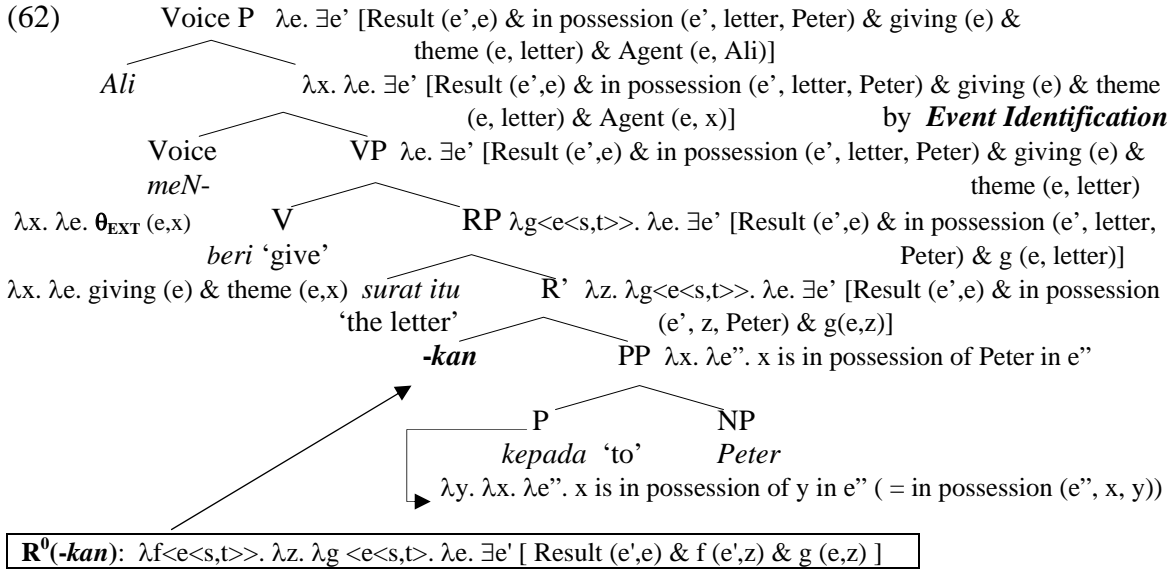### 6.4. Representation of Inherent Ditransitives

The proposed syntax and semantics for benefactives extends fairly straightforwardly to inherent ditransitives, given that a possession relation between two individuals (i.e., the theme and the recipient) is necessary in the inherent ditransitives as well. Example (28a) is repeated as (60).

(60)   Ali   memberi-**kan**   surat itu   kepada   Peter.
       Ali   meN-give-KAN   letter the   to   Peter
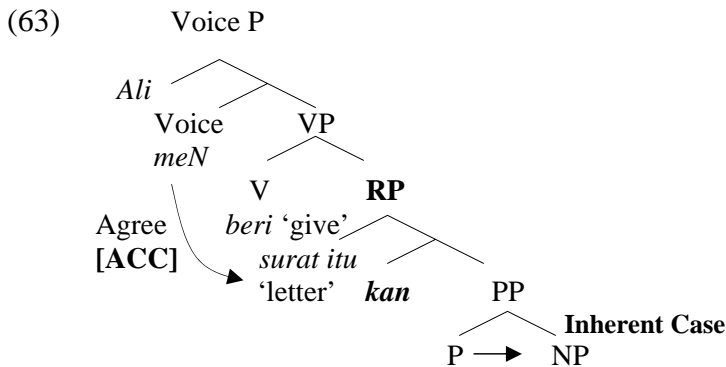   'Ali gave a letter to Peter.'

The possessive implicature in the two variants of the –*kan* benefactive has been argued to be derived by virtue of appearing in –*kan* constructions. In inherent ditransitives, however, the implication of possession between two individuals (i.e., the theme and the recipient) is independently motivated by the particular semantics of the verbs like *give* and *entrust,* as noted by Krifka (1999) and others. That is, when the object is given or entrusted, the object is understood to be in the possession of the recipient at the end of the event. Therefore, we argue that -*kan* in inherent ditransitives is also an overt instantiation of the head of a Result Phrase, the semantics of which involves a transfer of possession relation as a result of the causing event. This possession interpretation again is encoded in the semantics of P, which is overtly realized as 'to' in inherent ditransitives. The underlying semantic and structural representation

for inherent ditransitives thus can be represented along the lines of (61) and (62), similar to the structure of the NP+PP frame of the benefactive construction.

(61) [$_{VoiceP}$ Ali VOICE [$_{VP}$ giving (the letter) [$_{RP}$ **RESULT** [the letter is to the possession of Peter]]

(62)
Voice P   λe. ∃e' [Result (e',e) & in possession (e', letter, Peter) & giving (e) &
theme (e, letter) & Agent (e, Ali)]
Ali   λx. λe. ∃e' [Result (e',e) & in possession (e', letter, Peter) & giving (e) & theme
(e, letter) & Agent (e, x)]   by ***Event Identification***
Voice   VP λe. ∃e' [Result (e',e) & in possession (e', letter, Peter) & giving (e) &
meN-   theme (e, letter)
λx. λe. θ$_{EXT}$ (e,x)   V   RP λg<e<s,t>>. λe. ∃e' [Result (e',e) & in possession (e', letter,
beri 'give'   Peter) & g (e, letter)]
λx. λe. giving (e) & theme (e,x) *surat itu*   R' λz. λg<e<s,t>>. λe. ∃e' [Result (e',e) & in possession
'the letter'   (e', z, Peter) & g(e,z)]
-kan   PP λx. λe". x is in possession of Peter in e"
P   NP
kepada 'to'   *Peter*
λy. λx. λe". x is in possession of y in e" (= in possession (e", x, y))

R^0(-*kan*): λf<e<s,t>>. λz. λg <e<s,t>. λe. ∃e' [Result (e',e) & f (e',z) & g (e,z)]

The logical form of –*kan* and the semantic representation of the inherently ditransitive sentence given in (62) are virtually identical to the NP+PP frame of the benefactives shown in (52). The interpretation based on the semantic computation given in (62), therefore, can be expressed as 'a set of eventualities *e* such that *e* is giving the letter and Ali is the agent of *e* and there is an *e'* such that Peter is in possession of the letter in *e'* and *e'* is the result state of *e*.' In (62), the theme *surat itu* 'the letter' is higher than the recipient *Peter*. Thus, as shown in (63), it is the theme that is in an Agree relation with the functional head *meN-* and receives accusative case. The recipient *Peter* receives inherent case from its licensing head *kepada* 'to'.

(63)   Voice P

Ali
Voice   VP
meN
V   **RP**
Agree   *beri* 'give'
[ACC]   *surat itu*
'letter' ***kan***   PP
Inherent Case
P →   NP

kepada 'to'   Peter

In many languages, the caused eventuality that involves the implication of possession associated with inherently ditransitive verbs is lexically encoded in a single verb (e.g., *give* in English). In Indonesian, however, the subpart of verbal meaning that encodes a caused eventuality with the possessive interpretation is explicitly realized by *–kan* in the morpho-syntax.

7. Conclusion

It has been shown that the occurrence of *–kan* in four seemingly unrelated constructions in Indonesian can be explained in a quite straightforward way, provided that events are analyzed as grammatical entities made available in the lexical-semantic and syntactic representations of predicates. We argued that the four constructions associated with *–kan* have the same semantic and syntactic representations of complex event structure: they are composed of a causing event and a result state. Adopting the view that event decomposition of predicates is directly reflected in the syntax, we provided a unified syntactic and semantic account of *–kan* by positing that *–kan* is an overt instantiation of the head of a Result Phrase embedded in an expanded VP structure (in the sense of Hale and Keyser (1993), among others). We argued, therefore, that the presence of *–kan* in these four constructions is not merely an instance of accidental homophony, but reflects the internal event structure that these constructions share.

The postulation of an abstract CAUSE head in verbal meaning has been argued to be (morpho-)syntactically substantial since in many languages the component that expresses the meaning of a causing event is overtly realized (e.g., a causative morpheme associated with an external causer). However, in many languages the result state is not expressed by special morphology, but rather is incorporated in the meaning of specific verbs in apparent causative and double-object constructions or goal-PP constructions. In contrast, in Indonesian, we argued that it is the Result head that is overtly realized in the morpho-syntax of such constructions, rather than the CAUSE head, due to the complications that arise otherwise. Furthermore, we proposed that the meaning of causation (i.e., a causal relation between two eventualities) is encoded in the Result head by interpreting it as building a causal relation between two eventualities, just like the typical CAUSE head proposed in other people's semantics. The proposed analysis of *–kan* thus avoids the postulation of an abstract CAUSE predicate in the semantic and syntactic representations of *–kan* constructions.

By analyzing *–kan* as an overt instantiation of the Result head, the current analysis not only provides a unified account of *–kan* but it also brings new empirical support for the existence of a result-state-denoting constituent in the syntax of double-object verbs (e.g., Harley 2002; Beck and Johnson 2004) and goal-PP constructions (e.g., Beck and Snyder 2001).

References

Adisasmito-Smith, N. 1998. Sentence Structure and Adverbs in Indonesian. *Cornell Working Papers in Linguistics* 16: 1-33.

Aldridge, E. 1999. Word Order and Case Checking in Austronesian Languages. Unpublished Ms., Cornell University, Ithaca, NY.

Arka, I. W. 1992. The *-kan* Causative in Indonesian. M.Phil. Thesis, University of Sydney, Sydney.

Baker, M. 1988. Theta Theory and the Syntax of Applicatives in Chichewa, *Natural Language and Linguistic Theory* 6:353-389.

Beck, S. and Snyder, W. 2001. Complex Predicates and Goal PP's: Evidence for a Semantic Parameter. *Proceedings of the 25th Annual Poston University Conference*

on Language Development, Vo.1, 114-122. In Anna H.-J. Do, Laura Dominguez, and Aimee Johansen (eds.) Somerville, MA: Cascadilla Press.

Beck, S. and Johnson, K. 2004. Double Object Again. *Linguistic Inquiry*, Vol. 35. Issue 1, 97-123. MIT Press.

Bore, H. 1994. The Projection of Arguments. In E. Benedicto and J. Runner (eds.), *Functional Projections*. University of Massachusetts Occasional Papers 17. Amherst MA: GLSA, Dept. of Linguistics, University of Massachusetts.

Bowers, J. 1993. The syntax of predication. *Linguistic Inquiry* 24, 591-656. MIT Press.

Burzio, Luigi. 1986. *Italian syntax*. Reidel Publishers.

Carter, R. J. 1976. Some Linking Regularities. In *On linking: Papers by Richard Carter,* ed.
B.   Levin and C. Tenny, 1–92. Cambridge, MA: Lexicon Project, MIT Center for Cognitive Science

Chomsky, N. 1991. Some Notes on Economy of Derivation and Representation. In *Principles and Parameters in Comparative Grammar*, ed. R. Freidin. Cambridge, Mass.: MIT Press.

Chomsky, N. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Chomsky, N. 1998. Minimalist Inquiries. *MIT Occasional Papers in Linguistics*, NO.15. MITWPL, Cambridge, MA.

Chomsky, N. 1999. Derivation by Phase. *Number 18 in MIT Occasional Papers in Linguistics*, Cambridge, Mass: MIT WPL

Cole, P. and Hermon, G. 1998. Subject and Non-Subject Relativization in Indonesian. *Paper presented at The Second Symposium on Malay/Indonesian Linguistics*, Ujung Pandang.

Cole, P. and Hermon, G. 2000. Reflexives and C-command in Toba Batak. Unpublished Paper.

Cole, P. and Son, M.J. 2004. The argument structure of verbs with the suffix *–kan* in Indonesian. To appear in *Oceanic Linguistics,* Volume 43, no. 2 (December 2004), University of Hawai'i Press.

Dardjowidjojo, S. 1967. Indonesian Syntax. Unpublished Ph.D. Dissertation. Georgetown University.

Dardjowidjojo, S. 1983. Some Aspects of Indonesian Linguistics. Jakarta: Penerbit Djambatan.

Davis, H. and Demirdache, H. 2000. On lexical verb meaning: evidence from Salish. In C. Tenny & J. Pustejovsky, (eds.), *Events as grammatical objects*, 97–141. Stanford: CSLI.

Den Dikken, M. 1995. *Particles*. Oxford University Press, Inc.

Dowty, D. R. 1979. *Word Meaning and Montague Grammar*. Dordrecht, Reidel.

Embick, D. 2004. Unaccusative Syntax and Verbal Alternations. In Alexiadou A., Anagnostopoulou E., and Everaert M. (eds.), *The Unaccusativity Puzzle*, Oxford University

Folli, R. 2001. *Constructing Telicity in English and Italian*, Ph.D. Dissertation, University of Oxford.

Folli, R. and Harley, H. 2002. Consuming results in Italian and English: Flavors of *v*. A paper presented at the NSF Workshop on Aspect at the University of Iowa, May. 24, 2002. To appear in a Kluwer volume edited by Paula Kempchinsky and Roumyana Slabakova.

Green, G. M. 1974. *Semantics and syntactic regularity.* Bloomington: Indiana   University Press.

Gropen, J., Pinker, S., et al. 1989. The Learnability and Acquisition of the Dative Alternation in English. *Language 65* (2), pp. 203-257.

Guilfoyle, E., Hung, H., and Travis, L. 1992. Spec of IP and Spec of VP - 2 Subjects in Austronesian Languages. *Natural Language & Linguistic Theory* 10 (3): 375-414.

Hale, K. and Keyser, J. 1993. On Argument Structure and The Lexical Expression of Syntactic Relations. In Ken Hale and Jay Keyster (eds.) *The View from Building 20: A Festschrift for Sylvain Bromberger.* pp. 53-108. MIT.

Harley, H. 1995. Subjects, Events, and Licensing, Ph.D. Thesis, MIT.

Harley, H. 2002. Possession and The Double Object Construction. To appear in the second volume of the Yearbook of Linguistic Variation, edited by Pierre Pica and Johan Rooryck.

Johnson, K. 1991. Object Positions. *Natural Language and Linguistic Theory* 9:577-636

Kaswanti Purwo, B. 1995. The Two Prototypes of Ditransitive Verbs: The Indonesian Evidence. Werner Abraham, T. Givon and Sandra A. Thompson (eds.). *Discourse Grammar and Typology*, John Benjamins Publishing Company.

Kaswanti Purwo, B. 1997. The Direct Object in Bi-Transitive Clauses in Indonesian. In Shibatani M. (ed.), *Grammatical Relations*. John Benjamins Publishing Company.

Kaswanti Purwo, B. 2002. The Benefactive and Instrumental *–kan*: Their Syntactic Ambiguity in the Bitransitive and Causative Constructions, a handout presented at the 6th International Symposium on Malay/Indonesian Linguistics, Nirwana   Resort Hotel,   Bintan Island, Riau, Indonesia.

Kayne, R. 1975. *French Syntax*. Cambridge: MIT Press.

Kratzer, A. 1996. Severing the External Argument from Its Verb. In Johan Rooryck & Laurie Zaring, (eds.). *Phrase Structure and lexicon*, 109-137. Dordrecht: Kluwer.

Krifka, M. 1999. Manner in Dative Alternation. *Proceedings of WCCFL 18*. Cascadilla Press.

Kroeger, P. 2002. Applicative vs. Derivational Uses of *–kan* in Bahasa Indonesia, a handout presented at the 6th International Symposium on Malay/Indonesian Linguistics, Nirwana Resort Hotel, Bintan Island, Riau, Indonesia.

Landman, F. 1992. The Progressive. Natural Language Semantics 1:1-32.

Levin, B.and Rappaport, T. 1988. Lexical Subordination. *Proceedings of the Chicago Linguistics Society*.

Levin, B. and Rappaport Hovav, M. 2002. Change of State Verbs: Implications for Theories of Argument Projection, *Proceedings of the 28th Annual Meeting of the Berkeley Linguistics Society,* 269-280.

MacDonald, R. and Dardjowidjojo, S. 1967. *A Student's Reference Grammar of Modern, Formal Indonesian.* Washington: Georgetown University Press.

Marantz, A. 1984. *On the Nature of Grammatical Relation*s, MIT Press, Cambridge MA.

Marantz, A. 1993. Implications of Asymmetries in Double Object Constructions. In Sam A. Mchombo, ed., *Theoretical Aspects of Bantu Grammar 1.* CSLI Publications, Stanford, CA, 113-151.

McCawley, J.D. 1968. Lexical insertion in a transformational grammar without deep structure. *Papers from the Fourth Regional Meeting of the Chicago Linguistic Society*, Chicago: Chicago Linguistic Society, pp. 71-80.

Oerhle, R. 1976. *The grammatical status of the English dative alternation*. Ph.D. Dissertation, MIT.

Pesetsky, D. 1995. *Zero Syntax*. MIT Press, Cambridge.

Postman, W. A. 2002. Thematic Role Assignment in Indonesian: A Case Study of Agrammatic Aphasia. Doctoral Dissertation, Cornell University, Ithaca, NY.

Pylkkänen, L. 2002. *Introducing arguments*. Doctoral dissertation. MIT.

Rackowski, A. 2002. Voice and Configurational Case in Tagalog. (to appear). *The proceedings of AFLA* 9. Cornell University, Ithaca, NY.

Ramchand, G. & Svenonius, P. 2002. The Lexical Syntax and Lexical Semantics of the Verb-Particle Construction. *Proceedings of the 21st West Cost Conference on Formal Linguistics*, Santa Cruz, CA.

Ramchand, G. 2003. First phase syntax. Unpublished Ms. Oxford University.

Ritter, E. & Rosen, S.T. 1998. Delimiting events in syntax. In M. Butt & W. Geuder (eds.), *The projection of arguments* (pp. 135-164). Stanford: CSLI.

Sneddon, J.N. 1996. Indonesian: a Comprehensive Grammar. London and New York: Routledge.

Sie, I.D. 1988. *The syntactic passive in Bahasa Indonesia: a study in government-binding theory*. Doctoral Dissertation, Universiteit van Amsterdam.

Son, M.J. 2004. A Unified Syntactic Account of Morphological Causatives. to appear in the *Proceedings of the 13th Japanese/Korean Linguistics Conference*. Stanford: CSLI.

Son, M.J. 2005. Morphological Passives and Argument Structure Alternations in Korean, ms. University of Delaware.

Son, M.J. 2005. Event Decomposition and Syntax-Semantics Interface in Complex Predication: With Special Reference to Korean and Standard Indonesian. Ms. University of Delaware.

Tenny, C. 1992. The aspectual interface hypothesis. In I.A. Sag & A. Szabolcsi (eds.), *Lexical Matters* (pp. 1-27) Palo Alto: Stanford University.

Tenny, C. 2000. Core events and adverbial modification. In C. Tenny & J. Pustejovsky (eds.), *Events as grammatical objects* (pp. 145-185). Stanford: CSLI.

Travis, L. 2000. Event Structure in Syntax. In C. Tenny & J. Pustejovsky (eds.), *Events as grammatical objects* (pp. 145-185). Stanford: CSLI.

Van Hout, A. 2000. Event Semantics in the Lexicon-Syntax Interface. In C. Tenny & J. Pustejovsky (eds.), *Events as grammatical objects* (pp. 239-282). Stanford: CSLI.

Vendler, Z. 1957. Verbs and Times, *The Philosophical Review 66*, pp.143-160.

Von Stechow, A. 1995. Lexical decomposition in syntax. In *The lexicon in the organization of language,* ed. by Urs Egli, Peter E. Pause, Christoph Schwarze, Arnim von Stechow, and Götz Wienold, 81.118. Amsterdam: John Benjamins.

Von Stechow, A. 1996. The Different Readings of *wieder* "again": A structural Account. *Journal of Semantics*, Vol. 13, p. 87-138.

Voskuil, J. 1990. Some *Transitivization Processes in Malay*. MA thesis, University of Leiden.

Notes