

A DISTRIBUTED MORPHOLOGY ANALYSIS OF INDONESIAN *KE-/AN* VERBS¹

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Abstract

Indonesian ke-/an verbs have a complex argument structure. Similarly to Indonesian passive di- verbs, ke-/an verbs never have an agentive NP in the subject position and their subject NPs must be definite. However, unlike passive di- verbs, these verbs generally cannot be followed by an agentive prepositional phrase. In addition, when ke-/an verbs have two arguments, the applied argument appears in the subject position instead of the internal one. In this study, the structure of Indonesian ke-/an verbs is analyzed by using the Distributed Morphology framework (Folli dan Harley, 2002; Kratzer, 1996; Marantz, 1997; among others). Based on the verbs' distribution and interpretation, this study argues that of ke-/an verbs are derived by attaching the ke-/an circumfix, which is an overt representation of a verbalizing head, to the projection of ROOT.

Keywords: *ke-/an circumfix, verbalizing head*

Abstrak

Verba berimbuhan ke-/an mempunyai struktur kalimat yang kompleks. Seperti verba pasif berawalan di-, subjek dari verba berimbuhan ke-/an tidak pernah pelaku tindakan dan bersifat takrif. Tetapi, tidak seperti verba pasif berawalan di-, verba berimbuhan ke-/an tidak bisa diikuti oleh pelaku tindakan di posisi objek. Selain itu, pada saat verba berimbuhan ke-/an memiliki dua nomina, maka verba ini akan didahului objek tidak langsung dan diikuti oleh objek langsung, bukan sebaliknya. Dalam artikel ini, struktur verba berimbuhan ke-/an akan dianalisis dengan kerangka teori Distributed Morphology (Folli dan Harley, 2002; Kratzer 1996; Marantz 1997; dan lain-lain). Menurut kerangka teori ini, verba berimbuhan ke-/an dibentuk dari proses afiksasi antara imbuhan pembentuk verba ke-/an dengan akar kata (ROOT) yang belum mempunyai kategori. Argumen ini diajukan sesuai dengan distribusi dan makna Verba berimbuhan ke-/an.

Kata kunci: *sirkumfiks ke-/an, pembentuk verba*

THE IDIOSYNCRASIES OF INDONESIAN *KE-/AN* VERBS

Little has been said in the literature about Indonesian *ke-/an* verbs, presumably because the voice of *ke-/an* verbs is less productive than the active voice, in which the verbs are optionally marked by the prefix *meN-* or *N-*, and the passive voice, in which the verbs are obligatorily marked by the prefix *di-*. In fact, the voice of *ke-/an* verbs is interesting and poses problems which need to be solved because of its complex nature, as already noted in the previous studies (Dardjowidjojo 1966 and Sneddon 1996, 2000). The fact that this voice has an interesting argument structure is exemplified in the following two sentences, in which the theme role is assigned to an NP in a different position:

- (1) *Gudang itu kebakaran*
Warehouse that KE-burn-AN
'The warehouse was on fire.'

- (2) *Joni kejatuhan mangga.*
 Joni KE-fall-AN mango
 ‘Joni was fallen on by a mango.’

In (1), the theme role is assigned to the subject NP. On the other hand, in (2), theme is assigned to the object NP, while the subject NP is goal. Although the position of the theme NP in (1) is different from the one in (2), the form of the *ke-/an* verbs in both sentences is the same. This is in contrast to the verbs in active voice which undergo a change in form when the theme NP is in a different position, as exemplified in (3):

- (3) a. *Gambaranya udah nempel.*
 Picture-DET already N-stick
 ‘The picture is already stuck.’
 b. *Paman nempelin gambar itu.*
 Uncle N-stick-IN picture that
 ‘Uncle stuck the picture (to something).’

In (3a), the theme role is assigned to the subject DP; while, in (3b), it is assigned to the object NP. Correspondingly, unlike the *N-* verb in (3a), the one in (3b) is also affixed by the suffix *-in*.

The idiosyncratic behavior of *ke-/an* verbs is also indicated by the number of the NP arguments that they can take. Some *ke-/an* verbs, such as: *kebakaran* ‘to be on fire’, *keguguran* ‘to miscarry’, and *kebongkaran* ‘to get broken into (referring to a house)’, can only have one NP argument. Other *ke-/an* verbs, such as: *kejatuhan* ‘to be fallen on by’, *kerobohan* ‘to be collapsed on by’, and *ketumpahan* ‘to be spilled by’, must have two NP arguments. There are also *ke-/an* verbs that can have either one or two NP arguments. This class of *ke-/an* verbs can be categorized into three sub-classes, as follows:

- i. *Ke-/an verbs with an optional NP complement*: As already noted by Dardjowidjojo (1978), the NP complements of some *ke-/an* verbs can be optional; especially when these verbs appear in discourse. Included in this sub-class are: *kecopetan* ‘to have (something) stolen by a pickpocket’, *kecurian* ‘to have (something) stolen’, and *kebagian* ‘to get a share’. The *ke-/an* verbs of this sub-class may occur in a sentence without an object NP; however, native speakers always interpret them as if they occur with their object NP, as in (4). This fact indicates that the object NPs of the *ke-/an* verbs of this sub-class are actually a verb complement.

- (4) *Joni kecopetan (dompet).*
 Joni KE-pick.pocket-AN wallet
 ‘Joni’s wallet was stolen by a pickpocket.’

- ii. *Ke-/an verbs with an optional NP complement with agentive flavor*: The optional object NPs of this sub-class of *ke-/an* verbs are different from the ones of the previous sub-class because they have an agentive flavor, as exemplified in (5):

- (5) *Aduh! Bukunya Joni kedudukan (ama) (Bobi) nih!*
 EXCL book.DET Joni KE-sit-AN by Bobi this
 ‘Oh, no! Joni’s book was sat on (by Bobi)!’

The optional object NPs of this sub-class of *ke-/an* verbs appear to be agentive because of the following reasons: i) the object NP is optional and can be animate, and ii) when the object NP is animate, it is optionally introduced by the preposition *ama* ‘by’. The agentive flavor the object NPs of this sub-class of *ke-/an* verbs may mislead one to assume that they are analogous to the agentive adjunct in passive voice marked by the prefix *di-*. This assumption implies that the argument structure of this sub-class of *ke-/an* verbs is similar to that of passive *di-* verbs. However, the optional object NP of this sub-class of *ke-/an* verbs is actually not an agent because the *ke-/an* verbs cannot be modified by subject-oriented

manner adverbials or instrumental phrases (see endnote v). This consequently means that this sub-class of *ke-/an* verbs is not another type of passive voice. Included in this sub-class of are: *kedudukan* ‘to be sat on (by someone)’ and *ketutupan* ‘to be blocked (by someone)’, and *kemasukan* ‘to be broken into (by someone).’

- iii. *Ke-/an* verbs verbs with an optional NP complement with agentive flavor complement and VP complement: The following *ke-/an* verbs: *kelihatan* ‘to be visible’ or ‘to be seen (doing something)’, *kedengaran* ‘to be audible’ or ‘to be heard’, *ketahuan* ‘to be found out (doing something)’, and *kedapatan* ‘to be found out/detected (doing something)’, form a sub-class because they are optionally followed by either an object NP or a VP or both, as represented in the following sentence. The optional object NPs of this sub-class of *ke-/an* verbs also appear to be agentive adjunct.

(6) *Dia/Joni kelihatan (ama) (Wati) (lagi marahin Sita).*
 3sg/Joni KE-see-AN by Wati PROGRESS angry-IN Sita
 ‘He/she/Joni was seen (by Wati) scolding Sita.’

In this study, the argument structure of *ke-/an* verbs is explained under the Distributed Morphology framework (DM) (Marantz 1997, 2001; Harley and Noyer 1999, among others). Further explanation of DM and the analysis of the argument structure of *ke-/an* verbs are discussed below. Beforehand, the following sections discusses issues related to how the argument structure of *ke-/an* verbs is analyzed, which are: the interpretation of *ke-/an* verbs, the distribution of *ke-/an* verbs in comparison to the distribution of active *meN-/N-/φ* verbs and passive *di-* verbs, and the eventivity of *ke-/an* verbs.

ANALYZING THE ADVERSATIVE INTERPRETATION OF *KE-/AN* VERBS

A serious attempt to analyze the structure of *ke-/an* verbs was made by Dardjowidjojo (1978). According to Dardjowidjojo (1978:117), *ke-/an* verbs have the following semantic features: (i) the event or condition is unexpected, unpredicted, or unavoidable, and (ii) the effect is adversative. He classifies *ke-/an* verbs based on syntactic-semantic criteria and then argues that the various derivations of *ke-/an* verbs are the result of affixing the adversative feature, which is in the form of the prefix *ke-* and the suffix *-an*, to the roots, which can be verbal, adjective, or nominal (Dardjowidjojo 1978: 117). Dardjowidjojo’s analysis of the structure of *ke-/an* verbs implies that all *ke-/an* verbs have adversative interpretation. This means that the event described by a *ke-/an* verb always negatively affects its argument, in particular the subject NP. For instance, in (7), the event *ketiduran* ‘to oversleep’ negatively affects the subject NP *Joni* because it causes *Joni* to come late to school.

(7) *Joni ketiduran jadi telat ke sekolah.*
 Joni KE-sleep-AN so.that late to school
 ‘Joni overslept so that he was late to school.’

Yet, not all *ke-/an* verbs are adversative. For instance, the event described by the *ke-/an* verb *kebagian* ‘to get a share of’ does not negatively affects the subject NP *Joni*.

(8) *Joni kebagian mangga.*
 Joni KE-share-AN mango
 ‘Joni got a share of a mango.’

Similarly, the subject NP *suaranya* ‘his sound’ in (9) is not negatively affected by the *ke-/an* verb *kedengaran* ‘to be audible’

(9) *Suaranya kedengaran dari sini.*
 Sound-DET KE-listen-AN from here
 ‘His voice can be heard from here.’

The fact that not all *ke-/an* verbs are adversative reflects that the adversative interpretation of *ke-/an* verbs is not the result of affixing the circumfix *ke-/an* to the root. In this paper, I argue that it actually originates in the speakers' real-world knowledge. This argument is based on the fact that whether or not a *ke-/an* verb is adversative depends on the context in which it appears, as reflected in the interpretation of *kebakaran* 'to be on fire' in the following sentences:

- (10) *Bangunan tua itu kebakaran*
 structure-AN old that KE-burn-AN
 'The old building was on fire.'

In (10), it is not indicated whether or not *bangunan tua* 'old building' is owned by someone; therefore, *kebakaran* 'to be on fire' is not adversative. However, as noted by Sneddon (1996:124), in (11), *kebakaran* has an indirect adversative interpretation because the possessor of the entity which is on fire is indicated.

- (11) *Rumahnya kebakaran*
 House-3sg KE-burn-AN
 'His/her house was on fire.'

Sneddon argues that the adversative interpretation in (11) is indirect because *kebakaran* adversely affects the possessor of the entity which is on fire (i.e. *-nya*), instead of the entity itself (i.e. *rumah* 'house'). As shown in (12), *kebakaran* will still have an indirect adversative interpretation even if the possessor of the entity which is on fire is only given in the discourse.

- (12) *Amat kemarin beli rumah. Sekarang rumah itu kebakaran.*
 Amat yesterday ϕ -buy house now house that KE-burn-AN
 'Amat bought a house yesterday. Now, the house is on fire.'

In (12), *kebakaran* still adversely affects *Amat*, although *Amat* does not appear in the sentence containing *kebakaran*. This is because in the earlier sentence it is stated that *Amat* was the owner of the house which was on fire. Interestingly, in (13), *kebakaran* loses its indirect adversative interpretation although it appears with the possessor of the entity which is on fire:

- (13) *Joni, sangat senang waktu rumahnya, kebakaran, karena dia, akan dapat uang asuransi.*
 'Joni_i was very happy when his_i house was on fire as he_i would get some money from the insurance.'

-nya in *rumahnya* 'his house' refers to *Joni*. This means that *Joni* should be adversely affected by *kebakaran*. However, because of the context in which it appears, *kebakaran* even has a benefactive interpretation in (13), instead of adversely affecting *Joni*. The fact that *kebakaran* does not always have adversative interpretation, as reflected in sentences (10) to (13), shows that it is discourse and real-world knowledge that create the adversative interpretation of *ke-an* verbs. If adversative interpretation is the property of *ke-/an* verbs, then *kebakaran* always have adversative interpretation, even when it appears in a context such as in (13).

Similarly to *kebakaran* 'to be on fire', *ketiduran* 'to oversleep' can be either adversative, as in (7), or not adversative, as in (14), depending on the context in which it appears. The adversative interpretation in (7) emerges because, according to real-world knowledge, being late to school is not a good thing. On the other hand, in (14), *ketiduran* triggers a benefactive interpretation because real-world knowledge tells us that escaping from an accident is a good thing.

- (14) *Pagi ini pesawat Garuda mengalami kecelakaan. Untungnya, Bobby ketiduran sehingga ia batal naik pesawat itu.*
 'Garuda airplane had an accident this morning. Fortunately, Bobby overslept so that he failed to board that airplane.'

To reiterate, not all *ke-/an* verbs have an adversative interpretation. In addition, contexts can cancel the adversative interpretation of some *ke-/an* verbs which appear to be adversative. These two facts contradict Dardjowidjojo's proposal that the *ke-/an* circumfix is an adversative feature; hence, raises the question of the function of this circumfix. In addition, there is still no clear explanation for the idiosyncratic argument structure of *ke-/an* verbs. The answers to these two questions are discussed after discussing other issues related to how the argument structure of *ke-/an* verbs is analyzed.

THE INTERPRETATION OF *KE-/AN* VERBS WITH TWO NP ARGUMENTS

As revealed in the previous section, *ke-/an* verbs do not always have an adversative interpretation. In fact, the interpretation of a *ke-/an* verbs depends on the context in which it occurs. In this section, I argue that *ke-/an* verbs—in particular those with two arguments—have a directional interpretation, instead of an adversative interpretation. Directional interpretation is an interpretation in which one argument of the *ke-/an* verbs with two arguments is either moving closer to or going away from the other argument.

The *ke-/an* verb *kejatuhan* 'to be fallen on by', as in (15), is typically assumed to be adversative because it means that the fallen mango hit Joni. However, if *kejatuhan* is really adversative, then (15) will also be true in the situation in which Joni was negatively affected because the fall of the mango causes him not to be able to eat the mango. The fact that (15) is only relevant in a situation in which a mango fell on Joni shows that *kejatuhan* is directional, instead of adversative. I assume that *kejatuhan* is directional because the mango will end up on Joni's body, which means that the mango is moving toward Joni.

- (15) *Joni kejatuhan (ama) mangga.*
 Joni KE-fall-AN by/with mango
 Directional: 'Joni was fallen on by a mango.'
 Adversative: *'Joni was negatively affected by mango falling because he could not eat it.'

Other *ke-/an* verbs with two NP arguments that have *go toward* interpretation are *kebagian* 'to get a share of (something)' and *kedudukan* 'to be sat on by (someone)', among others.

Similarly to *kejatuhan*, *kecopetan* 'to have (something) stolen by a pickpocket' in (16) also appears to be adversative. However, *kecopetan* is actually not adversative because (16) is not true in the situation in which Joni was negatively affected because other person's wallet got stolen. (16) is actually directional because it is true only in a situation in which Joni's wallet got stolen when it was with him, and not in a situation in which the wallet was stolen in Joni's bedroom when Joni was away. The directional interpretation of (16) is reflected in the interpretation in which Joni's wallet is moving away from him.

- (16) *Joni kecopetan dompet.*
 Joni KE-pick.pocket-AN wallet
 Directional: 'Joni's wallet was stolen while it was with him.'
 Adversative: *'Joni was negatively affected by the stealing of other person's wallet.'

Other *ke-/an* verbs with two NP arguments that have *go away from* interpretation are *kehilangan* 'to lose (something)' and *ketinggalan* 'to accidentally leave (something)', among others.

To summarize, *ke-/an* verbs with two NP arguments actually have a directional interpretation, instead of adversative. The fact that native speakers generally interpret *ke-/an* verbs as adversative is triggered by discourse and real-world knowledge.

THE DISTRIBUTION OF *KE-/AN* VERBS

This section discusses the distribution of *ke-/an* verbs in contrast to the distribution of active *meN-/N-/φ-* verbs and that of passive *di-* verbs. As will be revealed in the discussion below, *ke-/an* verbs are different from active *meN-/N-/φ-* verbs and passive *di-* verbs because they are non-agentive.

Ke-/an verbs versus *meN-/N-/φ-* verbs

As exemplified in the following sentences, there are two characteristics of *ke-/an* verbs that significantly distinguish them from *meN-/N-/φ-* verbs. Firstly, the subject NP of *ke-/an* verbs is never agent or causer. Secondly, the subject of *ke-/an* verbs with two arguments is either a goal or a source.

- (17) *Rumah itu kebakaran.*
 Home that KE-burn-AN
 ‘The house was on fire.’
 *‘The house burned (something).’
- (18) *Joni melompat lalu lari.*
 Joni MEN-jump past run
 ‘Joni jumped and then ran.’
- (19) *Bobi kejatuhan mangga.*
 Bobi KE-fall-AN mango
 ‘Bobi was fallen on by a mango.’
 *‘Bobi made the mango fall.’
- (20) *Joni jatuhin mangga itu (ke atas Bobi).*
 Joni φ-fall-IN mango that to above Bobi
 ‘Joni dropped the mango (to Bobi).’
 *‘(Bobi made) the mango fall on Joni.’

In (17), the NP argument in the subject position of the *ke-/an* verb *kebakaran* ‘on fire’ cannot be interpreted as agent. This is in contrast with the NP argument in the subject position of *melompat* ‘to jump’ in (18). In (20), the subject NP of *jatuhin* ‘to drop’ must be interpreted as agent and cannot be interpreted as goal or source. On the other hand, the subject NP of the *ke-/an* verb *kejatuhan* ‘to be fallen on by’ in (19) is goal and cannot be interpreted as agent. The above two distinctions lead to the conclusion that *ke-/an* verbs are not in the active voice and they are not derived in the same way as *meN-/N-/φ-* verbs.

Ke-/an verbs versus *di-* verbs

At a glance, *ke-/an* verbs and *di-* verbs share some characteristics. Firstly, as shown in (21) and (22), similarly to passive *di-* verbs, the subject NP of *ke-/an* verbs can be theme:

- (21) *Gudang itu kebakaran.*
 Warehouse that KE-burn-AN
 ‘The house was on fire.’
- (22) *Gudang itu dibakar.*
 Warehouse that DI-burn
 ‘The house was burnt.’

Secondly, the subject NP of both *ke-/an* verbs and passive *di-* verbs can be goal, as shown in (23) and (24):

- (23) *Joni sebagian mangga.*
 Joni KE-share-AN mango
 ‘Joni got a share of a mango.’

- (24) *Joni dibagiin mangga.*
 Joni DI-share-IN mango
 Lit. 'To Joni was shared the mango.'

Despite the above similarities, there are several characteristics of *ke/-an* verbs which distinguish them from *di- verbs*. As shown in (25) and (26), unlike passive *di- verbs*, *ke/-an* verbs cannot be followed by an optional agentive prepositional phrase.

- (25) *Gudang itu kebakaran (*ama Joni).*
 Warehouse that KE-burn-AN by Joni
 'The house was on fire (*by Joni).'
- (26) *Joni sebagian mangga *(ama Bobi).*
 Joni KE-share-AN mango by Bobi
 'Joni got a share of a mango (*by Bobi).'

The second difference between *ke/-an* verbs and *di- verbs* is that the subject NP of two-argument *ke/-an* verbs cannot be theme, as shown in (27). In contrast, the subject NP of ditransitive passive *di- verbs* can be theme, as shown in (28).

- (27) **Mangga itu sebagian ke Joni.*
 Mango that KE-share-AN to Joni
 Lit. 'The mango was shared (to Joni).'
- (28) *Mangga itu dibagiin ke Joni.*
 Mango that DI-share-IN to Joni
 'The mango was distributed to Joni.'

The above two differences reflect that *ke/-an* verbs are not derived in the same way as *di- verbs*. The fact that *ke/-an* verbs cannot co-occur with an optional agentive prepositional phrase, as discussed above, suggests that they are non-agentive. In contrast, passive *di- verbs* have an implicit subject, which means they are actually agentive (cf. Baker, Johnson, and Robert's, 1989, argument for English passives.) The non-agentivity of *ke/-an* verbs is also evidenced by the fact that they cannot be modified by subject-oriented manner adverbials, except *tidak/gak sengaja* 'accidentally',ⁱⁱ or instrumental phrases, as shown in (29) and (30), respectively (see Baker, Johnson, and Roberts 1989; Dubinsky and Simango 1996, for further explanation regarding the agentivity tests.)

- (29) **Joni buru-buru sebagian mangga.*
 Joni RED.hurry KE-share-AN mango
 *'Joni got a share of a mango in a hurry.'
- (30) **Gudang tua itu kebakaran pake bensin.*
 warehouse old that KE-burn-AN use gasoline
 *'The old warehouse was on fire by using gasoline.'

In comparison, passive *di- verbs* can be modified by subject-oriented manner adverbials and instrumental phrases:

- (31) *Joni buru-buru dibagiin mangga.*
 Joni RED.hurry DI-share-IN mango
 Lit. 'Joni was distributed the mango in a hurry.'
- (32) *Gudang tua itu dibakar pake bensin.*
 warehouse old that DI-burn use gasoline
 'The old warehouse was burnt by using gasoline.'

To summarize, the differences in the distribution between *ke/-an* verbs and *meN-/N-/φ-* verbs and also between *ke/-an* verbs and *di- verbs* reveal that *ke/-an* verbs are not either in the active voice or passive voice. Unlike *meN-/N-/φ-* verbs and *di- verbs*, *ke/-an* verbs are non-

agentive. This fact implies that *ke-/-an* verbs are derived differently from *meN-/N-/φ*-verbs and *di-* verbs.

THE EVENTIVITY OF *KE-/-AN* VERBS

The fact that *ke-/-an* verbs do not bear an implicit agent might mislead us to assume that these verbs are stative, because non-agentivity is generally used as a diagnostic for stativity (Dowty 1979, Dubinsky and Simango 1996, Katz 2003, among others). However, the results of other “stativity” tests, which were used in Katz’s (2003; drawing on Lakoff 1966) study, show that *ke-/-an* verbs are actually eventive despite their non-agentivity. According to Katz (2003: 206, drawing on Dowty 1979; Sag 1973; Hinrichs 1985), “state predicates are always non-agentive, temporally homogeneous, and have a present orientation.” On the other hand, eventive predicates are agentive, can ‘move’ narrative time in discourse, and lack past orientation.

One feature of *ke-/-an* verbs which shows that they are non-stative is the fact that they have a past orientation. According to Katz (based on work by von Stechow 1995, Ogihara 1996, and Abusch 1997), one way to check whether a predicate has past or present orientation is by inserting it into a complement clause of verbs such as *believe* or *think*. The complement clause of the matrix verb *believe* or *think* must have a present orientation with respect to the matrix verb itself. Since stative verbs, such as *love* or *know*, have a present orientation, they can be the infinitival complements of the matrix verb *believe* or *think*, as shown in (33). On the other hand, eventive verbs, such as *kiss*, have a past orientation; therefore, it is unnatural for eventive verbs to be the infinitival complements of *believe* or *think*, as shown in (34)

(33) Thelma believed Hans to love Lin.

(34) ??Thelma believed Hans to kiss Lin.

(Katz 2003:209)

In Indonesian, when stative verbs, such as *tau* ‘know’, appear as an embedded verb of *yakin*, which corresponds to English *believe*, they have a present orientation, as shown in (35):

(35) *Gue yakin Joni tau jawabannya.*
 1sg certain Joni know answer-AN.DET
 ‘I’m sure Joni knows the answer.’
 *‘I’m sure Joni knew the answer.’

In contrast, when the complement clauses of *yakin* ‘certain’ contain eventive verbs, such as *mukul* ‘to hit’, they exhibit a past orientation with respect to the matrix verb, as shown in (36):

(36) *Gue yakin Joni mukul temennya.*
 1sg certain Joni N-hit friend-3sg
 ‘I’m sure Joni hit his friend.’
 *‘I’m sure Joni hits his friend.’

When *ke-/-an* verbs are inserted into the complement clause of *yakin* ‘certain’, they have a past orientation, as shown in (37):

(37) *Gue yakin Joni kejatuhan mangga.*
 1sg certain Joni KE-fall-AN mango
 ‘I’m sure a mango fell on Joni.’
 *‘I’m sure a mango falls on Joni.’

The fact that *ke-/-an* verbs have a past orientation is one indication that they are eventive verbs.

The second stativity test is that stative verbs cannot be modified by an *in*-adverbial phrase, such as *in an hour* (Katz 2003), as shown below:

(38) ??He was away from home in an hour

(Katz, 2003:10)

As shown in (39) and (40), respectively, similarly to active eventive verbs, such as *bagi* ‘to share something to someone’, *ke/-an* verbs, such as *kebagian* ‘to get shared something’, are compatible with the adverbial phrase *dalam waktu semenit*, which corresponds to *in a minute*.

- (39) *Bobi bagiin makanannya ke Joni dalam waktu semenit.*
 Bobi ϕ -share-IN eat-AN-3sg to Joni in time one minute
 ‘Bobi shared his food to Joni in one minute.’
- (40) *Joni kebagian makanan dalam waktu semenit.*
 Joni KE-share-AN eat-AN in time one minute
 ‘Joni got shared food in one minute.’

In fact, Indonesian stative verbs, such as *tau* ‘know’, can also be modified by *dalam waktu semenit* ‘in a minute’. However, modifying stative verbs with an *in*-adverbial phrase causes them to have an inchoative interpretation, instead of the stative interpretation, as shown in (41).

- (41) *Joni tahu jawabannya dalam waktu semenit.*
 Joni know answer-AN-DET in time one minute
 *‘Joni is in the state of knowing the answer in one minute.’ (Stative)
 ‘Joni came to know the answer in one minute.’ (Inchoative)

The fact that *ke/-an* verbs do not become inchoative when modified by *dalam waktu semenit* shows that they are not stative.

To reiterate, although *ke/-an* verbs are non-agentive, they have the following two characteristics of eventive verbs. Firstly, when they are inserted into the complement clauses of *yakin* ‘certain’, they have past orientation. Secondly, *ke/-an* verbs do not become inchoatives when modified by *in a minute*-type of adverbs.

THE SUFFIX *-KAN* VS. THE CIRCUMFIX *KE/-AN*

To illustrate the effect of the circumfix *ke/-an* on thematic role assignment and the argument structure of the based verbs to which it is affixed, I will first discuss the effect of the suffix *-kan* as reviewed by Cole and Son (2004). According to Cole and Son, the suffix *-kan* functions as syntactic licenser which serves to syntactically license an argument, which is thematically licensed by the verb, in the argument structure. Without the presence of a syntactic licenser, a thematically licensed argument is unlicensed to be in an argument structure. As a syntactic licenser, the suffix *-kan* can increase the valence of the base verbs. As shown in (42), attaching the suffix *-kan* to an intransitive and adjectival base verb, such as *jatuh* ‘to fall’, adds an additional NP argument.

- (41) *Mangganya jatuh.*
 Mango-DET fall
 ‘The mango fell.’
- (42) *Bobi menjatuhkan mangga (ke atas Joni).*
 Bobi MEN-fall-KAN mango to top Joni
 ‘Bobi dropped the mango (on Joni).’ (i.e. ‘Bobi caused the mango to drop (on Joni).’)

In (41), the unaccusative verb *jatuh* ‘to fall’ already assigns the theme role to its argument *mangganya* ‘the manggo’. The affixation of *-kan* adds the number of the NP argument of the verb. In accordance to the hierarchies of thematic relations and argument structures suggested by Grimshaw (1990), the additional NP argument is assigned a causer theta role and becomes the surface subject.

As a syntactic licenser, the suffix *-kan* also adds the valence of transitive base verbs, as reflected in (44). In (44), the suffix *-kan* syntactically licenses the object NP *saya* ‘3sg’ in the argument structure of the transitive base verb *pikir* ‘think’. Although the verb *pikir* has assigned

the theme role to the NP *saya*, the NP can only occur in the argument structure after the verb is affixed by the suffix *-kan*. In this case, the suffix *-kan* becomes an object marker.

- (43) **Dia tidak memikir saya.*
 3sg not meN-think 1sg
 ‘She does not think about me.’
- (44) *Dia tidak memikirkan saya.*
 3sg not meN-think-KAN 1sg
 ‘She does not think about me.’

(Cole and Son, 2004:351)

When transitive base verbs that syntactically license both of their NP arguments in the argument structure are affixed to the suffix *-kan*, the number of their NP argument increases. As shown in (45), the transitive base verb *panggang* ‘bake’ assigns the agent role to the NP *saya* ‘1SG’ and the theme role to the NP *bread* ‘roti’ and also syntactically licenses them. However, it does not license and also assign a thematic role to the NP *Eric*. The NP *Eric* is an adjunct; therefore, it is optional. However, when the verb *panggang* ‘bake’ is affixed by *-kan*, *Eric* becomes the NP argument of *panggang* ‘bake’ and receives the beneficiary role; therefore, it is no longer optional, as shown in (46). In this case, the suffix *-kan* is a benefactive suffix.

- (45) *Saya memanggang roti (untuk Eric).*
 1sg meN-bake bread for Eric
 ‘I baked bread for Eric.’
- (46) *Saya memanggangkan roti *(untuk Eric).*
 1sg meN-bake-KAN bread for Eric
 ‘I baked bread for Eric.’

(Cole and Son, 2004:343)

As reflected in the above discussion, affixes can change the argument structure and the thematic role assignment of the base verbs to which they are affixed, which subsequently changes the valence of the verbs. What is the effect of the circumfix *ke-/-an* to the valence of the verbs to which it is affixed? As shown in (48), in some cases, *ke-/-an* can increase the valence of intransitive base verbs by one NP argument:

- (47) *Joni jatuh (di tangga)*
 Joni fall LOC stairs
 ‘Joni fell on the stairs.’
- (48) *Joni kejatuhan mangga.*
 Joni KE-fall-AN mango
 ‘Joni was fallen on by a mango.’

However, attaching the circumfix *ke-/-an* to intransitive base verbs does not always add an additional NP argument. For example, it does not increase the valence of the intransitive base verb *tidur*:

- (49) *Joni tidur (di kamarnya).*
 Joni \emptyset -sleep LOC room-DET
 ‘Joni is sleeping (in his room).’
- (50) *Joni ketiduran (di kamarnya).*
 Joni KE-sleep-AN LOC room-DET
 ‘Joni overslept (in his room).’

The presence of the circumfix *ke-/-an* can even decrease the valence of the verbs to which it is affixed. For example, when the ditransitive base verb *bagi* ‘to share’ and the transitive base verb *bakar* ‘to burn’ are affixed by *ke-/-an*, they have one less NP argument, as exemplified in (52) and (54), respectively.

- (51) *Joni udah bagi mangga ke Bobi.*
 Joni already ϕ -divide mango to Bobi
 ‘Joni has already shared the mango to Bobi.’
- (52) *Bobo udah kebagian mangga (*oleh Joni).*
 Bobo already KE-divide-AN mango by Joni
 ‘Bobo has already got a share of a mango (*by Joni).’
- (53) *Joni bakar gudang itu.*
 Joni ϕ -burn warehouse that
 ‘Joni burn the warehouse.’
- (54) *Gudang itu kebakaran (*ama Joni).*
 warehouse that KE-burn-AN by Joni
 ‘The warehouse was on fire *(by Joni).’

Similarly to the suffix *-kan*, the affixation of *ke/-an* can also affect the thematic relations of the base verbs. As shown in (48), when the unaccusative verb ‘*jatuh*’ is affixed by *ke/-an*, the theme theta role is assigned to the NP argument in object, instead of the one in subject. The NP argument in subject received the goal theta role. Furthermore, as illustrated in (52) and (54), transitive and ditransitive base verbs cannot assign the agent theta role when they are affixed by *ke/-an*; therefore, a *ke/-an* verb cannot have an agent NP as its argument. However, the circumfix *ke/-an* does not always affect the thematic relations of intransitive verbs. As exemplified in (50), the unaccusative verb ‘*tidur*’ still have a theme subject when it is affixed by *ke/-an*.

To reiterate, the circumfix *ke/-an* affects the argument structure of the verbs to which it is affixed by either increasing or decreasing their valence. Another notable effect of the circumfix *ke/-an* is that it blocks verbs from assigning an agent theta role.

THE STRUCTURE OF *KE/-AN* VERBS

In this paper, the structures of *ke/-an* verbs are explained in terms of the Distributed Morphology framework (DM) (Marantz 1997, 2001; Harley and Noyer 1999; among others). This framework is an extension of the idea that some semantic aspects of a word are also represented in the syntax (Hale and Keyser, 1993). According to Folli and Harley (2002:5), in this structural approach, it is assumed that the interpretation of a verb is determined by “the functional/aspectual structure in which the verb is inserted” and “the syntactic positions in which its arguments are realized.” Another assumption of DM is that words are inserted into the syntactic operations as category neutral components (ROOT) (Marantz 1997). ROOTs are later categorized in accordance to their syntactic positions, or as Marantz (1997:215, based on Chomsky, 1970) puts it:

When the roots are placed in a nominal environment, the result is a “nominalization”; when the roots are placed in a verbal environment, they become verbs.

In other words, the derivation of verbs involves inserting ROOT into the syntax. If the ROOT is governed by a verbalizing *v* head, it becomes a verb.

The Structure of One-Argument *ke/-an* Verbs

According to DM, the affixation of *ke/-an* to base words is an operation in the syntax. DM also posits that *ke/-an* verbs start as category neutral components in the syntactic operation. This assumption fits with the fact that these verbs seem to be derived from various lexical categories, as noted by Dardjowidjojo (1978) and Sneddon (2000). In line with the notion of DM that functional heads play an important role in the derivation of verbs, I argue that *ke/-an* is the overt representation of a functional head. The questions which will be answered in the

discussion in this section are (i) what functional head the circumfix *ke-/-an* represents and (ii) where its position is in the syntax.

First, I would like to address the non-agentivity of *ke-/-an* verbs. In recent studies, it is generally assumed that the functional head which generates the external argument is different from the one which generates the internal argument (Kratzer 1996, Marantz 1997, Folli and Harley 2002, among others). Kratzer (1996, based on Marantz 1984) proposes that the external argument is introduced in the specifier position of the voice projection, which is immediately above VP, in which the internal argument is generated. Following Kratzer's proposal, I argue that the non-agentivity of *ke-/-an* verbs indicates the lack of the functional head which generates the external argument in the structure of *ke-/-an* verbs. This implies that there is no voice projection in the structure of *ke-/-an* verbs, which means that the position of the functional head represented by the circumfix *ke-/-an* is below the voice head.

In this paper, I propose that the circumfix *ke-/-an* is an overt form of the v head that directly attaches to ROOT and verbalizes it. My proposal is based on several pieces of evidence; the first being the fact that *ke-/-an* verbs are not productive, as pointed out by Sneddon (1996). This condition corresponds to Marantz's proposal (2001), stating that a head which attaches immediately to the ROOT is semi-productive because its selectional requirements must be satisfied by the idiosyncratic properties of the ROOT.

Marantz (2001) also predicts that a head which is immediately attached to the ROOT can create an idiom. This prediction is based on the assumption that roots in combination with other elements within the locality domain may have a special meaning (Marantz 1997). Marantz (1997:8) also assumes that the functional head that projects agents is the boundary for the domain of special meanings. The fact that there exists an idiom with a *ke-/-an* verbs, as shown in (55), supports the assumption that the circumfix *ke-/-an* is a verbalizing v head.

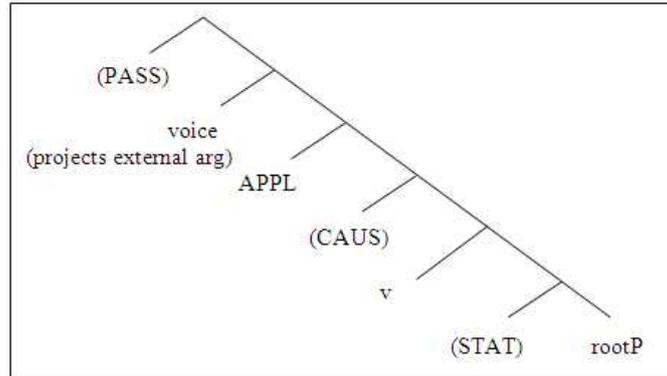
- (55) *Tingkahnya seperti orang/kambing kebakaran jenggot.*
 act-3sg look.like person/goat KE-burn-AN beard
 'He acts frantically.' (Lit. 'He acts like a person/a goat whose beard is on fire.')

The fact that the subject NP of *kebakaran jenggot* in (55) can be either *orang* 'person' or *kambing* 'goat' without changing the meaning of the idiom shows that the subject NP is not part of the idiom. On the other hand, as shown in (56), the idiom *orang kebakaran jenggot* 'to act frantically' loses its idiomatic interpretation when the base verb *bakar* 'to burn' appears with the prefix *di-*, which is a passive marker. This shows that the verb *kebakaran* is part of the idiom.

- (56) *Tingkahnya seperti orang/kambing dibakar jenggot*
 act-3sg look.like person/goat DI-burn beard
 'He acts as if someone who is being burnt by his beard.'

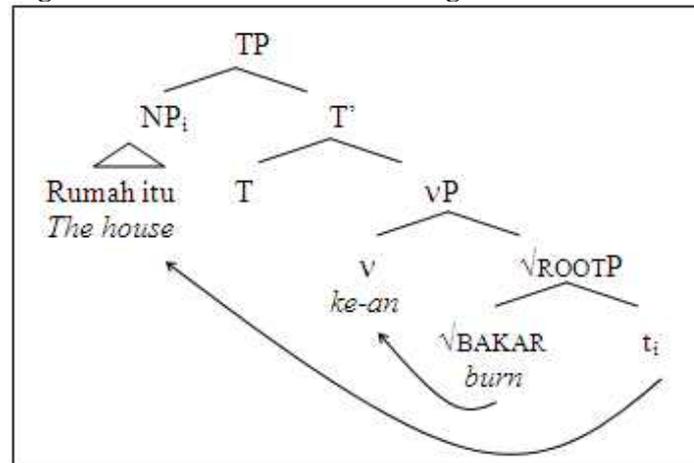
Additional support for the proposal that the circumfix *ke-/-an* is a verbalizing v head which directly attaches to ROOT comes from the fact that *ke-/-an* verbs are not stative, as already discussed earlier. According to the structure of the verb phrase proposed by Marantz (2001), as shown in Figure 1, the stative head is nearer to the ROOT as compared to the verbalizing head. However, the eventivity of *ke-/-an* verbs suggests the absence of a stative head. Consequently, in the structure of *ke-/-an* verbs, it is the verbalizing v head which realizes the circumfix *ke-/-an* in its overt form, which immediately attaches to the ROOT.

Figure 1. The Structure of the Verb Phrase (Marantz 2001:5)



To reiterate, the fact that *ke/-an* verbs are non-agentive postulates that there is no voice projection in the structure of *ke/-an* verbs. Furthermore, several evidence indicate that the circumfix *ke/-an* is an overt presentation of a verbalizing *v* head which directly attaches to ROOT. In line with these two assumptions, I propose that the structure of one-argument *ke/-an* verbs, such as in *rumah itu kebakaran* ‘the house was on fire’, is as shown in Figure 2:

Figure 2. The Structure of One-Argument *ke/-an* verbs



As shown in Figure2, the theme NP, which on the surface appears in the subject position, originates as the internal argument of ROOT. The assumption that ROOT can take a single argument is suggested by Embick (2004) to account for the structures of transitive verbs as well as unaccusative verbs. According to this assumption, the internal argument of transitive verbs and unaccusative verbs originates as the argument of ROOTs and it is interpreted as the logical object of ROOT. Following Chomsky’s (2000, 2001) Agree operation, I assume that the complement of ROOT in one-argument *ke-an* verbs moves to the spec of TP to satisfy the EPP feature, which is borne by T.

I assume that the subject NP of the single argument *ke/-an* verbs is actually the complement of ROOT because it is always assigned *theme*, which is relevant to its status as the logical object of the ROOT. This assumption conforms to Chomsky (1981:36)’s Theta Criterion, which is “each argument bears one and only one theta-role, and each theta-role is assigned to one and only one argument.” The Theta Criterion postulates that each argument is assigned one thematic role at the level of D-structure. Subsequently, a thematic relation remains through a derivation, even though the argument may undergo movement or raising.

A piece of evidence that supports the assumption that the subject NP of one-argument *ke/-an* verbs is base-generated as the complement of ROOT and move to the spec of TP is the

fact that they must be definite. The two sentences in (57) are ungrammatical because the subject NPs of the *ke-/-an* verbs are indefinite.

- (57) a. **Gudang kebakaran*
 Warehouse KE-burn-AN
 ‘A warehouse was on fire.’
 b. **Anak kejatuhan mangga.*
 child KE-fall-AN mango
 ‘A boy was fallen on by a mango.’

The behavior of the subject NP of *ke-/-an* verbs is similar to that of the subject NP of passive *di-* verbs. As mentioned by Sneddon (1996:254), the subject NP of passive *di-* verbs must be definite. In line with Guilfoyle, Hung, and Travis’s (1992) analysis of Indonesian passive construction, I assume that the restriction on the definiteness of passive subjects relates to A-movement, which is the movement of the *theme* NP from the complement of V to the spec of IP in order to get case. Correspondingly, the requirement for the subject NPs of *ke-/-an* verbs to be definite indicates that they are base-generated in a position below VP and moves to the spec of IP.

The assumption that the subject NP of *ke-/-an* verbs undergoes A-movement to the spec of IP also gets support from the fact that a sentence can have a *ke-/-an* verb in conjunction with a *di-* verb with only one subject, as illustrated in (58):

- (58) *Joni_i kejatuhan t_i tangga dan t_i dikejar anjing.*
 Joni KE-fall-AN leader and PASS-chase dog
 ‘Joni was fallen on by a leader and chased by a do.’

The fact that *Joni* can be the subject for both *kejatuhan* ‘to be fallen on by’ and *dikejar* ‘to be chased’ indicates that the subject NP of this sentence originates inside VP (McCloskey 1997, drawing on McNally 1992 and Burton and Grimshaw 1992).

The Structure of Two-Argument *ke-/-an* verbs

According to the structure represented in Figure 2, *ke-/-an* verbs cannot have more than one argument. The fact that these verbs can actually have two arguments indicates the presence of an applicative construction in their structure. However, where is the position of the applicative construction in the argument structure of *ke-/-an* verbs?

As discussed earlier, I assume that the two-argument *ke-/-an* verbs have a directional interpretation because one of the two NP arguments either moves toward or away from the other NP argument, as already reflected in (15) and (16). The directional interpretation of two-argument *ke-/-an* verbs indicates the presence of a low applicative construction in the structure of the two-argument *ke-/-an* verbs. This notion is based on Pylkkänen’s (2002, based on Bresnan and Moshi 1990) proposal of the two types of applicative constructions: high applicatives and low applicatives. The high applicative construction attaches above the verb, as shown in Figure 3; while the low applicative attaches below the verb, as shown in Figure 4.

Figure 3. The Structure of High Applicative Construction (Pylkkänen 2002:19)

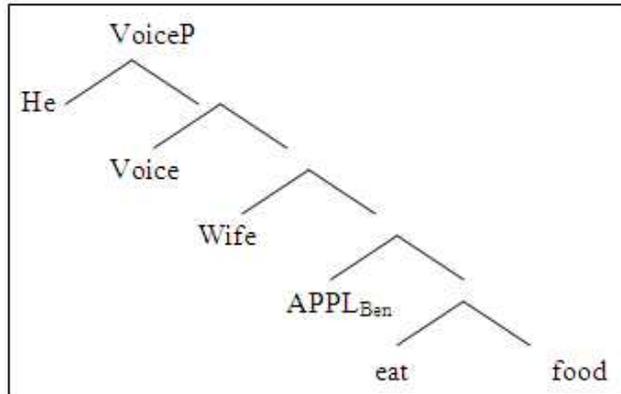
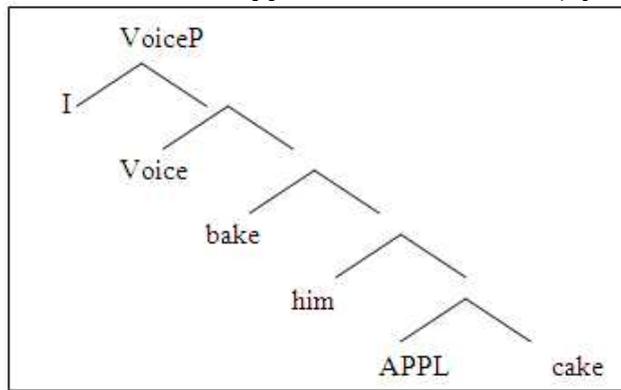


Figure 4. The Structure of Low Applicative Construction (Pylkkänen 2002:19)



According to Pylkkänen, the difference in the syntactic positions of the high and low applicative head is reflected in two different interpretations. High applicatives denote a relation between an event and an individual, which is the applied argument, as exemplified in (59), which is an Albanian sentence with a high applicative construction. In (59), the event *Agim holds my bag* is related to the applied argument *Drita*, so that the interpretation of (59) is *Agim holds my bag for the benefit of Drita*.

- (59) *Agimi i mban Drites qanten time*
 A.NOM DAT.CL holds Drita.DAT bag.ACC my
 ‘Agim holds my bag for Drita.’

(Pylkkänen, 2002:25)

Unlike the high applicative construction, low applicatives denote a relation between two individuals, i.e. the applied argument and the internal argument. As exemplified in (60), the applied argument *John* is only related to the internal argument *the book* in the sense that *the book* ends up being possessed by *John*

- (60) *Mary bought John the book.*

(Pylkkänen 2002:23)

Since low applicatives denote a relation between the applied argument and the internal argument, Pylkkänen (2002) argues that low applicatives cannot appear in a structure that lacks an internal argument, such as unergative verbs.

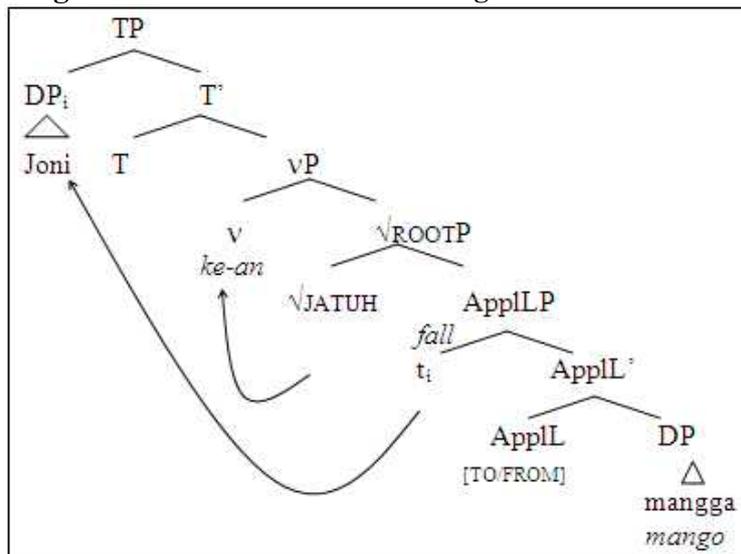
Another piece of evidence supporting the argument that the applicative construction of two argument *ke/-an* verbs is a low applicative comes from the fact that only the applied argument, which is the goal/source NP, can be in the subject position of two argument *ke/-an* verbs. As illustrated in (61), the internal argument, which is the theme NP, cannot be the subject of *ke/-an* verbs.

- (61) **Mangga kejatuhan Joni.*
 Mango KE-fall-AN Joni
 ‘Joni was fallen on by a mango.’

The aforementioned evidence corresponds to McGinnis’s (2001:112-113) claim that, in a structure with a high applicative construction, when the verb is passivized, either the internal argument or the applied argument can be a subject. On the other hand, in a structure with a low applicative construction, only the applied argument can be a subject. This claim is based on her analysis of the distribution of Kinyarwanda benefactives, which bear a high applicative construction, and the locatives, which bear a low applicative construction. According to her, when a Kinyarwanda benefactive verb is passivized, either the theme NP or the beneficiary NP can be in the subject. In contrast, when a Kinyarwanda locative verb is passivized, only the locative NP can occupy the subject position (see McGinnis 2001 for the discussion of the difference between the high and low applicative constructions with respect to the NP subject.)

To summarize, I argue that the applicative construction in the structure of two-argument *ke/-an* verbs is a low applicative. My argument is based on the following two facts: firstly, the two-argument *ke/-an* verbs have a directional interpretation; and, secondly, only the applied argument can be the subject NP of two argument *ke/-an* verbs. In line with the above argument, the structure of two-argument *ke/-an* verbs, such as *kejatuhan* ‘to be fallen on by’, is as represented in Figure 5.

Figure 5. The Structure of Two-Argument *ke/-an* verbs



As shown in Figure 5, ROOT in the two-argument *ke/-an* verbs, unlike ROOT in the one-argument *ke/-an* verbs, selects the low applicative construction as a complement. This implies that selection of the low applicative construction is an inherent property of ROOT. Under the assumption that the internal argument is the argument of ROOT, the low applicative construction has to be part of ROOT, so that the internal argument and the applied argument are generated at the same level. If the low applicative construction combines with *v* and the internal argument combines with ROOT, the applied argument and the internal argument will be generated at different levels; consequently, there will not be a directional interpretation between the applied argument and the internal argument.

I assume that the low applicative head of *ke/-an* verbs bears [+to] and [+from] features (Legate 2001; Pykkänen 2002). Pykkänen (2002) argues that the low recipient and source applicatives have the following lexical entries:

- (62) Low-APPL-TO (Recipient applicative):
 $\lambda x.\lambda y.\lambda f_{\langle e, s, t \rangle}.\lambda e. f(e, x)$ & theme (e, x) & to-the-possession (x, y)
 Low-APPL-FROM (Source applicative):
 $\lambda x.\lambda y.\lambda f_{\langle e, s, t \rangle}.\lambda e. f(e, x)$ & theme (e, x) & from-the-possession (x, y)
 (Pylkkänen, 2002:22)

In line with the above argument, I argue that the [+to] and [+from] features borne by the low applicative head represent the direction of the internal argument with respect to the applied arguments, which are as follows: the [+to] feature means that the internal argument is heading toward the applied argument and the [+from] feature means that the internal argument is moving away from the applied argument. I assume that it is the semantic property of the ROOT that combines with the projection of the low applicative that determines which feature will be borne by the low applicative head in a particular sentence. The low applicative head bears the [+to] feature when it appears in sentences such as (63) and (64).

- (63) *Joni kejatuhan (ama) mangga.*
 Joni KE-fall-AN by/with mango
 ‘Joni was fallen on by a mango.’
 (64) *Joni kebagian mangga.*
 Joni KE-share-AN mango
 ‘Joni got a share of a mango.’

In (63) and (64), the internal argument *mangga* ‘mango’ is moving toward the internal argument *Joni*. On the other hand, in (65), the low applicative head bears the [+from] feature because the internal argument *dompot* ‘wallet’ is moving away from *Joni*.

- (65) *Joni kecopetan dompet.*
 Joni KE-steal-AN wallet
 ‘Joni’s wallet was stolen.’

As mentioned earlier, according to Pylkkänen (2002), the low applicative construction cannot co-occur with unergative verbs. Therefore, the argument that applicative construction of the two-argument *ke-/-an* verbs is low applicative is somewhat problematic because there are two argument *ke-/-an* verbs which seem to be derived from an unergative verb; for instance, *kedudukan* ‘to be sat on by’, as represented in (66):

- (66) *Aduh! Bukunya Joni kedudukan (ama) (Bobi) nih!*
 EXCL book.DET Joni KE-sit-AN by/with Bobi this
 ‘Oh no! Look, Joni’s book was accidentally sat on (by Bobi)!’

This problem actually can be accounted for by assuming that *kedudukan* is derived from *duduk* ‘sit’ as the verb of spatial configuration with the *simple position* meaning (see Levin and Rappaport Hovav 1995 for the discussion of the possible interpretations of the verb of spatial configuration). According to Levin and Rappaport Hovav (1995), the spatial configuration verbs with the *simple position* meaning are unaccusative. This means that *kedudukan* is actually derived from *duduk* ‘sit’ as an accusative verb, instead of unergative. Accordingly, the structure of *kedudukan* can contain a low applicative construction. The argument that *kedudukan* is derived from *duduk* with the *simple position* meaning is supported by the following three facts:

- i. Goal DP, which functions as the location phrase, is mandatory in the subject position, as shown below:

- (67) **Aduh! kedudukan (ama) (Bobi) nih!*
 EXCL KE-sit-AN by/with Bobi this
 *‘Oh no! Look, was accidentally sat on (by Bobi)!’

- ii. Subject DPs of *kedudukan* cannot be an agent. Therefore, (68) cannot be interpreted as *Bruno (the dog) was accidentally sat on by Joni*.
- iii. *Kedudukan* cannot be modified by a subject-oriented manner adverbials, such as *terburu-buru* ‘in a rush’, which shows that it has a non-agentive interpretation.

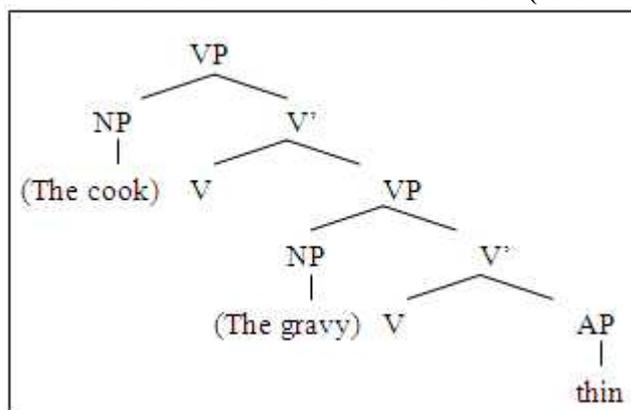
To summarize, this section discusses the structure of *ke-/an* verbs. *Ke-an* verbs are eventive, non-agentive, and can take either one or two NP arguments. To account for the fact that *ke-/an* verbs are non-agentive, I argue that the structure of *ke-/an* verbs lacks voice projection. In addition, the circumfix *ke-/an* is an overt form of a verbalizing *v* head that directly attaches to ROOT and verbalizes it. The fact that there are *ke-/an* verbs that take two NP arguments indicate that it structures can contain an applicative construction. I argue that the applicative construction in the structure of two-argument *ke-/an* verbs is the low applicative for the following two reasons: first, two-argument *ke-/an* verbs have a directional interpretation. In addition, I assume that the low applicative head bears [+to] and [+from] features, which represent the direction of the internal argument, that is, whether it is moving toward or going away from the applied argument. I also assume that it is the semantic properties of the ROOT combining with the low applicative projection that determine which feature is borne by the low applicative head in a particular sentence.

A REMARK ON THE ACCIDENTAL INTERPRETATION OF *KE-/AN* VERBS

Ke-/an verbs also trigger an interpretation in which the events described by the verbs happen accidentally. In line with the proposed structures of *ke-/an* verbs, which are represented in Figure 2 and Figure 5, I assume that the accidental interpretation of *ke-/an* verbs is due to the syntactic structures of *ke-/an* verbs, instead of being semantically implicated in the circumfix *ke-/an*. *Ke-/an* verbs yield accidental interpretation because none of their arguments are generated above the *ke-/an* *v* projection.

This assumption corresponds to Hale and Keyser’s (1993) view that the most salient meaning of the inner VP is “change.” According to Hale and Keyser, a projection of a lexical category is associated with a structural relation of c-command and complementation and an elementary semantic relation. Following the aforementioned argument, Hale and Keyser (1993) argue that the structural relation of a causative sentence, such as *the cook thinned the gravy*, is as shown in Figure 6:

Figure 6. The Structural Relation of a Causative Sentence (Hale and Keyser 1993:72)



Each of the two *v* heads projected by *thin* contributes a subpart of the verb’s meaning. The upper *v* head represents a CAUSE event and the lower *v* head represents a BECOME event. Accordingly, the NP in the specifier of the upper *v* heads is regarded as the subject of the causal event and the one in the specifier of the lower *v* head is the subject of a ‘predicate of change’.

Since the *ke-/an* v head is a verbalizing head and non-agentive, I assume that the *ke-/an* v head corresponds to the lower v head in Figure 6, which means that it represents a BECOME event. Correspondingly, the NP argument taken by ROOT (i.e. the internal argument) in the structures of *ke-/an* verbs resembles Hale and Keyser's subject of a predicate change, i.e. it corresponds to an entity undergoing change. The accidental interpretation subsequently emerges because the internal argument is affected by *ke-/an* verbs, instead of causing the event.

CONCLUSION

It has been shown that the idiosyncratic distribution of *ke-/an* verbs can be accounted for by using the Distributed Morphology framework. The fact that *ke-/an* verbs are non-agentive indicates that the structures of *ke-/an* verbs lack the voice head which licenses the agent NP. Although *ke-an* verbs are non-agentive, they are nevertheless eventive. In the present study, I have argued that the circumfix *ke-/an* is an overt form of a verbalizing v head which directly attaches to ROOT. This argument can explain why the presence of the circumfix *ke-/an* does not necessarily add a new argument to the argument structure. I attributed the fact that some *ke-an* verbs take only one argument while others take two arguments to the inherent properties of the ROOT taken by the *ke-/an* v head. ROOTs that take one NP argument yield one-argument *ke-an* verbs; while the ones that select a low applicative construction as its complement bring forth two-argument *ke-an* verbs.

The postulation that the circumfix *ke-/an* is a verbalizing v head that attaches directly to ROOT can explain why *ke-/an* verbs are not productive in Indonesian. According to Marantz (2001), a functional head which attaches immediately to ROOT is less productive because its selectional restriction must be satisfied by the idiosyncratic properties of ROOT. This view implies that *ke-/an* verbs are not productive because there are limited ROOTs that can satisfy the selectional restrictions of the *ke-/an* verbalizing v head. This assumption raises a new question, namely, what are the inherent properties of ROOT which are required by the *ke-/an* v head. I leave this question open for now.

The above assumption also suggests that there is more than one verbalizing head. This brings up many questions, such as how many types of verbalizing v head there are, what makes one verbalizing v head different from other v heads, whether all languages have more than one type of verbalizing v head, and so forth. Further studies are required in order to answer these questions. The present study only hints that the properties of a verbalizing v head can be a component which distinguishes one language from another.

I would also like to point out that the proposed structures of *ke-/an* verbs in this study cannot account for the *ke-/an* nouns, such as *kesenangan* 'happiness', *kesedihan* 'sadness', and *kebersamaan* 'togetherness'. Unlike *ke-/an* verbs, *ke-/an* nouns are very productive in Indonesian. This fact suggests that the circumfix *ke-/an* can also be an overt form of a functional head for nominalization. This notion implies that Indonesian has two homophonous functional heads with the circumfix *ke-/an* as their overt form.

NOTE

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- ⁱ The Indonesian analyzed in this paper is the colloquial register of Indonesian as spoken in Jakarta. All examples are the kind of utterances used in daily conversation by educated speakers.
- ⁱⁱ I assume that *ke-/an* verbs can co-occur with *tidak/gak sengaja* because *ke-/an* verbs induce an interpretation of events which happen unexpectedly.

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