

Causatives and Applicatives: The case for Polysemy in Javanese

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1. Introduction

Causative and applicative constructions have been a topic of great interest for theoretical and typological linguists due to their potential to provide insight into the relationship between semantic structure and syntactic expression (Comrie 1981; Dixon & Aikhenvald 2000; Song 1996; Baker 1988; Alsina 1996; Ackerman & Moore 2001). Though they are sometimes grouped under the heading of ‘valency increasing derivations’ (Comrie 1985), traditional analyses have tended to emphasise the differences between them (Kroeger 2004; Dixon & Aikhenvald 2000). Whilst applicatives are seen as examples of morphosyntactic alternations – affecting the linking of arguments to syntactic functions but not predicate meaning – causatives are viewed as morphosemantic in that they introduce an entailment of causation and alter the lexical-conceptual structure of the predicate (Ackermann 1992; Sadler & Spencer 1998). However, this strict dichotomy is called into question by the Javanese suffixes *-i* and *-aké*, which appear to have both morphosyntactic and morphosemantic functions. Consequently, we are forced to ask whether this is an instance of polysemy or homonymy. In other words, are we dealing with a single form that has multiple meanings or separate affixes that simply happen to have the same phonological realisation?

To explore this question, this article will illustrate the patterns of *-i* and *-aké* from a dialect of Javanese, spoken in Malang, East Java. It will then discuss how to distinguish polysemy and homonymy, before presenting a theoretical analysis of the suffixes, noting the implications for our understanding of argument structure.

2. The suffixes *-i* and *-aké* in Malang Javanese

The data used in this article was collected during the 2012 Field Methods course at SOAS using a range of structured and semi-structured elicitation techniques (c.f., Chelliah & de Reuse 2011). The examples were provided by a speaker of central Eastern Javanese from Malang and are exclusively drawn from the informal speech level.¹ The key features of distribution can be summarised as follows:

- (1) a. Causative/applicative syncretism
- b. Valency-increasing vs. valency-preserving functions
- c. Transitivity with non-verbal stems
- d. Dative/locative alternations

¹ Many thanks to Nanang Endrayanto and Yacinta Kurniasih for providing and commenting on the examples. See Appendix for information on glossing, orthography, variant forms of the suffixes, vowel alternations and nasal prefixes.

2.1 Causative/Applicative syncretism

2.1.1 Applicative uses

In most grammars and descriptions of Javanese the meanings of *-i* and *-aké* are simply listed (Robson 1992; Keeler 1984). However, the suffixes are sometimes described as transitivity or applicative suffixes (Ogloblin 2005: 610; Ewing 2005: 50). Indeed *-i* and *-aké* resemble prototypical applicatives in certain contexts.² The suffix *-i* typically introduces a location/goal, whilst *-aké* derives a ditransitive construction with a beneficiary as direct object:

- (2) a. pelem ceblòk menyang gentèng ómah-ku
 mango (S) fall towards roof house-1SG.POSS
 ‘a mango fell on the roof of my house’
- b. pelem nyceblòk-i gentèng ómah-ku
 mango (A) AV.fall-APPL roof (O) house-1SG.POSS
 ‘a mango fell on the roof of my house’
- (3) a. aku masak jajan kanggó Karolina
 1SG (A) AV.cook cake (O) for Karolina
 ‘I baked a cake for Karolina’
- b. aku masak-aké Karolina jajan
 1SG (A) AV.cook-APPL Karolina (O) cake
 ‘I baked Karolina a cake’

In (2b), *-i* promotes the adjunct ‘on my roof’ to core argument status. This can be seen from the fact that *gentèng omahku* is adjacent to the verb, no longer expressed in a PP and can be passivized, unlike in (2a):

- (4) a. gentèng ómah-ku di-ceblòk-i pelem
 roof house-1SG.POSS OV-fall-APPL mango
 ‘the roof of my house had a mango fall on it’
- b. *gentèng ómah-ku di-ceblòk
 roof house-1SG.POSS OV-fall
 FOR: ‘the roof of my house had (a mango) fall on it’

Similarly, *Karolina* takes on the function of direct object in (3b), as opposed to *jajan* in (3a), which can be seen from the following patterns of grammaticality:

- (5) a. Karolina di-masak-aké jajan
 Karolina OV-cook-APPL cake
 ‘Karolina was baked a cake’

² See Polinsky (2011); Kroeger (2004); Petersen (2007) and Dixon & Aihkenvald (2000) for discussion of the typical functions of applicatives.

- b. *jajan di-masak-aké Karolina
 cake OV-cook-APPL Karolina
 FOR: ‘a cake was baked for Karolina’
- c. jajan di-masak (kanggó Karolina)
 cake OV-cook (for Karolina)
 ‘a cake was baked (for Karolina)’
- d. *Karolina di-masak jajan
 Karolina OV-cook cake
 FOR: ‘Karolina was baked a cake’

Karolina can only be mapped to passive subject in the presence of the applicative, whilst *jajan* can only be mapped to passive subject with the bare verb form. However, the meaning remains constant. Thus, in examples like (2b) and (3b), *-i* and *-aké* have the typical functions of applicatives. However, both suffixes have a range of other uses, which are unexpected if we take applicatives to be purely morphosyntactic.

2.1.2 Causative uses

As well as expressing locative meaning, *-i* functions as a direct causative marker:³

- (6) a. kucing mangan iwak
 cat (A) AV.eat fish (O)
 ‘the cat ate fish’
- b. aku mangan-i kucing iwak
 1SG (A) AV.eat-CAUS cat (O) fish
 ‘I fed the cat fish’

It is generally used as a causative with verbs of an underlying transitive base, particularly ingestive verbs meaning ‘eat’, ‘drink’ and ‘smell’. It also functions as a causative with intransitive base verbs, typically those denoting states or inactive situations in the sense of Shibatani & Pardeshi (2002: 171):

- (7) a. wòng kaé mati
 man (S) DEM AV.die
 ‘that man died’
- b. aku matè-ni wòng kaé
 1SG AV.die-CAUS man DEM
 ‘I killed that man’

In both instances, the causee is expressed as the primary object, which can be seen from the fact that only the causee can be passivized:⁴

³ See Aihkenvald (2011); Kroeger (2004); Dixon & Aihkenvald (2000) and Alsina (1992) for discussion of the typical functions of causatives.

⁴ Javanese is an asymmetrical language in the sense of Alsina and Mchombo (1993).

- (8) a. kucing di-pangan-i iwak
 cat OV-eat-CAUS fish
 ‘the cat was fed fish’
- b. *iwak di-pangan-i kucing
 fish OV-eat-CAUS cat
 FOR: ‘the fish was fed to the cat’

The suffix *-aké* is also commonly used as a causative marker with intransitive verbs that denote change-of-state like ‘open’ and ‘melt’:

- (9) a. ès nyair
 ice (S) AV.melt
 ‘the ice melted’
- b. aku nyair-aké ès
 1SG (A) AV.melt-CAUS ice (O)
 ‘I melted the ice’

With transitive predicates, *-aké* sometimes has an indirect causative meaning, where the causee is expressed as an oblique in contrast to causative clauses formed with *-i*. Unlike the benefactive use, ditransitive constructions are ungrammatical:

- (10) a. aku mangan-aké iwak menyang kucing
 1SG AV.eat-CAUS fish towards cat
 ‘I fed the fish to the cat’
- b. *aku mangan-aké kucing iwak
 1SG AV.eat-CAUS cat fish
 FOR: ‘I fed the cat fish’
- c. *aku mangan-aké iwak kucing
 1SG AV.eat-CAUS fish cat
 FOR: ‘I fed the fish to the cat’

A comitative or sociative causative reading (c.f., Shibatani & Pardeshi 2002) is also encoded when the affix is applied to manner of motion verbs such as ‘run’. The implication is that the applied object is moved:

- (11) a. aku mlayòk-aké buku
 1SG AV.run-APPL book
 ‘I run with the book’

In some cases the same verb can have both causative and applicative meanings, depending on the animacy of the Actor NP:

- (12) a. banyu-né mili menyang sawah
 water-DEF flow towards rice.field
 ‘the water flows towards the rice field’
- b. banyu-né milè-ni sawah
 water-DEF flow-APPL rice.field
 ‘the water floods/overflows the rice field’
- c. wòng kaé milè-ni sawah banyu
 man DEM flow-CAUS rice.field water
 ‘the man floods the rice field with water’

Hence *-i* and *-aké* have both morphosyntactic and morphosemantic uses – sometimes with the same base predicate.

2.2 Valency-increasing vs valency-preserving functions

In addition to the valency-increasing functions above, the suffixes also encode a range of aspectual meanings that are valency-preserving. Firstly, *-i* encodes iterative meaning:

- (13) a. ibu-ku ng-gupuk kasur nganggó sapu
 mother-1SG.POSS AV-hit mattress AV.use broom
 ‘my mother hit the mattress with the broom (once)’
- b. ibu-ku ng-gupuk-i kasur nganggó sapu
 mother-1SG.POSS AV-hit-ITER mattress AV.use broom
 ‘my mother beat the mattress using the broom (many times)’

Closely linked to this, the suffix sometimes suggests plurality of the object:

- (14) kucing mangan-i iwak
 cat AV.eat-ITER fish
 ‘the cat eats lots of fish’

Example (14) shows that the suffix can also have both iterative and causative meaning with the same verb, depending on the animacy of the subject and object. In general, the suffix marks progressive aspect: an activity rather than a state or accomplishment in Vendler’s (1957) taxonomy.

Finally, the suffix *-i* can imply intensity alongside intention, in contrast to *-aké*:

- (15) a. Charlotte ng-rusak lawang
 Charlotte AV-break door
 ‘Charlotte broke the door’
- b. Charlotte ng-rusak-i lawang
 Charlotte AV-break-CAUS door
 ‘Charlotte destroyed the door’

- c. Charlotte ng-rusak-aké lawang
 Charlotte AV-break-CAUS door
 ‘Charlotte broke the door by mistake’

In (15a), the event is neutral. In (15b), however, the intensity of the action is emphasised, suggesting that the breaking is done on purpose, whilst (15c) is presented as an accident.

Though the aspectual meaning of *-aké* is less apparent than the progressive meaning of *-i*, *-aké* seems to imply perfective aspect, portraying the event as an accomplishment. In this interpretation, *-aké* marks high transitivity in the sense of Hopper and Thompson (1980):

- (16) a. aku ng-guyò-ni bócah iku
 1SG AV-laugh-CAUS child DEM
 ‘I make that child laugh’
- b. aku ng-guyòk-aké Laura
 1SG AV-laugh-CAUS Laura
 ‘I bring Laura to laughter’

Examples (16a) and (16b) differ in their entailments, since only (16b) necessarily entails a resulting state of laughter. In (16a), the agent’s intention is emphasised rather than the result. This is similar to the Indonesian cognate suffix *-kan* which marks a total effect on the object as opposed to a partial effect with *-i* (Hopper and Thomson 1980: 261).

Finally, *-aké* is linked to what Irwin (2005) terms ‘controlled perception’:

- (17) a. bócah kaé krungu bledhèk
 child DEM hear thunder
 ‘the child heard the thunder’
- b. bócah kaé ngrungòk-aké bledhèk
 child DEM AV.hear-APPL thunder
 ‘the child listened to the thunder’

Thus *-i* and *-aké* are not necessarily valency-increasing, unlike traditional definitions of causatives and applicatives (Dixon & Aihkenvald 2000).

2.3 Transitivity with non-verbal stems

The suffixes *-i* and *-aké* not only attach to verbal stems but also to nouns, adjectives and prepositions to derive verbs. Consider, for example, derivation with *panas* ‘hot’ and *buruh* ‘servant’, where both suffixes ostensibly have the same meaning:

- (18) a. aku manas-aké pangan-an
 1SG AV.hot-CAUS eat-NOMIN
 ‘I heat up the food’

- b. aku manas-i pangan-an
1SG AV.hot-CAUS eat-NOMIN
'I heat up the food'
- c. Peter mburuh-i aku
Peter AV.servant-CAUS 1SG
'Peter employs me'
- d. Peter mburuh-aké aku
Peter AV.servant-CAUS 1SG
'Peter employs me'

Sneddon (1996: 87) suggests that the difference between *panasi* and *panaskan* in Indonesian is that *-kan* marks the object as undergoing a change-of-state, whilst *-i* marks the object as the goal or location. Thus *panasi* means to apply heat to something, whilst *panaskan* means to make something hot. A similar explanation seems to apply in Javanese where the use of *manasi* is more appropriate when describing an activity, whilst *manasaké* implies that the food is hot as a result. Equally, *mburahi* suggests a sense of obligation on the part of the employee, whilst *mburuhaké* is more indirect and simply highlights the fact that the individual has become employed. Indeed, the various uses of *-aké* share a sense of indirectness in that the action is construed as controlled by some external force/motivation. Thus *-i* derivations tend to imply intention on the part of an agent, whilst *-aké* derivations tend to imply a resultant change in the undergoer.

2.4 Dative/locative alternations

The final point of interest regarding *-i* and *-aké* is their involvement in alternations that facilitate different object linking options, much like the so-called dative and spray-load alternations in English (c.f., Levin 1993). In both instances, *-aké* profiles the displaced (moved) theme,⁵ whereas *-i* profiles the goal/recipient, in the sense of Fillmore (1977) and Langacker (1987):

- (19) a. Charlotte nyemprèt-i kembang karó banyu
Charlotte AV.spray-APPL flowers with water
'Charlotte sprayed the flowers with water'
- b. Charlotte nyemprèt-aké banyu menyang kembang
Charlotte AV.spray-APPL water towards flowers
'Charlotte sprayed water onto the flowers'
- (20) a. aku nguwéh-i Laura buku
1SG AV.give-APPL Laura book
'I gave Laura a book'
- b. aku nguwéh-aké buku menyang Laura
1SG AV.give-APPL book to Laura
'I gave a book to Laura'

⁵ Sometimes referred to as the 'conveyance meaning' (Wolff 1980: 201).

Indeed, in some sense the profiling of locative/goal or patient/beneficiary roles is constant across the functions discussed above.

2.5 Summary

Both *-i* and *-aké* have a range of morphosyntactic and morphosemantic functions, some of which are valency-increasing and some of which are valency-preserving. The particular use seems to depend on the semantics of the base verb and the nature of its arguments. The following patterns are illustrative and will be returned to in Section 4:

Table 1.

Pattern	Example
1. Verbs which only take <i>-i</i>	<i>tresnó</i> ‘love’ → <i>nresnani</i> ‘love’ (progressive)
2. Verbs which only take <i>-aké</i>	<i>nyair</i> ‘melt’ → <i>nyairaké</i> ‘melt sth’ (causative)
3. Verbs which take <i>-i</i> as an applicative and <i>-aké</i> as a causative	<i>ceblòk</i> ‘fall’ → <i>nyeblòki</i> ‘fall on’ / <i>nyeblòkaké</i> ‘drop’
4. Verbs which take <i>-aké</i> as an applicative and <i>-i</i> as an aspectual marker	<i>nulis</i> ‘write’ → <i>nulisi</i> ‘write’ (intensive) / <i>nulisaké</i> ‘write for someone’ ⁶
5. Verbs which take both <i>-i</i> and <i>-aké</i> as causative, increasing valency	<i>wedi</i> ‘be afraid’ → <i>medèni</i> ‘frighten’ / <i>medènaké</i> ‘make frightening’
6. Verbs which take both <i>-i</i> and <i>-aké</i> where <i>-i</i> is valency increasing and <i>-aké</i> valency preserving	<i>mangan</i> ‘eat’ → <i>mangani</i> ‘feed’ / <i>manganaké</i> ‘give as food’
7. Verbs which take <i>-i</i> for locative/goal and <i>-aké</i> for displaced theme, valency preserving	<i>nyempròt</i> ‘spray’ → <i>nyempròti</i> ‘spray [GOAL] with [LIQUID]’ / <i>nyempròtaké</i> ‘spray [LIQUID] onto [GOAL]’

3. Polysemy vs homonymy

Polysemy versus homonymy is a common debate in Austronesian linguistics (Naerssen 2011) and more widely regarding grammatical morphemes (Haspelmath 2003). The majority of works on Javanese simply list the meanings of *-i* and *-aké* without addressing the question of whether the affixes are polysemous or not. Poedjosoedarmo (1974) is an exception in her discussion of thematic roles in Javanese. She argues that a single historical origin for each affix can be assumed on the basis of cognate forms in Malay and the Philippine languages but suggests that they should be considered distinct forms in a description of contemporary Javanese (Poedjosoedarmo 1974: 274).

⁶ Note that *nulis* can also take *-i* and *-aké* in a second sense of ‘write on’ in which case *-i* and *-aké* alternate as illustrated 2.4. However, in the sense of writing a letter it is important that *nulisaké* can never mean ‘write to someone’ but only ever ‘write for someone’.

The debate within Indonesian linguistics has been somewhat more explicit. Consequently, this article will summarise the arguments for and against polysemy in the cognate Indonesian affixes *-i* and *-kan* since many can be applied to Javanese as a closely related language (Blust 2009). Analyses within Relational Grammar argued that the affixes marked a single process of promotion which had different outcomes depending on the verb class (Chung 1976, Vamarasi 1999). Kroeger (2007), however, argues that the patterns are better explained if we assume two distinct uses: one morphosyntactic and one morphosemantic. He suggests that *-kan* should be understood as *-kan₁* and *-kan₂* following Purwo (1995):

- (21) a. *-kan₁* is morphosemantic.

It specifies that one argument causes another to change location, deriving monotransitive verbs. It alternates with *-i*, indicating that the direct object is a displaced theme.

- b. *-kan₂* is morphosyntactic.

It is a benefactive applicative and contrasts with *-kan₁* as it entails the non-derived form, whilst *-kan₁* does not. Moreover, the affectedness implied by verb is not altered and *-kan₁* seems to be optional whereas benefactive objects are only acceptable in the presence of *-kan₂*.

Kroeger argues that a uniform analysis such as Chung (1976) is problematic given cases where a particular suffix is ambiguous between benefactive applicative and causative meanings⁷ (Purwo 1995):

- (22) a. ibu menjahit-kan saya baju [BENEFACTIVE]
 mother AV.sew-kan 1SG shirt
 ‘mother sewed me a shirt’
- b. saya menjahit-kan baju ke tailor [CAUSATIVE]
 1SG AV.sew-kan shirt to tailor
 ‘I had my shirt sewn by the tailor’

In addition, he points to Sirk (1978) and Mead (1998), who reconstruct two distinct affixes *-*kən* and *-*akən* for an early stage of Proto Malayo-Polynesian. Though Kroeger admits that phonological evidence for *-kan₁* and *-kan₂* deriving from different sources is sparse, he suggests that this historical argument could explain the presence of homonymy in present day Indonesian.

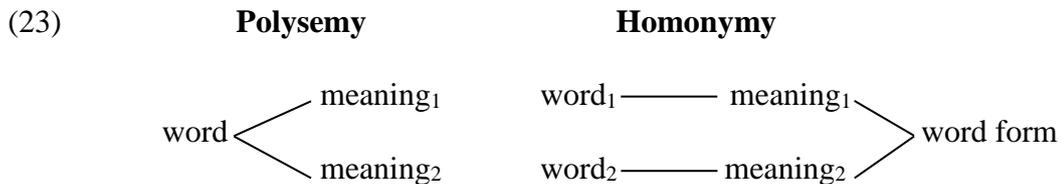
However, Arka et al (2009) have renewed the argument in favour of polysemy, claiming that the core properties of Indonesian *-i* and *-kan* can be predicted on the basis of information carried within the affixes and information within the base predicates. They argue that the aspectual meaning of iterative, for example, follows from the locative component since it adds to the conceptual structure a spatial surface to which the action

⁷ See above for similar examples from Malang Javanese.

is applied. Applying affectedness to an unbounded space produces a repetitive or progressive meaning. Indeed, they cite Levin and Rappaport's (1998) discussion of other instances in which the same marking is used for aspectual distinctions and locative alternation in support of their argument. Consequently, it can be seen that the polysemy/homonymy debate is far from over and worthy of some attention in the case of Javanese.

3.1 How to determine polysemy or homonymy

In order to establish whether the different meanings are a case of polysemy, we must first establish what it means for a word or affix to be polysemous and how polysemy and homonymy are distinguished. Many theories of polysemy have been developed, ranging from formal semantic analyses to cognitive/psycholinguistic (Brugman 1988; Lakoff 1987; Nerlich et al. 2003) and computational semantic approaches (Pustejovsky 1995; Kilgarriff 1992). Yet defining polysemy and homonymy is by no means uncontroversial (c.f., Falkum 2011). Generally, homonymy is assumed to exist when the same phonological form exhibits a series of unrelated meanings. This may arise when the meanings of a once polysemous word become no longer recognisably related; or if two once phonologically distinct words become identical because of sound change (Taylor 1989). Polysemy, in contrast, is regarded as a combination of linguistic, cognitive and communicative factors that result in a single lexical entry having a range of different senses (Falkum 2011: 9). The difference can be represented diagrammatically (following Pethö 2001):



Nonetheless, it is not always clear how to distinguish the two. Traditionally, the following factors were used (Lyons 1977: 550-552; Lyons 1995: 54-60; Jackson & Amwela 2007:68-71):

- (24)
- a. formal identity
 - b. etymology
 - c. speaker intuitions on semantic relatedness

However, each of these tests is problematic. In particular, judgements based on speaker intuitions often do not coincide with etymological accounts. Consider, for example, the case of 'cardinal'. The noun form means both a leader in the Roman Catholic Church and a North-American songbird of the bunting family (Falkum 2011: 17). Etymologically, the two senses are related since the bird was so-named on account of its red colour, likened to the cassocks worn by Church cardinals. Nonetheless, the average speaker of English would most likely consider the meanings to be completely unrelated. Indeed, as Lyons (1977) points out, semantic relatedness is a matter of degree and hugely subjective. Moreover, Pethö (2001) details experimental evidence to suggest that in many cases speakers have no strong/consistent intuitions as to whether lexemes are polysemous or homophonous. Therefore, though speakers of Javanese have described

the many senses of *-i* and *-aké* as completely different (Yacinta Kurniasih, p.c.), a structured analysis of speaker intuitions was felt to be beyond the scope of the article and likely to be inconclusive in any case.

The question of etymological relationship is equally problematic since diachronic states of homonymy can develop into present day polysemy and vice versa. For this reason, I follow Lobben (2010) in arguing that etymology cannot be the decisive factor in determining whether a state of polysemy exists. This means that Kroeger's (2007) historical argument in favour of homonymy holds little weight. Similarly, the fact that Old Javanese *-akén* did not have the benefactive applicative meaning (c.f., Poedjosoedarmo 2002: 323) does not determine whether or not benefactive *-aké* involves homonymy in present day Javanese.

Consequently, Taylor (1989), Croft (1990: 166) and Haiman (1985) argue that the only way to distinguish whether polysemy or homonymy is the correct analysis of a given situation is to conduct cross-linguistic, typological comparison. This they base on Bolinger's (1977) isomorphic principle, which suggests that recurrent identity of form is likely to reflect identity of meaning. As Taylor (1989: 104) suggests, homonymy is an 'accidental phenomenon' and therefore language-specific, meaning that one would not expect the same accident to recur in multiple languages. Hence, if the same patterns of polysemy are found in language after language, it is hard to dismiss the pattern as accidental. Indeed, as Haiman (1974: 341) argues, 'by statistical law it ceases to be a coincidence at all'. With this in mind, this article will examine the cross-linguistic evidence in favour of causative/applicative polysemy.

3.2 The cross-linguistic situation

The idea that causatives and applicatives are completely separate is not only perpetuated in basic textbooks (c.f., Kroeger 2004) but in a number of theoretical articles, which describe the situation of having a single affix for both morphosyntactic and morphosemantic alternations as being 'uncommon' (Kroeger 2007; Dixon and Aikhenvald 2000). Contrary to this claim, however, none of the key features of *-i* and *-aké* are rare or even restricted to the Austronesian language family.

3.2.1 Causative/applicative polysemy

Causative/applicative polysemy has been well documented in Western Austronesian languages, including Old Malay, colloquial Indonesian, Nias, Mori Belait and Kambara (Himmelmann 2005: 170). It is also found in a range of genetically unrelated languages including Chukchee; many Amazonian languages; Australian Aboriginal languages (Austin 2005) and Uto-Aztecan languages (Kulikov 2001: 894). Indeed, Austin (2005) discusses a range of Australian Aboriginal languages which appear to show similar patterns to Malang Javanese in the sense that the same affix can have different syntactic effects depending on the verb root that it attaches to. In Pitta-Pitta, for example, the affix *-la-* forms causatives when added to non-volitional intransitives (such as 'fall'), and applicatives when added to volitional intransitives (such as 'play') (Austin 2005: 12). Equally, in Yukaghir, the suffix *-tê-* has a causative meaning when added to stative verbs like 'sit' and what Lobben (2010) terms an 'action away' meaning, similar to the conveyance meaning of *-aké*, when used with verbs of motion like 'go' (Maslova 1993: 274). In Tariana (North Arawak, Brazil) the suffix *-ita* has a number of functions,

which include causativisation, making ambitransitive verbs necessarily transitive, and signalling that a peripheral argument, such as a locative, requires explicit expression (Aikhenvald 1998: 56-57).

Causative/benefactive polysemy in particular is found in the Afroasiatic language, Hausa, where the verbal suffix *-aŕ* is used in causative, caused motion and benefactive constructions (Lobben 2010: 60). The causative use implies a general intensive meaning, such that the causee generally lacks control of the activity (Lobben 2010: 72). A further similarity with Javanese is the high degree of affectedness that Lobben (2010) notes: she argues this is accompanied by a sense of completedness and certainty that an event has taken place. Moreover, Hausa is not alone – languages that have causative/benefactive syncretism include:

Table 2.

Language (family)	Example
BellaCoola (Salishan)	The suffix <i>-tu-</i> is either causative or benefactive when the object is capable of acting spontaneously (Davis & Saunders 1997)
Wolof (Atlantic)	The suffix <i>-al</i> has causative and benefactive/comitative uses (Comrie 1981: 183; Creissels & Nougier-Voisin 2004)
Hualapai (Hokan)	The suffix <i>-wo</i> derives both causative and benefactive forms (Ichihashi-Nakayama 1996)
Creek (Muskogean)	The direct causative suffix <i>-ic-</i> (and phonological variants) sometimes has benefactive/applicative meanings as in <i>apil-itá</i> ‘to laugh’ vs. <i>apileyc-itá</i> ‘to laugh at’ rather than ‘to make laugh’ (Martin 2000: 396)
Alamblak (Sepik Hill, Papuan)	The verb <i>hay</i> in serial verb constructions has both causative and benefactive meanings (Bruce 1988)

In addition, Nedyalkov and Silnitsky (1973: 14) show that many languages combine causative meaning with factive/assistive meanings (i.e. ‘help to do something’) which have a high degree of similarity with benefactive constructions. These include: Aymara, Avarian, Georgian, Quechua, Turkish languages, Lezghian, Nanian, Mongolian, Gilyak, Japanese, Evenki, Zulu, Swahili, Armenian, Gothic, Arabic, Coos, Estonian, Takelma and Wappo. Languages that use the same prepositions or postpositions for expressing causative and benefactive are also common, including Basque, French, Hebrew, Hindi and Kannada (Lobben 2010). So in fact, rather than being uncommon, it seems that Aikhenvald (1998: 58) is right in suggesting that ‘if a causative derivation has another meaning, this is most likely to be applicative’. Indeed, this makes conceptual sense if we assume, following Lichtenberk (1993: 14), that both causatives and applicatives enable ‘the inclusion of the other, complementary, core participant in a transitive situation.’

3.2.2 Causative/aspectual polysemy

Cross-linguistically, it is fairly common for an affix to have both valency-increasing and valency-preserving (or even valency-decreasing) functions (Nedyalkov & Silnitsky 1973). Causatives are not always valency-increasing, as can be seen in Hindi and Malayalam (T. Mohanan 1991), and agentivisation can simply imply that the subject is volitional or show the affectedness of the object and/or perfectivity as is the case for Navajo (Athapaskan) (Kibrik 1993). Indeed, there is a common Athapaskan causative suffix *-l-* which among other meanings can signal intensification (Kibrik 1993). Letuchiy shows that the polysynthetic language Adyghe (West Caucasian) has a number of derivational markers with increasing/decreasing polysemy, such as the benefactive suffix which also has a possibilitive meaning. Marten and Kula (2012) demonstrate that applicative morphology in Bemba (Bantu) is sometimes optional, and used to focus a locative phrase rather than encoding valency increase. Moreover, double causation and aspectual meanings are marked with the same suffix in numerous languages from Hunzib (North Caucasian), to Tuvan (Siberian Turkic) to Oromo (Cushitic) (van den Berg 1995; Kulikov 1999; Dubinsky, Lloret, and Newman 1988).

Other languages in which causative morphemes have an aspectual meaning include:

Table 3.

Language (family)	Example
Aleut (Eskimo)	The causative morphemes <i>-ya-</i> and <i>-chri</i> indicate multiplicative action (Golovko 1993)
Arabic (Central-Semitic)	Root consonant germination can signal both causative and intensive meanings (Ford 2009)
Ainu (Language isolate)	The suffix <i>-jar</i> marks both causatives and the plurality of objects (Nedyalkov & Silnitsky 1973: 20)
Piapoco (North Arawak)	The causative morpheme can mark controlled perception (Klumpp 1990)
Atong (Tibeto-Burman)	The causative marker <i>-et</i> can signal an increase in A's volition, intention or effort when used with transitive verbs (van Bruegel 2008: 397-400)

As to the semantic relatedness of causatives and iteratives, Kulikov (2001: 894) suggests that both imply a greater degree of effectiveness since causing someone to do something and doing something repeatedly both suggest increased external force. This view is shared in more recent works on causation and iteration, such as Kölligan's (2007) claim that both represent an increase in agentivity.

3.3. Summary

Both causative/applicative and causative/aspectual polysemy are cross-linguistically much more common than has been expressed in the mainstream literature to date.⁸ Indeed, causative and applicative polysemy is found in most language families known to have applicative morphology, and for an affix to have both valency-increasing and

⁸ Zúñiga & Kittilä (2010) and Aikhenvald (2011) are some recent counter-examples.

valency-preserving functions is equally common. For this reason, I suggest that the many meanings of *-i* and *-aké* constitute a state of polysemy following the isomorphic principle. This would provide a natural explanation for the formal identity of the suffixes. To further strengthen the argument, this article will now present a preliminary analysis that aims to account for the patterns of distribution described in Section 2.

4. Towards an analysis of *-i* and *-aké*

In the literature, there have been many proposals on how to account for causatives and applicatives from the perspective of theoretical syntax (Baker 1988; Marantz 1984; Alsina 1996). Transformational analyses such as Baker's (1988) incorporation account are less easily extended to non-configurational languages and cases of split-intransitivity (Austin 2005; Van Valin 1992) and also tend to treat causatives and applicatives as having different underlying structures. Consequently, they are less suited to the task of analysing causative/applicative polysemy.⁹ This article instead presents an analysis in the framework of Lexical Functional Grammar (LFG) (c.f., Bresnan 2001).

This account has the advantage of existing LFG theoretical analyses that directly address the question of polysemy (Austin 2005; Arka et al 2009). A central feature of these analyses is Lexical Mapping Theory (LMT), which accounts for the linking between argument structure and functional structure. It is based on four components: a hierarchy of thematic roles; feature decomposition of grammatical functions; intrinsic and default classification of roles; and well-formedness constraints (Bresnan & Kanerva 1989: 22). Whilst LMT provides a good account of alternations such as passive and locative inversion, the use of thematic roles has been highly criticised (see below). Thus this article presents the main tenets of the existing analyses before proposing an alternative account and discussing its implications for linking theories.

4.1 A predicate composition account of causatives/applicatives

Following Alsina (1992), Alsina and Joshi (1991) and T. Mohanan (1991), LFG typically assumes that causatives are formed through the combination of a cause predicate and a base predicate. The cause predicate is considered to be a three-place predicate involving an agent, a patient and the caused event. Predicate composition creates a new argument which is both an argument of the cause predicate and the embedded predicate. This is known as argument fusion and is indicated by a connecting line (Alsina 1992: 521):

$$(25) \quad \text{CAUSE} < \text{ag} \text{ pt} \overbrace{\text{PRED} < \dots \theta \dots >}^{\text{caused event}} >$$

Alsina motivates his analysis on the basis that it explains variation in causative constructions. That is, the patient role of the causative predicate can either fuse with the logical subject (highest thematic role) of the base predicate or the logical object (affected role), depending on what is perceived as the affected entity (Alsina 1992: 522).

⁹ For further discussion of the merits of non-transformational approaches see Austin (2005) and Arka (1993).

Further support for a three-place cause predicate comes from the use of ditransitive verbs as causative morphemes in various languages, from Tzotzil to Chamorro (Aissen 1983, Gibson 1980).

To account for causative/applicative polysemy, Austin (2005: 32) suggests that applied structures can also be derived using predicate composition. He assumes a general predicate AFFECT with a volitional external argument and a non-volitional internal argument. For intransitives, fusion takes place with the logical subject (single argument S) of the base predicate and either the external or the internal argument of AFFECT. For non-volitional verbs the sole argument of the base PRED fuses with the internal argument creating a causative (Austin 2005: 32):

$$(26) \quad \begin{array}{ccccccc} \text{AFFECT} < \text{Ext Arg} & \text{Int Arg} & \text{PRED} < \text{Arg} > > \\ & +\text{vol} & -\text{vol} & & -\text{vol} \\ & & & \underbrace{\hspace{1.5cm}} & & & \end{array}$$

For volitional verbs, however, the sole argument of the base PRED fuses with the external argument, whilst the internal argument fuses with a lower role creating an applicative:

$$(27) \quad \begin{array}{ccccccc} & & & \underbrace{\hspace{2.5cm}} & & & \\ \text{AFFECT} < \text{Ext Arg} & \text{Int Arg} & \text{PRED} < \text{Arg} > & \text{Arg} > \\ & +\text{vol} & -\text{vol} & & +\text{vol} & -\text{vol} \\ & & & \underbrace{\hspace{1.5cm}} & & & \end{array}$$

Arka et al (2009) suggest that a similar analysis can be applied to *-i* and *-kan* in Indonesian and that the different functions of the morphemes result from different fusion options: double fusion (for applicativisation or valency-preserving effects) and single fusion (for causativisation). The analysis not only has cross-linguistic explanatory power, but is also computationally plausible as it has been implemented in XLE, which further demonstrates the strength of the theory (Arka et al 2009). I will now show how such an analysis would work for Javanese.

4.1.1 Predicate composition in Javanese

The suffixes *-i* and *-aké* can be analysed as three place predicates with the following argument structures (c.f., Arka et al 2009):

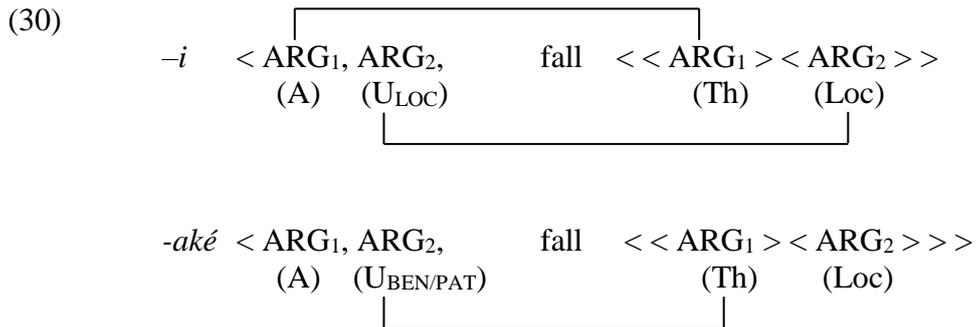
$$(28) \quad \begin{array}{ll} \text{A-structure of } -i: & \\ \text{'PRED}_1 < \text{ARG}_1, \text{ARG}_2, & \text{PRED}_2 < _, \dots >>' \\ \text{(A) (U}_{\text{LOC}}) & \text{either double or single fusion} \end{array}$$

$$(29) \quad \begin{array}{ll} \text{A-structure of } -aké: & \\ \text{'PRED}_1 < \text{ARG}_1, \text{ARG}_2, & \text{PRED}_2 < _, \dots >>' \\ \text{(A) (U}_{\text{BEN/PAT}}) & \text{either double or single fusion} \end{array}$$

Argument fusion is underspecified, allowing for variation depending on the predicate. Yet it follows the general rule that like arguments fuse with like arguments. This allows us to predict the transitivity of the derived structure, depending on the nature of the

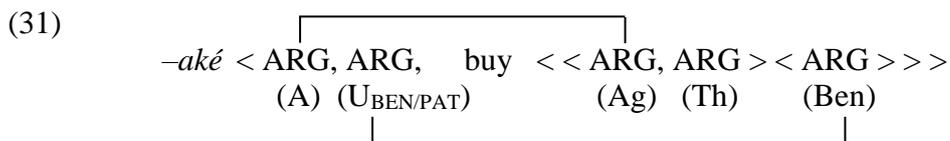
argument that is left unfused. Where the unfused argument is a theme it is encoded as a core argument, resulting in ditransitivity. Where a non-theme argument is unfused, it is realised as an oblique, reflecting the intrinsic classification of non-theme arguments as [-o] in LMT.

Each of the patterns identified in Section 2.5 above follows from the general principle that like arguments fuse. Patterns 1, 2 and 3 share in common the fact that *-i* is typically applicative (or aspectual) and *-aké* typically causative. For example, consider again *ceblòk* ‘to fall’:



In *nyeblòki* ‘to fall on’, ARG₂ of *-i* fuses with the peripheral locative argument of the base predicate. This leaves ARG₁ to fuse with the core argument of the base predicate, creating an applicative. For *nyeblòkaké* ‘to drop’, the causative results from the fusion of ARG₂ with the theme of the base predicate, introducing a new agent into the argument structure of the derived predicate. Where *-i* is ungrammatical, this is because there is no peripheral locative argument in the argument structure of the base predicate (i.e. *nyair* ‘to melt’).

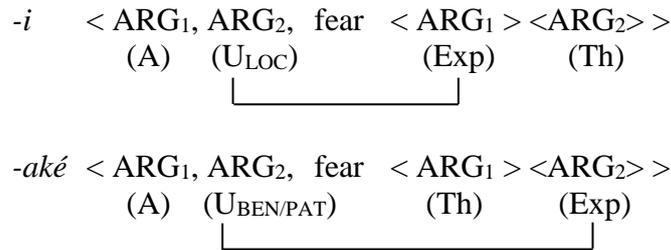
The benefactive use of *-aké* in pattern 4 follows from the same principles as the applicative use of *-i*:



Since the unfused argument in *nukòkaké* ‘to buy sth for someone’ is a theme it is realised as a secondary object according to the principles of LMT. This explains why the benefactive results in ditransitive clauses whereas the other functions of *-aké* do not. The *-i* suffix gives an aspectual meaning when fusion is possible with the theme argument of the base. According to the Arka et al (2009) analysis, the progressive interpretation results as the action is construed as being applied to a locative surface.

Pattern 5, where both *-i* and *-aké* give rise to causative meaning results when the argument of the base predicate can either be construed as a patient or an experiencer:

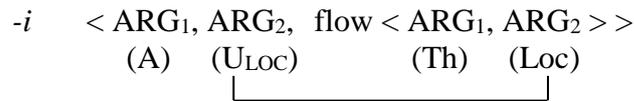
(32)



Medèni ‘to frighten’ results when ARG₁ of *-i* fuses with the experiencer argument of the base predicate to produce a causative construction. The implication that the agent is intentionally acting but that a change-of-state is not necessarily brought about results from the fact that the experiencer is construed as the location/goal of the frightening event (c.f., Butt 2006: 148). *Medènaké* ‘to make frightening’ results when ARG₁ of *-aké* is fused with the stimulus/theme argument of the base predicate giving rise to a causative construction. The semantics of perfectivity and change-of-state are accounted for by the fact that the direct object is a patient.

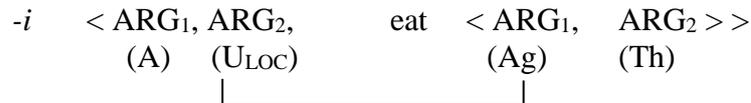
Causative *-i* in pattern 6 results when a transitive base predicate subcategorises for a locative/goal argument and a theme that is left unfused:

(33)

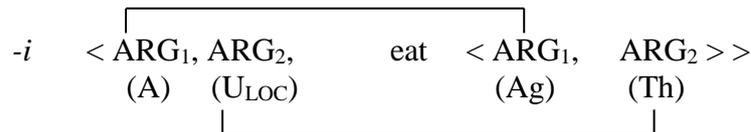


In the case of *mili* ‘to flow’, the ambiguity between causative and applicative uses results from the possibility of also fusing ARG₁ of *-i* with ARG₁ of the base predicate. This explanation extends to the aspectual and causative meanings of *mangani*.

(34) a. CAUSATIVE



b. ITERATIVE



In the causative construal, the patient-like ARG₂ of *-i* fuses with the logical subject of the base predicate as the causee is construed as the affected entity. In the aspectual reading, the agent-like argument of *-i* is fused with the agent of the base predicate, and the patient-like argument fused with the theme. The aspectual meaning again results from the locative component. The object of *mangan* is ordinarily an incremental theme

in the Dowty (1991) sense. Applying the action to a surface, however, gives rise to a pluralisation of object reading since it can no longer be the object by which the completion of the event is measured (c.f., Tenny 1992).

The valency preserving use of *-aké* in pattern 6 is also explained by argument fusion:

$$(35) \quad \begin{array}{ccccccc} & \overbrace{\hspace{10em}} & & & & & \\ -aké & < ARG_1, ARG_2, eat & << ARG_1, ARG_2 >> < ARG_3 >> > & & & & \\ & (A) & (U_{BEN/PAT}) & (Ag) & (Th) & (Go) & \\ & & \underbrace{\hspace{10em}} & & & & \end{array}$$

Unlike (35a) above, for *manganaké* ‘to feed’, ARG₂ is fused with the theme argument of the base predicate, leaving an unfused goal. ARG₁ and ARG₂ are mapped to SUBJ and OBJ respectively following the principles of LMT. Since a goal argument cannot be mapped to OBJ₂ it is realised as an oblique, maintaining the monotransitivity of the clause. This serves to explain why examples (10b) and (10c) are ungrammatical.

Finally, argument fusion explains pattern 7 in which *-i* and *-aké* alternate, profiling a different argument, but without an increase in valency:

$$(36) \quad \begin{array}{ccccccc} & \overbrace{\hspace{10em}} & & & & & \\ -i & < ARG_1, ARG_2, & spray << ARG_1, ARG_2 >> < ARG_3 >> > & & & & \\ & (A) & (U_{LOC}) & (Ag) & (Go) & (Inst) & \\ & & \underbrace{\hspace{10em}} & & & & \\ & \overbrace{\hspace{10em}} & & & & & \\ -aké & < ARG_1, ARG_2, & spray << ARG_1, ARG_2 >> < ARG_3 >> > & & & & \\ & (A) & (U_{BEN/PAT}) & (Ag) & (Th) & (Go) & \\ & & \underbrace{\hspace{10em}} & & & & \end{array}$$

With *nyempròti* ‘to spray [GOAL]’, ARG₂ of *-i* is fused with the locative/goal argument, which is realised as the direct object. The displaced matter is construed as an instrument (which is supported by the use of the instrumental preposition *karó* ‘with’) and is realised as an oblique since it is intrinsically [-o]. With *nyempròtaké* ‘to spray [LIQUID]’, ARG₂ of *-aké* is fused with the displaced theme argument and the locative/goal argument realised as an oblique, following LMT. Thus a predicate composition approach can not only explain causative and applicative patterns using the same analysis but also predicts the resulting transitivity of the clause.

4.2 The case against case: from thematic roles to proto-roles

Despite the apparent explanatory power of Arka et al’s (2009) model, one feature proves less desirable, namely their reliance on thematic roles and the thematic hierarchy that is central to LMT.¹⁰ Thematic roles are problematic since strict definitions are all but impossible and it is difficult to determine the number needed for linguistic analysis (Ackerman & Moore 2001: 19). Indeed, one of the main motivations for thematic roles

¹⁰ Arka et al (2009) assume that thematic roles at a-structure are derived from semantic structures, following Jackendoff (1990). Yet this fails to address common criticisms against the thematic hierarchy, including the redundancy of repeating information (Alsina 1996: 37).

was the ability to generalise, yet Levin and Rappaport (2005) show that it is not possible to formulate a single hierarchy that captures all the generalisations made about the links between arguments and their syntactic realisation. Newmeyer (2002) lists 18 separate hierarchies, none of which work across the board. Furthermore, ‘symmetrical’ predicates such as ‘resemble’ do not allow their arguments to be classified as one role over another (Ackerman & Moore 2001: 24). This has led many linguists to move away from thematic roles in their conception of argument structure (Dowty 1991; Alsina 1996; Ackerman & Moore 2001). Consequently, I now present an alternative model based on proto-roles.

4.2.1 Proto-roles and linguistic analysis

The basic principle of a proto-roles account is that the only roles needed for the analysis of argument structure are Proto-Agent (P-A), Proto-Patient (P-P) and/or neither. Which argument takes on which role is determined by the set of entailments for each argument and the proto-roles are then linked to syntactic functions via an argument selection principle (c.f., Dowty 1991; Dowty 1998). The entailments are semantically motivated, but for a discussion of the grammatical relevance see Ackerman and Moore (2001: 30-34).

I propose that *-i* and *-aké* introduce the following entailments:

(37)	<i>-i</i>	ARG ₁ P-A properties: Volitional Has intention/control	ARG ₂ P-P properties: Causally affected Non-volitional Stationary relative to movement/ Experiences state
	<i>-aké</i>	ARG ₁ P-A properties: Volitional	ARG ₂ P-P properties: Causally affected Non-volitional Moves along a path/undergoes change-of-state

Dowty’s (1991) original properties are adapted to account for the importance of movement in Javanese morphosyntax following the well-documented metaphor that a state is a location and a change-of-state a movement (Lakoff 1993, Pinker 2007). The grouping of movement and change-of-state is further motivated by the fact that both imply a scalar change in the sense of Beavers (2006). The property of (intentional) control is adopted, following Butt (2006), to account for the directness associated with *-i*. I suggest that the indirectness of *-aké* follows from the fact that ARG₁ is underspecified for this property, allowing for an accidental implication. As before, argument fusion follows the general principle that like arguments tend to fuse, where the similarity of arguments is now defined in terms of shared entailments:

- (39) b. *bócah kaé* *ngrungòk-aké* *bledhèk*
 child DEM AV.hear-APPL thunder
 ‘the child listened to the thunder’

Thus a proto-roles account is motivated by the controversy surrounding thematic roles but also by the fact that it can better account for the range of meanings.

4.3 Consequences for LMT

One of the advantages of Arka et al’s (2009) analysis was the ability to predict the resulting transitivity of the clause based on the principles of LMT. Yet, it is equally possible to predict mapping from argument structure to grammatical structure using proto-roles (c.f., Dowty 1991). Indeed, proto-role entailments have often been incorporated into a version of LMT, including Singh (1992) for Hindi causatives; Zaenen (1993) for Dutch unaccusatives and Kelling (2003) for French psych verbs. These accounts, though they vary in their formulations, tend to assign the features [r] and [o] on the basis of the relative number of P-A and P-P properties. The motivation for classifying an argument as [+o] if P-P properties outnumber P-A properties is clear in contrast to the intrinsic classification of certain thematic roles. Following Levin (2009: 5), I suggest that event structure should also be taken into account in linking, since less embedded arguments tend to be more syntactically prominent.¹¹ This would provide some explanation for why causation seems to outrank all other P-A properties (Davis and Koenig 2000: 75-76). I therefore suggest provisional mapping principles with the proviso that further amendment may be needed:

- (40) Non-embedded arguments = [-r]
 Embedded arguments = [+r]
- Arguments with more P-A properties = [-o]
 Arguments with equal P-A and P-P = [-o]
 Arguments with more P-P properties = [+o]

The resulting transitivity of the clause follows from the nature of the unfused argument as before. Yet rather than ditransitivity being the product of an unfused theme, it results when the unfused argument has more P-P properties. This gives a classification of [+r] and [+o] and is mapped to a secondary object following the revised LMT. In contrast, if the unfused argument has more P-A properties, as in the causee in indirect *-aké* causatives, then the argument is classified as [+r], [-o] and mapped to an oblique.

4.4 Summary

Causative/applicative polysemy can be explained in terms of different argument fusion options. Yet a more interesting issue emerges, which relates to the wider question of how to model argument structure: how do these options arise? Following Arka et al (2009), I argue that the governing principle of argument fusion is that like arguments tend to fuse. However, instead of defining arguments in terms of thematic roles, I suggest a proto-roles account of *-i* and *-aké*. This avoids the controversy surrounding

¹¹ I understand embedded arguments as those that are not fused with the arguments of *-i* and *-aké* rather than the traditional understanding of predicate decomposition.

thematic roles and can better explain the patterns in Section 2. Moreover, proto-roles can predict argument realisation without relying upon intrinsic classifications.

5. Conclusion

In this article, I have examined the inadequacies of traditional definitions of causatives and applicatives when accounting for *-i* and *-aké* in Javanese. I have shown that both suffixes have a range of causative, applicative and aspectual meanings. Moreover, I have argued that these meanings are in a polysemous relationship – contrary to the claims of Poedjosoedarmo (1974). This is not only supported by the co-occurrence of similar patterns in a wealth of genetically unrelated languages but also by the possibility of constructing a theoretical analysis that accounts for causative/applicative polysemy in a straight-forward manner. The data further supports a proto-roles analysis of argument structure over a model based on thematic roles, which allows us to move away from an aspect of LMT that has proved controversial. The aim of the final section has been to outline a proposal for how proto-roles could be extended to account for the phenomenon of causative/applicative polysemy in Javanese rather than providing a definitive answer.

Consequently, this article presents many opportunities for future work, including developing an all-round theory of argument linking based on proto-properties and incorporating this into LFG. In this light, I present the case for polysemy in Javanese in support of the rising case against Fillmore (1968) and the reign of thematic roles.

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7. Abbreviations

The following abbreviations are used in this article.

1	first person	NP	noun phrase
APPL	applicative	OV	objective voice
AV	active voice	POSS	possessive
CAUS	causative	PP	prepositional phrase
DEF	definite	SG	singular
DEM	demonstrative		
ITER	iterative		
NOMIN	nominalisation		

Glossing follows the Leipzig Glossing Rules.

8. Appendix: The Javanese Language

For reasons of space, this appendix is only available in the PDF version of the Working Papers. Please download it from the SOAS Webpage for the Department of Linguistics or contact the editor.