

On modality and finiteness in Indonesian: complexities of =*nya* nominalisation

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1. Introduction*

1.1 Tense and Aspect

Tense and Aspect are two related concepts. Following Comrie (1985: 1, 6) we can define tense as ‘grammaticalisation of location in time’ and aspect as ‘grammaticalisation of expression of internal temporal constituency’ (of events, processes, etc.). The key point is the notion of grammaticalisation, which includes two important linguistic properties, namely morphosyntactic opposition and obligatoriness. Thus, English has tense, because there is a systematic opposition of verbal forms (e.g. *kick* vs. *kicked*) and related syntactic constraints in English. Importantly, the expression of tense is obligatory: the grammar requires that any situation, if expressed, must belong to a particular tense (unless it is grammatically licensed to be ‘tenseless’, e.g. in subordinate non-finite structures). In English, an event taking place at a particular point in the past must be expressed in the simple past tense, e.g. *I saw John yesterday*. Note that the adverbial *yesterday* provides explicit information for this. While the information is redundant, the verb form in the simple past tense is required by the grammar; otherwise the sentence is not grammatical.

While there may be some restriction on the expression of situation in relation to certain temporal points in Indonesian, we can say that Indonesian has no tense. That is, there are no systematic morphosyntactic classes in correlation with situations (events/states) that have distinct temporal axis. For example, even though we can speak of ‘past’ or ‘future’ time in Indonesian, there is no specific systematic (paradigmatic) opposition in verbal morphology in Indonesian which correlates with the ‘past’ and ‘future’ distinction. The same verb form, e.g. *datang* ‘come’ in (1), can be used in relation to any temporal point. In fact, there is no verbal inflection in Indonesian that feeds into syntax when adverbials of distinct temporal points are used.

- (1) *Dia datang kesini (dahulu sekali/ tahunlalu/ kemarin/ tadi/ besok/ ...)*
 3s come here in.the.past once year past yesterday earlier tomorrow
 S/he came/ will come here (once before/ last year/ yesterday/ earlier/ tomorrow/ ...)

Temporal adverbials themselves are not obligatorily required. Without them sentences are acceptable, and temporal points may be inferred from the context. In other words, the adverbials are present when speakers want to have the temporal points explicit and certain temporal points (in semantics) do not require certain distinct verbal forms.

Aspects are concerned with the internal temporal structures of State of Affairs SOAs.¹ They include conceptions of SOAs from a ‘here-and-now’ of speech along parameters such as whether the SOAs are presented as (resulting) states or processes, temporally bounded or not, extending back in time and/or possibly continuing into the future (Timberlake 2007).

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¹ The term State of Affairs (SOAs) (Sag and Pollard 1991) is used as a general term to cover ‘events’ and ‘states’.

These conceptions are the result of the interplay of both lexical and contextual resources. Lexically related aspectual properties (or lexical Aspects, for short) are often discussed under the rubric of ‘aktionsart’ (Smith 1991; Tenny 1992, 1994). Aktionsart reflects semantic properties of aspects, which have been known to play a role in grammar (Van Valin 1993; Van Valin and LaPolla 1997; Van Valin 2001).

The contextual Aspect (or Contextual Aspect) is the speaker’s evaluation and presentation of the SOA from the here-and-now perspective. This may be grammaticalised in certain languages; hence we can talk about grammaticalised contextual aspect (or grammatical Aspect for short). For example, the perfective aspect in English signals a complex perspective of a SOA from a here-and-now point of view in relation to past, whose expression requires the past participle verb form. Importantly, it is in complementary distribution with the simple past tense (even though both are associated with past temporal reference), e.g. *I already saw him (yesterday)* vs. *I have seen him* vs. **I have seen him yesterday*.

Indonesian shows no grammatical Aspect. The expressions of perfective and progressive meanings are not subject to systematic grammatical requirement. For example, the perfective is expressed by *sudah* or *telah* and progressive by *sedang* but the presence of these items does not impose any special verbal form. Consider:

- (2) *Mereka sedang/ telah makan.*
 3p PROG/ PERF eat
 ‘They have eaten/they are eating.’

Unlike English, *telah* is compatible with a specific temporal point in the past such as *tadi*:

- (3) *Dia sudah datang tadi.*
 3s PERF come just.now
 ‘S/he already came in just now.’

Progressive/repetitive aspect can be also expressed by *-i* affixation as in (4), or by reduplication as in (5)a. However, reduplication does not always express progressive aspect. With negation, for example, it expresses modality showing a speaker’s evaluation of unrealised expectation.

- (4) *Ali me-mukul-i kepala=nya sendiri.*
 A. AV.hit head=3sg.poss self
 ‘Ali is beating his own head.’

- (5) a. *Ali me-mukul-mukul kepala=nya sendiri.*
 A. AV.hit-RED head=3sg.poss self
 ‘Ali is beating his own head.’

- b. *Ali tidak masuk-masuk ke rumah.*
 A. NEG enter-RED to house
 ‘Ali didn’t enter the house (while he’s expected to do so).’

In short, there is no dedicated grammatical/morphological exponence for Aspect in Indonesian.

1.2 Modality and evidentiality

Modality is a semantic category signifying notions of what Timerlake (2007) calls ‘alternative realities mediated by an authority’. Modality types include deontic, epistemic, jussive, evidentiality, attitudinal, indicative and interrogative. Mood is a label for a grammatical category that expresses modality (Lyons 1986).

The authority in modality is typically the speaker, but possibly others. In epistemic modality, e.g. expressed by modal auxiliaries such as *may/might* in English, the speaker is the authority asserting possible validity of a SOA on the basis of an implicit condition. In evidentiality, the evidence or source of knowledge that the speaker uses in evaluating or reporting the situation comes from other sources. In certain languages, this is grammaticalised: the speaker must use certain verbal morphology signifying visual, audio, inferential or quotative evidence. For example, in Tuyuca (Eastern Tucanoan; Colombia and Brazil; Barnes 1984: 260, quoted in Haan (2008)) the evidential marker is a portmanteau suffix that also expresses tense, person, number and gender.

- (6) *mũtũru bisi-ti* (Tuyuca)
 motor roar-NON.VIS.OTHER.PST
 ‘The motor roared.’ (I heard it)

As noted earlier Indonesian has no grammatical tense and aspect. It does not have mood either. Modality is expressed by means of adverbials and modal auxiliaries. Examples of modals (*bisa* and *harus*) are given in (7) below. These modals do not impose any syntagmatic restriction on the form of the following verb.

- (7) a. *Mereka bisa/ harus/ pasti (sudah) datang.*
 3p can should must PERF come
 ‘They can/should/must (have) come.’

While having no grammatical TAM, Indonesian shows certain syntactic restrictions on how temporal, aspectual and modal meanings can be expressed. This shows up in finiteness and nominalised predicates discussed below.

2. Finiteness

A finite clause is a clause which expresses a SOA independently anchored to a particular temporal point. In languages with grammatical TAM, the coding of this independent temporal axis is expressed in the main/matrix verb complex by verbal inflection. The inflection is typically on the auxiliary part, if there is an auxiliary. A non-finite clause signifies a SOA without such an independent temporal anchor. For example, in the following example, the main clause is a finite clause with *wanted* in the past tense form, expressing past reference. The verb *to come* is the predicate of the embedded clause. It is a *to*-infinitive verb, which is non-finite. It expresses no temporal reference.

- (8) *John wanted to come over here for the weekend.*

On the definition of finiteness just outlined, Indonesian shows finiteness even though it has no grammatical tense. The following is a finite clause in Indonesian:

- (9) *Mereka (akan) datang (besok).*
 3p FUT come tomorrow
 ‘They will come tomorrow.’

The temporal reference is explicitly expressed by the auxiliary *akan* indicating future time, and by the adverbial *besok* ‘tomorrow’. Note that the presence of these explicit temporal references is optional. This is indicated by placing them in brackets.

Evidence for finiteness comes from the fact that a non-finite clause does not allow the auxiliary *akan*, even when the intended temporal point is future. Consider the contrast:

- (10)a. *Mereka ingin [datang besok].*
 3p want come tomorrow
 ‘They want to come tomorrow.’
 b. **Mereka ingin [akan datang besok].*
 FOR: ‘they want to come tomorrow.’

Here are more examples showing finiteness constraints:

- (11)a. *Dia akan/sudah/sedang makan* (finite clause)
 3s FUT/PERF/PROG eat
 ‘S/he will eat/has eaten/is eating.’
 b. *Saya menyuruh dia [makan]* (the clause in square brackets = non-finite)
 1s AV.ask 3s eat
 ‘I asked him to eat.’
 c. **Saya menyuruh dia [akan/sudah/sedang makan].*
- (12)a. *Orang itu mendorong saya [_jatuh].* (“small clause”)
 person that AV.push 1s fall
 ‘The person pushed me (and as a result I) fell off.’
 b. **Orang itu mendorong saya [_ akan/sedang/sudah jatuh].*
- (13)a. *Dia datang (sambil) menangis.*
 3s come while AV.cry
 ‘S/he came while crying.’
 b. **Dia datang [(sambil) sedang menangis].*
- (14)a. *Saya belajar menembak].* (object/complement clause)
 1s study AV.shoot
 ‘I’m studying shooting.’
 b. **Saya belajar bisa menembak.*
 c. *Saya belajar gar (bisa) menembak.* (purposive clause)
 1s study so.that able AV.shoot
 ‘I am studying so that I can shoot.’

To conclude, Indonesian shows finiteness constraint even though it does not have grammatical tense. In certain cases, temporal reference can still be made to a non-finite clause but this must be done via adjuncts, not via a finite element. This provides evidence that, while there is no (overt) inflectional morphology for TAM in Indonesian, the clausal structure contains a dedicated position for an auxiliary that maps the SOA depicted by the main verb to a temporal point. Capturing the functional similarity of inflectional elements in languages with overt grammatical TAM categories, we can represent a finite clause as having a structure projected from I(NFL), i.e., IP. A non-finite one is, in contrast, not an IP.² Indonesian demonstrates that lacking grammatical TAM does not necessarily mean a lack of structural constraints associated with finiteness.

3. Referring to non-future events

In the preceding section I demonstrated that temporal points (past/present/future) can be mapped via adjuncts and finite (I) elements. With respect to I elements, there are aspect and modal items but curiously there is no specific auxiliary for past/present in Indonesian. It does have a FUT auxiliary *akan*. (*Mau* ‘want’ is perhaps better analysed as a desiderative modal auxiliary.) However, Indonesian does have the ASP auxiliaries *sudah* and *telah*, which imply past reference.

In what follows, I will show that DEF/POSS nominalisation, e.g. with *=nya*, carries subtle complex semantics with past/present reference. The complex semantics of this nominalisation and its precise analysis have been overlooked in Indonesian linguistics. In what follows, structural properties of *=nya* nominalisation will be discussed.

3.1 Kinds of *=nya*

The bound form *=nya* has three functions: as a third person singular possessive marker (3sPOSS); as a ligature (LIG) and as a definite marker (DEF). Each will be briefly discussed below.

3.1.1 On the structural status of *=nya*

In this subsection, I present evidence on the status of *=nya* (and also the corresponding bound forms *=ku* and *=mu*) as a clitic, not a suffix. The bound form *=nya* is a clitic because it is not necessarily attached to a noun. An affix is a morphological entity and is affixed to a stem. A close inspection of the distribution of *=nya* within NP suggests that in its function as a possessor (POSS), its position is outside the noun head of the NP. There can be modifier material modifying the noun head in between it and the noun head. This analysis of *=nya* as a clitic accounts for the fact that it can be hosted by the material of the modifier. For example, *=nya* can be attached to *terbaru* ‘newest’ as seen in (15)c.

² In the lexically-based framework assumed in this paper (Bresnan 2001), I(NFL) and its projection in the phrase structure tree is a ‘surface’ constituency whose terminal nodes (I, N, V, etc.) are (fully inflected) words. We do not adopt a ‘deep’ structure tree where I(NFL) is further decomposed into different nodes for affixes that carry Aspect or Tense information as is commonly adopted in Chomskyan Minimalist model of grammar.

- (15)
-
- a. *pulpen* *biru laut* =nya/ =ku/ =mu
pen red sea =3s/ =1s/ =2s
'her/ my/ your navy blue pen'
- b. *pulpen* *terbaru* =nya/ =ku/ =mu
pen TER-new =3s/ =1s/ =2s
'his / my/ your newest ballpoint pen'
- c. *pulpen* *paling baru* =nya/ =ku/ =mu
pen most new =3s/ =1s/ =2s
'her/ my/your newest pen'
- d. **pulpen* *baru sekali* =nya/=ku/=mu
pen new very =3s/ =1s/ =2s
FOR: 'his/ my / your very new pen'
- e. **pulpen* *yang baru* =nya/ =ku/ =mu
pen REL new =3s/ =1s/ =2s
FOR: 'her/ my/ your new pen'

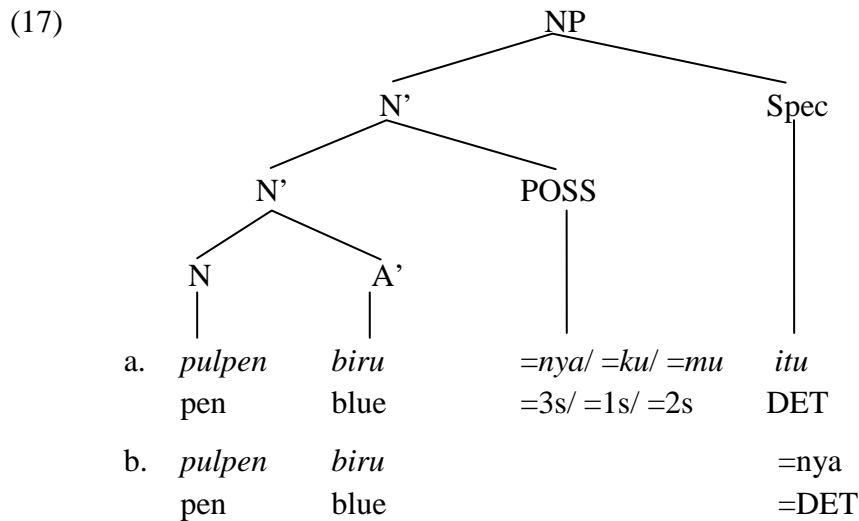
There is a restriction on the intervening adjective modifier, represented as A' in (15) above. It cannot be an AP (i.e. a full adjective phrase). That is, it must be a restricted sub-phrasal unit A'. For example, a relative clause cannot come in this position, as shown in (15e). This is not just a property of the clitic =nya, but a general constraint within NPs: a relative clause cannot come before the POSS NP even when the POSS is not a clitic:

- (16)a. *Pulpen* *saya/ Ali* *itu*
pen 1s A. DET
'The pen of mine/Ali's'
- b. **pulpen* [*yang baru*] *saya/ Ali*] *itu*
pen REL new 1s/ A. DET
- c. *pulpen* *saya/ Ali* [*yang baru*] *itu*
pen 1s/ A. REL new DET
'The pen of mine/Ali's which is new'

3.1.2 Definite =nya, ini and itu

The clitic =nya can function as a definite marker. It is therefore in a way like the determiners *ini* and *itu*. (Cf. Sneddon et al 2010 for the difference: *ini/itu* requires an immediate anaphoric whereas =nya can be exophoric or shared knowledge). The Determiners *ini/itu* come after an adjunct with *yang* (i.e. a relative clause) as seen in (16)c. I will adopt a

traditional analysis treating the Determiner appearing in Specifier of NP rather than a DP analysis. Thus =*nya* is treated in the same way:



In our analysis, =*nya* is multifunctional like *ini* or *itu*. It appears in different structural positions. As a POSS, =*nya* appears in the POSS position before Spec; as a Spec it appears in the Spec position as the final unit within the NP. Crucially, in the present analysis *ini/itu* is analysed as a DET that can appear in Spec of NP and N head position. In contrast, =*nya* cannot be the head of N. We can therefore account for the fact that =*nya* can be encliticised to *ini/itu*:

(18) *ini/itu=nya*
 ‘this/that (part of it)’

3.1.3 Ligature =*nya*

It has been noted that =*nya* in possessive relation functions as a ligature (Sneddon et al. 2010), where =*nya* has no third person restriction:

- (19)a. *pulpen =nya saya/ kamu/ mereka*
 pen =LIG 1s/ 2s/ 3p
 ‘my/ your/ their pen’
- b. *pulpen saya/ kamu/ mereka*
 pen 1s/ 2s/ 3p
 ‘my/ your/ their pen’

As noted from the acceptability of (19)b, the presence of the ligature =*nya* is not obligatory.

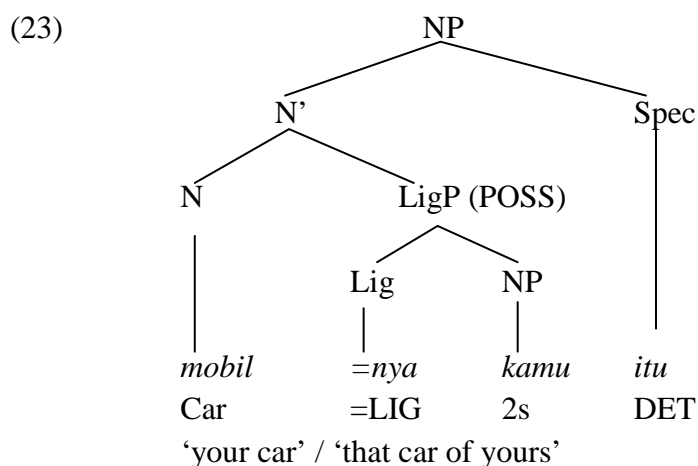
It has also been suggested that *yang* could be analysed as a ligature. (*Yang* can be alternatively analysed as a relativiser, and the *yang* phrase is a relative clause structure.) The point is that when there are multiple general modifiers within NP, only one of them can typically appear immediately following the noun head (i.e., under A’ in (15)). The other(s) must come outside A’/N’. Crucially, when the modifier appears in this position it is obligatorily with *yang* as seen by the contrast between (20)b and (20)c.

- (20)a. #*mobil ahal mewah say itu*
 car expensive luxurious 1s DET
 ‘my expensive luxurious car’ / ‘that expensive, luxurious car of mine’
- b. *mobil mewah saya [yang mahal] itu*
 car luxurious 1s REL expensive DET
 ‘my luxurious car that is expensive’ / ‘that luxurious car of mine that is expensive’
- c. **mobil mewah saya mahal itu*
 car luxurious 1s expensive DET

There is complementary distribution between =nya and yang functioning as ligature: =nya for POSS ligature and yang for non-POSS relations:

- (21)a. *mobil* [=nya saya/ kamu] ‘my/your car’
 car =LIG 1s/ 2
- b. **mobil* [yang saya/ kamu]
- (22)a. *mobil* [yang bagus] itu ‘the good car’
 car LIG/REL good that
- b. **mobil* [=nya bagus] itu

Given the property of =nya as a clitic, its function as a ligature in relation to POSS can be structurally analysed as a ligature phrase that takes an NP as part of its structure:



3.2 Nominalisation

In this subsection, I present evidence that =nya nominalisation is one of the constructional resources used to imply past/ present temporal axis.

3.2.1 Verbs of saying & feeling

Nominalisation with past reference is typical for verbs of saying (*katanya* ‘his/her say/word’, *pintanya* ‘his/her request’, *tanyanya* ‘his/her question’, *sergahnya* ‘his/her snarl’, *perintahnya* ‘his/her order’) and feeling (*rasanya* ‘the feel, kayaknya

following examples of verbs of saying, the temporal axis of the SOA depicted by the nominalised structure (“ordering” or “asking”) is in the past.

- (24) “*Coba semua anak-anak dan cucu suruh*
try all child-REDUP and grand.child ask

ngumpul disini,” pinta=nya.
gather here ask=NYA

‘“Try (to call) all of the children and grandchildren and ask them to gather here”, he asked.’

- (25) “*Tolong ambil cincin itu untuk gadis ini,” perintah=ku pada*
help UV.take ring that for girl this order=1s to

penjaga toko perhiasan itu.
guard shop jewellery that

‘“Help take the ring for this girl”, I ordered security guard of the jewellery shop.’

- (26) *Perintahku adalah untuk bertahan di posisi ini dan menghadapi*
order-1s be untuk MID-hold in position this and AV.face

musuh, kita tidak boleh meninggalkan kapal !
enemy 1p.in NEG may AV.leave ship

‘My order is to keep the current position and face the enemy, we cannot leave the ship!’

- (27) *Perintahku padanya untuk tak kemana-mana.*
order-1s to=3s untuk NEG go.anywhere-REDUP

‘My order to him is that (he should) not go anywhere.’

The temporal reference of the nominalised verbs in the examples above must be past, as seen in the translation. Its past temporal reference is the default one. That is, unless it is cancelled by an adjunct specifying otherwise, the past reference is generally understood. For example, the SOA of *tanyanya* ‘asking’ as in (28)a is past. It can, however, be cancelled by a specific adjunct referring to future time, *nanti* ‘later’, as seen in (28)b. Note that the nominalised verb cannot take the future auxiliary *akan* (28)c.³ For this, a non-nominalised predicate must be used (28)d.

- (28)a. ‘*Siapa itu?*’, *tanya=nya.*
who that ask=NYA

‘“Who is that?’, he asked. /#he will ask.’

- b. ‘*Siapa itu?*’, *tanya=nya nanti.*
who that ask=NYA later

‘“Who is that?’, he will ask later.’

- c. *‘*Siapa itu?*’ *akan tanyanya (nanti).*

³ Any other auxiliary is also not possible; hence it is a more general constraint that a nominal pred cannot take an auxiliary – equational structure. See below.

- d. *'Siapa itu?', dia akan (ber)tanya (nanti).*
 who that 3 FUT BER-ask later
 'Who is that?', he will ask later.'

Evidence for =nya with default past reference comes from the question word *kapan* 'when'. The definite =nya assumed shared knowledge of reference. Hence in questions with =nya verbs as exemplified below, the SOAs are assumed to taken place. The question *kapan* 'when' therefore asks a past temporal point (i.e., reading (i) not reading (ii) in (29)a and (30)a below).

- (29)a. *Kapan beli=nya?*
 when buy =NYA
 (i) 'When did you buy it?' (lit. when is the buying (of it)?)
 (ii) 'When are you going to buy it?'
- b. **kapan akan beli=nya?*
 when FUT buy=NYA
- c. *Kapan kamu akan beli?*
 when 2s FUT buy
 'When will you buy?'
- (30)a. *Kapan lahirnya?*
 when birth=3s
 (i) 'When was s/he born?'
 (ii) 'When is s/he going to be born?'
- b. **Kapan akan lahirnya?*
 when FUT birth=3s
- c. *Kapan ia akan lahir?*
 when 3s FUT birth
 'When will s/he be born?'

3.2.2 Modal nominalisation

Nominalisation of modal auxiliary, *harus* 'must' and *bias* 'able', implies complex temporal references: the speaker's evaluation in 'now-and-here' temporal reference about a past/present/future SOA. Consider the following pairs with *harus*:

- (31)a. *kamu harus datang.* (deontic: future 'coming')
 2 must come
 'you should come.'
- b. *harus=nya kamu datang.* (counterfactual: past 'coming')
 must=NYA 2 come
 'you should have come'

In (31)a, *harus* 'must' implies deontic modality, signalling the speaker's authority that the addressee *kamu* 'you' has the obligation to carry out the SOA (i.e. 'coming'). The obligation (i.e. transfer of authority to the addressee) is anchored to the moment of speaking ('now'), but

the actual realisation of the SOA ('coming') is in the future. In (31)b, the nominalised modal *harusnya* 'should' implies a counter-factual evaluation of an expected obligation: the speaker wishes to impose an obligation ("now", at the moment of speaking) but acknowledges the SOA ('coming') failed to take place.

In (32)a, *bisa* 'able' expresses epistemic modality, the possibility of crying; hence future reference. The nominalised *bisanya* (32)b, in contrast expresses the speaker's current report/evaluation of past 'crying', implying that nothing else has been/was done other than 'crying'.

- (32)a. *Ia bisa menangis* (epistemic: future crying)
 she can cry
 'S/he can cry' (it's possibly that s/he would cry)
- b. *bisa=nya menangis* (past ability)
 can=3s cry
 'Crying was/is the thing s/he could do.' (already taking place)

Volitive verbs such as *mau* 'want' or *ingin* 'desire', if nominalised, can also carry past/present temporal reference with counter-factual evaluative modal meaning. Consider:

- (33)a. *Ia /saya mau pulang.* (future)
 3s/1s wish go.home
 'S/he wants/want(ed) to go home./ I want(ed) to go home'
- b. *mau=nya pulang.* (counterfactual: present/past)
 wish=DEF go.home
 'The/ his/ her/ my wish was/is to go home (but for some reason (s)he/I couldn't).'

To conclude, the meaning of =*nya* nominalisation of modal verbs includes speaker's counter-factual evaluation of SOAs, typically with past/present temporal reference. Bare modal verbs, in contrast, can only signify speaker's evaluation of SOAs with future temporal reference.

3.2.3 Evidentiality

The same =*nya* nominalisation in Indonesian is used to express evidentiality (i.e. reflecting the source of information used by the speaker). The roots of =*nya* for this include those that carry 'visual'/'feeling' evaluative meanings: *tampaknya* 'the appearance', *sepertinya* 'the likeliness', *rasanya* 'the feeling'. In the following example, *tampaknya* (or *nampaknya*) implies that the speaker has some relevant (visual) evidence that there are people coming. Note that while the evaluation takes place at the moment of speaking ("here and now"), progressive aspect cannot be expressed through *sedang* as seen in (34)b.

- (34)a. *tampak=nya [ada orang datang]*
 appear=DEF exist person come
 'It appears that there are people coming.'
- b. **sedang tampak=nya [ada orang datang]*.

The =*nya* nominalisation carries epistemic modality with a lower degree of certainty than the meaning of the root. Thus, in contrast to (34)a, the following means that the speaker simply reports what s/he saw:

- (35) *Tampak ada orang datang*
 appear exist people come
 ‘It is visible to me/ I saw that there are people coming.’

When =*nya* occurs with roots of saying it can be classified as evidential in Indonesian. Thus, in the following example, the source of the speaker’s knowledge of the SOA (*dia sakit* ‘he was ill’) comes from a third party (i.e. what other people said, possible from news or rumours). Note that the temporal reference associated with the unit expressing the evidential (*kata=nya*) is past.

- (36) *Dia sakit kata=nya.*
 3s ill word=DEF
 ‘She was ill, I heard.’

4. Analysis and computational implementation

4.1 Equational structure

There is evidence that the nominal =*nya* structure is part of an equational identification structure. It shows similarities with non-derived nominals such as *guru* ‘teacher’ and the name *Ali* as in (37). The first test comes from the copula *adalah*. Compare (37) and (38).

- (37)a. *Ali* SUBJ *guru* *itu*.
 Ali teacher that
 ‘Ali is the teacher’
- b. *Ali* *adalah* *guru* *itu*.
 Ali be teacher the
 ‘Ali is the teacher.’
- c. *Guru itu* SUBJ *adalah* *Ali*.
 ‘The teacher is Ali.’
- (38)a. *mau=nya* *tidur*.
 want=DEF sleep
 ‘The/my wish was to sleep (but I couldn’t).’
- b. *Mau=nya* SUBJ *adalah* [_ *tidur*]
 want=DEF be sleep
 ‘The/my wish was to sleep.’
- c. [_ *tidur*] SUBJ *adalah* *mau=nya*
 sleep be want=DEF
 ‘To sleep was the wish.’

Note that the verbal predicate does not allow *adalah*:

(39)a. *Dia tidur.*
 3s sleep
 ‘S/he is sleeping.’

b. **Dia adalah tidur.*

The second test involves negation using *bukan/ tidak*: *bukan* is for nominals whereas *tidak* is for non-nominals. In (40)a-b, *tidak* cannot be used because in both cases the predicates are nominal.

(40)a. *Ali bukan/ *tidak guru itu.*
 Ali NEG teacher that
 ‘Ali is not the teacher.’

b. *Guru itu bukan/ *tidak Ali.*
 ‘The teacher is not Ali.’

In (41)a below, *bukan* is acceptable, and *tidak* is expected to be unacceptable because *maunya* is a (derived) nominal. In (41)b, both *bukan* and *tidak* are acceptable. The acceptability of *bukan* indicates that the predicate *tidur* is part of a non-verbal structure. And the acceptability of *tidak* suggests that *tidur* is still verbal.

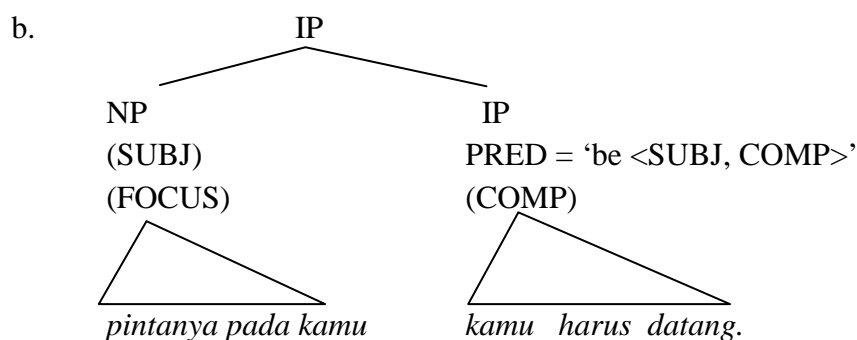
(41)a. [*_tidur*]_{SUBJ} *bukan/ *tidak mau=nya*
 sleep NEG want=DEF
 ‘To sleep was not the/his/her wish.’

b. *Mau=nya*_{SUBJ} *bukan/ tidak _tidur*
 want=DEF NEG sleep
 (i) ‘The/his/her/my wish was not to sleep.’
 (ii) ‘It is the/her/his/your wish that (I/you/(s)he) would not sleep (but I did sleep)’.

There are two possible analyses for the equational structure above. The question is which one is the predicate and which one is the subject.

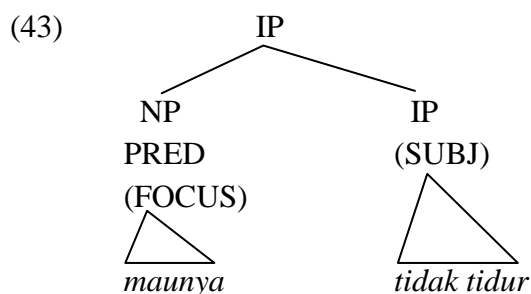
In the first analysis, we can posit an abstract copular BE with the nominal *=nya* being SUBJ, as the second part is a COMP of the abstract BE. To illustrate this, consider (42) where *adalah* is optional, indicated by the brackets. The tree in (42)b shows the structure without *adalah* but is understood to have an underlying ‘be’ as seen in the annotation on the note IP.

(42)a. *Pinta=nya pada kamu (adalah) kamu harus datang.*
 request=3s to 2 be 2 must come
 ‘His/her/the request to you is that you should come’



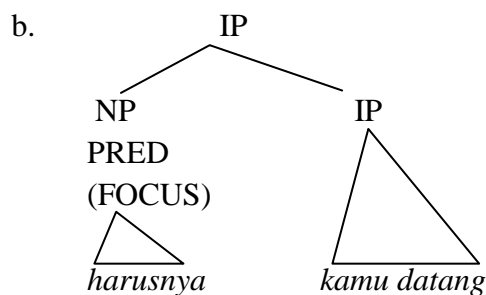
In the analysis, we also want to capture the information structure where the =*nya* nominal is pragmatically focussed. This is indicated by the annotation of FOCUS on the node associated with =*nya*.

In the second analysis, we treat the structure as having a 'fronted' nominal =*nya* where the =*nya* nominal is the predicate:

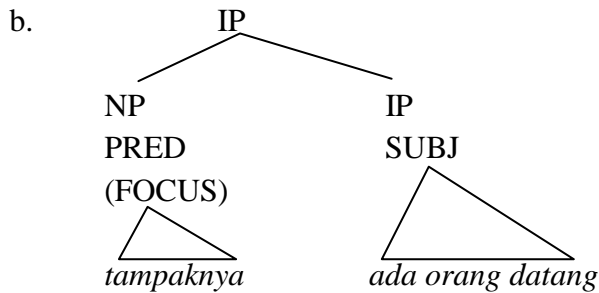


Other =*nya* nominalisation can be analysed in the same way. Thus, evidential =*nya* exemplified in (31) and (34), repeated here as (44)a and (45) respectively, can be represented as having the c-str shown in (44)b and (45)b.

(44)a. *harusnya kamu datang*
 must=NYA 2 come
 'you should have come'



(45)a. *tampak=nya [ada orang datang]*
 appear=DEF exist person come
 'It appears that there are people coming.'



4.2 Computational implementation

In this subsection, I report the implementation of the analysis so far described in the Indonesian ParGram (Parallel Grammar) Project (<http://rspas.anu.edu.au/linguistics/projects/iwa/IndonParGram/Home.html>). The analysis is implemented using XLE,⁴ a grammar development environment for large-scale grammars based on LFG (Lexical-Functional Grammar) theory (Bresnan 2001; Dalrymple 2001; Falk 2001, among others). The relevant components of the system include a tokenizer and morphological analyser, as well as phrase structure and sublexical rules, which include annotation with relevant constraints. The description of the morphological analyser is not discussed here; see Pisceldo et al. (2008) and Mistica et al (2009) for full description and discussion. For present purposes, the relevant function of the morphological analyser is to decompose a string, in particular the verb of a sentence, into a stem plus morphological tags, including the clitic =*nya*. The identified units are analysed by (sublexical) phrase structure rules which are annotated in the same way as standard LFG phrase structure rules.

Because of space limitation, the details of the mechanism of how the grammar parses the input string cannot be discussed in this paper. However, we present the output parses and provide some comments on relevant aspects. The implementation, while capturing the basic idea of the analysis, show slight differences in terms of phrase structure rule labels.

The following exemplifies the analysis where the nominalised verb (*janjinya* ‘the promise’) is analysed as subject. The equational clause contains an abstract copular BE, which takes a COMP as seen in the f-structure representation.

- (46)a. *Mereka janji=nya kepada saya [_ akan datang besok]*
 3p promise=DEF to 1s FUT come tomorrow
 ‘They promised me that they would come tomorrow.’

⁴<http://www2.parc.com/isl/groups/nlitt/xle/>

b.

<i>c-str</i> (constituent structure)	<i>f-str</i> (functional structure)
	<pre> [PRBD 'BE<[31:janji], [122:datang]>' PRBD 'janji' PRBD 'kepada<[83:saya]>' PRBD 'saya' OBJ GLOSS [TRANS pronomina] ADJUNCT { 83[NUM sg, PERS 1, PRON-TYPE pers] } GLOSS [TRANS to] PSEM {dir} 59[PTYPE sem] POSS [PRBD 'mereka' GLOSS [TRANS pronomina] 8[NUM pl, PERS 3, PRON-TYPE pers]] 31[SPEC [DET [PRBD '+nya' DEIXIS distal, DET-TYPE demon]]]] PRBD 'datang<[122-SUBJ:pro]>' SUBJ [PRBD 'pro'] ADJUNCT { 136[PRBD 'besok' GLOSS [TRANS tomorrow]] } AUX [PRBD 'akan' 95[TENSE fut]] 122[GLOSS [TRANS come]] TOPIC [8:mereka] FOCUS [31:janji] CHECK [EQUATIVE -] INS-ASP [MOOD indicativ] 24[CLAUSE-TYPE decl] </pre>

5. Conclusion

This paper discusses the expressions of TAM (tense, aspect, and mood) in Indonesian. Of particular focus is the possessive and definite nominalisation with *=nya*. It is argued that, while having no grammatical TAM, Indonesian grammar shows syntactic complexities and restrictions related to TAM such as finiteness. It is demonstrated that temporal points (commonly associated with tense), aspect and modality are expressible via a closed sets of auxiliaries and adjuncts. It is shown that while having no inflectional morphology for TAM, there is good evidence that the auxiliaries occupy the I(NFL) position and that a finite clause is a clause that contains an I element, linked to a temporal point. Indonesian has no dedicated auxiliary for present/past time reference, and it is demonstrated that possessive/definite nominalisation encodes this temporal point. It comes, however, with complex modal semantics showing the speaker's evaluation including evidentiality.

The paper outlines possible analyses of the *=nya* nominalisation, capturing the key elements: the structural and complex semantics as well the pragmatic information structure. A brief demonstration of the computational implementation in the ParGram project is also given.

The paper reports a small part of work in progress on research on the complexities of Indonesian TAM within the ParGram project. Further work includes a full investigation of

nominalisation and other expressions on temporal points, aspect and modality, its implementation and integration into a large scale computational grammar of Indonesian.

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