

Functional categories in the syntax and semantics of Malay

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Functional categories began to receive serious attention within generative linguistics in the 1980s. The analysis of auxiliary verbs in European languages as heads of independent phrases with VP as their complement can be seen as a logical outcome of the X-bar theory of phrase structure (Jackendoff 1977). Within a constrained version of X-bar theory, such auxiliary verbs of English (and other languages) were an anomaly and assuming the existence of some category which took VP as its complement removed the anomaly. The analysis was also motivated empirically by its potential to provide landing sites for verb movement (Chomsky 1981). Two further developments came in rapid succession. One was the reanalysis of the projection above VP as a series of functional heads (Pollock 1989); the other was the attempt to find a parallel functional projection above NP (Abney 1987). The logic of Principles and Parameters syntax forces the extension of the results in two ways. Firstly, if functional projections above VP and NP are motivated for some cases in English, then such projections are assumed to be present in all cases, regardless of whether there is any overt manifestation of the relevant categories. Secondly, the functional categories having been established as a part of the grammar of English, they therefore become a part of Universal Grammar and are expected to play a part in the analysis of all human languages. In what follows, I will not be concerned with the validity of functional categories in the grammar of English, but rather with the second extension just mentioned, the assumption that such categories play a part in the grammar of all languages. Some recent work (for example Hudson 2000) has argued that the distinction between lexical and functional categories cannot be maintained¹, but in this paper, I assume that the distinction is valid for at least some languages.

Previous formal analyses of Malay have accepted the assumption that functional categories form a part of the grammar of all languages to a greater or lesser extent but have rarely offered language-specific arguments to justify the assumption. For example, Guilfoyle, Hung and Travis (1992) is an important paper on the syntax of Austronesian languages, including Malay. Throughout the paper, the existence of IP is assumed without comment. Then, in the analysis of Malay, the authors explicitly introduce DP thus: “The second assumption is that NPs are, in fact, dominated by DP, the maximal projection of the functional category DET” (p400). Although the category D⁰ plays a crucial role in the analysis, the authors offer no discussion of the status of the category in Malay, except the apparently contradictory statement that “There is independent evidence that the determiner *itu* is only a modifier, not a functional head” (p401). To take other examples, both Cole, Hermon and Tjung (2005) and Arka and Manning (to appear) present tree diagrams in their papers which include a category I and its maximal projection IP. However, both of these papers label nominal projections as NP. In Musgrave (2002), I argued that I and D could plausibly be used in the analysis of Indonesian (a standardised Malay variety). In section 1 below, I recapitulate and reassess the discussion from that previous work and suggest that the syntactic evidence

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¹ But see Cann, Ronnie. 2000. Functional versus lexical: a cognitive dichotomy. In *The Nature and Function of Syntactic Categories*, ed. R.D. Borsley, 37-78. New York: Academic Press. For an attempt to nevertheless maintain the distinction within the framework of generative grammar.

for the obligatory presence of functional categories above VP and NP is not strong in this language.

Aside from the appealing theoretical symmetry which resulted from treating the maximal nominal projection as D(eterminer)P, there is a semantic intuition which is captured by such an analysis. This intuition is that the way the reference of a nominal projections is fixed (in English at least) by the paradigmatic choice of determiner is parallel to the way in which a clause is anchored in time by the paradigmatic choice of tense and aspect elements². But such anchoring is not obligatory in all languages in the way that it is in English; the functional requirements for identification of entities and temporal anchoring can be accomplished using other strategies. In section 2, I will argue that Malay is such a language based on an examination of some empirical evidence regarding the strategies used for anchoring events and entities in Indonesian. This discussion focuses mainly on the anchoring of events, as the strategies used in that domain are more immediately accessible than those used for anchoring entities. The evidence presented in the section shows that explicit temporal anchoring with a word which could be analysed as taking VP as its complement is not a common strategy.

The final section of the paper integrates the findings of the first two sections with a consideration of the semantic content assigned to functional categories if they are assumed in Indonesian. I argue that in the cases where there is no overt realisation of the functional category, the semantic content of the assumed covert category must be assigned by a process of pragmatic inference. As some such process is required even if the functional category is not assumed, I suggest that Occam's Razor provides a strong argument against assuming the existence of the functional categories.

The evidence discussed in this paper is drawn from Indonesian, the national language of Indonesia. This language is a standardised variety of Malay, and is taken here as representative of more formal varieties of Malay in general. Sneddon (2003) has argued that the language situation in Indonesia should be characterised as a diglossic situation, with Standard Indonesian filling the role of the high variety (see Ewing 2005 for a brief description of colloquial varieties). This interpretation implies that formal varieties have limited functions and limited use, and this is no doubt true. However, a large number of people in Indonesia use this variety, or some approximation to it, in some of their daily activities and its status as the high variety in a diglossic situation should not be taken to imply that data on this variety is not natural language data.

1 Functional categories in Indonesian syntax

It was mentioned above that functional heads and their projections are part of the vocabulary of most syntactic work since the 1980s. But such elements are rather weakly grammaticized in Indonesian. The language has no inflectional morphology: there is no subject-verb or verb-object agreement, tense and aspect are not marked on verbs and there is no general strategy for marking number on nouns. The sole exception to this generalisation is the use of reduplication. This morphological process can indicate plurality when applied to nouns and continued or iterated action when applied to verbs. However, in each case other meanings are possible also (Sneddon 1996:15-21), and it is not clear that reduplication can be

² It is worthy of comment that a linguist with a radically different approach, Halliday, can be read as treating the finite verbal element in English as of special importance for just this reason:

The Finite element, as its name implies, has the function of making the proposition finite. That is to say, it circumscribes it; it brings the proposition down to earth so that it is something that can be argued about. A good way to make something arguable is to give it a point of reference in the here and now; and this is what the finite does. It relates the proposition to its context in the speech event. (Halliday, M.A.K. 1985. *An Introduction to Functional Grammar*. London: Edward Arnold.:75)

analysed as a regular inflectional process in Malay. There is, however, morphology associated with verbs. There are two derivational suffixes, *-i* and *-kan*, both of which normally alter the argument structure of the base verb (Arka 1993, Son and Cole 2004, Tampubolon 1983, Vamarasi 1999, Voskuil 1996). There are also verb prefixes which indicate voice, and I have argued elsewhere that these should also be considered to be derivational (Musgrave 2002). Tense and/or aspect can be specified in clauses but usually are not, while number marking of nouns by reduplication is rare and definiteness is not marked obligatorily. These facts raise the question of whether it is appropriate to analyse the language as having functional categories, in particular IP as the category of clauses and DP as the category of referential expressions³.

The argument is easier to make in respect of the clause-level functional categories. Two types of element appear between the subject and the verb in Indonesian clauses, and neither of them can appear in other positions (with the same meaning). These two are negation⁴:

- (1) *Marisa, kamu tidak mengerti*
 Marisa 2SG NEG AV-understand
 'Marisa, you don't understand.' (Mira W 1995: 76)

and expressions of modality:

- (2) *Aku harus melihat buktinya dulu*
 1SG must AV-see proof.3 before
 'I must see his evidence first.' (Mira W 1995: 76)

Malay also has a separate negator, *bukan*, which is used only to negate nominal predications. This suggests that there is a distinct lexical category with only two members, but with each having selectional restrictions on its complement.

Expressions of tense and/or aspect also appear in the position between the subject and the verb, but in at least some cases these words can be used in other clausal positions with similar meaning:

- (3) *Ia sedang membaca ketika saya datang*
 3SG PROG AV-read while 1SG come
 'He was reading when I came.' (Echols and Shadily 1961/1989: 487)

- (4) *Sedang ia mengucapkan kata-katanya itu isterinya*
 while 3SG AV-say word.DUP-3 that wife-3

menjerit

AV-scream

'While he was uttering those words, his wife screamed.' (Echols and Shadily 1961/1989: 487)

The case of *sudah* is similar: it is used to mark a completed action, but it can also be used as an adverb meaning 'already'⁵. Other adverbs can be placed between the subject and the verb:

³ As the discussion makes clear, using the label IP as an abbreviation for Inflection Phrase is meaningless for this language. However, in deference to practice in the literature, I continue to use the nomenclature.

⁴ The following abbreviations are used in glossing examples: 1,2,3 – first, second, third person, SG – singular, PL – plural, INCL – inclusive, AV – actor voice, UV – undergoer voice, APPL – applicative, CAUS- causative, FUT – future, PERF – perfective, NEG – negation, REL – relative clause marker, LOC – locative, CLASS – classifier, DUP – reduplication. Some morphology is left unanalysed in examples.

- (5) *Proyek itu tetap akan menjadi milik*
 project that certainly FUT AV-become property

Candra Surya Abadi
 (name)

'That project will certainly become the property of the Surya Abadi group.'
 (Mira W 1995: 76)

Therefore the status of the temporal and aspectual markers is not entirely clearcut. At least one of them, however, *akan*, glossed FUT above, is clearly an auxiliary verb: it does not occur in other positions⁶ and it can be the base of a derived verb *meng-/di-akan* 'aim, strive for' and a nominalisation *keakanan* 'the future'. On this basis, it is reasonable to suppose that there is a position above VP for a head expressing tense and/or aspect, and that other words like *sudah* and *sedang* have dual lexical entries both as adverbs and as functional items which can occupy that position⁷. Various combinations of the three possibilities, that is, negation, modality and tense/aspect markers, are possible, including all three:

- (6) *Partai itu tidak akan bisa membentuk pemerintahan*
 party that NEG FUT able AV-form government
 'That party will not be able to form a government.' (Sneddon 1996: 204)

This suggests that a series of functional head positions is required, as suggested first by Pollock (1989), but in general I will write in terms of a single projection, labelled IP⁸, and I will use the term *temporal marker* to refer to any of the group of words including *akan*, *sedang* and *sudah* (amongst others).

One of the motivations for the adoption of the analysis of clauses as projections of a functional category is that this allows a landing site for verb movement. There is one phenomenon in Indonesian which lends itself to such an analysis, the presence of a pronominal actor between the subject and the verb in the construction which Chung (Chung 1976a) calls 'Object Preposing', and which Sneddon (1996:248) calls "Passive Type 2":

- (7) *Anjing itu ku-pukul*
 dog that 1SG-hit
 The dog was hit by me.

Guilfoyle et al. analyse such examples as follows. They assume that all actors in Indonesian originate as specifiers of VP. This position is not case-marked and therefore the actor always has to move to some other position to satisfy the case filter. Where the verb is prefixed with *meN-*, which case-marks the undergoer in their account, the actor moves to the specifier position in IP, the canonical subject position. Where there is no *meN-*, some other move is required. Following Postal (1969), Guilfoyle et al. treat pronouns as determiners, and

⁵ This ambiguity is common in Western Austronesian languages. In Sasak, auxiliary verbs are distinguished positionally and by being clitic hosts, and the class includes *wah* which indicates past action. The same word appears in other positions, and then is translated as 'already' (Austin, Peter. 2000. Verbs, voice and valence in Sasak. In *Working Papers in Sasak, vol.2*, ed. Peter Austin, 5-24. Melbourne: Lombok and Sumbawa Research Project.).

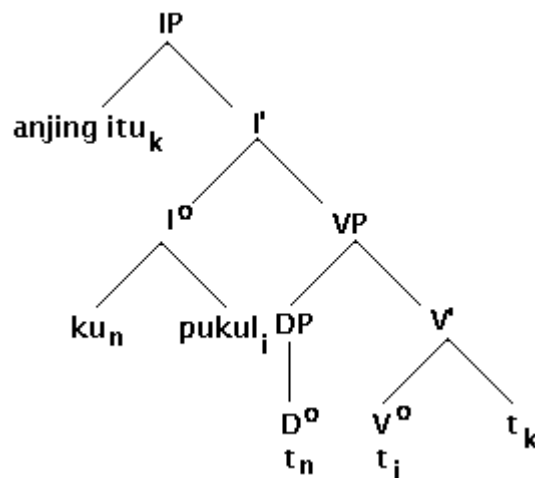
⁶ There is a homophonous preposition, which is not relevant here.

⁷ It should be noted that although I have introduced words such as *sudah* as expressing tense or aspect or both, these words have primarily an aspectual sense in the usage of most Indonesians and tense is generally expressed by the use of adverbs, notably *tadi* 'previously' and *nanti* 'later' (M.Ewing, personal communication).

⁸ This convenience also obscures the fact that the set of temporal markers is not unitary (Samsuri. 1982. Two kinds of aspect in Indonesia. In *Pelangi bahasa*, eds. Harimurti Kridalaksana and Anton M. Moeliono, 79-83. Jakarta: Penerbit Bhartara Karya Aksara.).

the actor pronoun is therefore originally the head of the DP which fills the specifier position in VP. This head moves to I° and by joining the verb there it satisfies the case-marking requirement, giving the surface order Pronoun - Verb:

(8)



(Guilfoyle et al. 1992, example 34)

There are several arguments which can be made against this argument (see Musgrave 2002 chapter 2 for extensive discussion), but one in particular should be advanced here. It is a diagnostic for the Sneddon's Passive Type 2 that if negation, a modal or a temporal marker appears in the clause, the actor pronoun remains adjacent to the verb

- (9.) *Buku itu sudah saya baca.*
 book that PERF 1SG read
 'The book has been read by me.'

Guilfoyle et al. do not discuss this type of clause, but it clearly poses a problem for their analysis. The head position above VP is occupied in such cases, leaving no landing site for the verb and the actor pronoun. It might be assumed that the higher head has also moved upward, but there is no obvious landing site for such movement. Such considerations suggest that claiming that there is evidence from verb movement which supports the existence of a functional head above VP in Indonesian is a mistake.

The analysis of this clause type in Musgrave (2002) avoids the problem just discussed by treating the relation between the actor pronoun and the verb as morphological. However, both analyses depend crucially on the assumption that pronouns, and the large class of possible pronoun substitutes allowed in Malay, are members of the lexical category determiner. Therefore, both analyses may be undermined if the evidence does not support the existence of that category in Indonesian, and I now turn to this question.

There are two common ways of indicating definiteness in Indonesian nominals. The first is to use one of the demonstratives *itu* 'that' or *ini* 'this' to indicate that the referent has been mentioned recently. The second is to use the third person possessive clitic *-nya* to indicate that the referent can be understood within the context of interaction, but has not previously been mentioned: (Sneddon 1996: 150- 151, Sukanto 1999). The contrast between the two possibilities can be seen in the following examples:

- (9) *Ibu sudah memasak nasi. Nasi itu di lemari*
 mother PERF AV-cook rice rice that LOC cupboard
 'Mother has cooked rice. It (LIT: that rice) is in the pantry.'

- (10) *Kalau mau makan, nasinya di lemari*
 if want eat rice-3 LOC cupboard
 'If you want to eat, the rice is in the pantry.' (Sneddon 1996: 151)

The possessive clitic has the same distribution in this usage as it does in its use as a true possessive. This includes appearing closer to the head than demonstratives and relative clauses, and I therefore conclude that it cannot be of the category D. The case of the demonstrative is less clear. *itu* and its complementary *ini* 'this, these' are always the last element in a nominal phrase. This can lead to ambiguity in complex phrases:

- (11) *Anak yang naik sepeda itu tinggal dekat saya*
 child REL climb bicycle that live close 1SG
 'That child riding a bike lives near me.'
 OR 'The child riding that bike lives near me.' (Sneddon 1996: 157)

I assume that appearing at the boundary of the phrase (at least most of the time) will be a characteristic of D, therefore these demonstratives are possible candidates. There is a strong reason for doubting that this is the correct analysis, however. It is a reliable generalisation that heads precede complements and other dependents in Indonesian. This is true for verbs and prepositions as can be seen in the preceding examples. It is also true for nouns:

- (12) *dongeng tentang seorang haji*
 legend about one.CLASS haji
 'a story about a haji' (Sneddon 1996: 150)

And for adjectives:

- (13) *Sulit untuk kita memperoleh bukti*
 difficult for 1PL.INCL AV-obtain proof
 'It is difficult for us to get proof.' (Sneddon 1996:183)

And if negation, modals and temporal markers are analysed as functional heads, it is also true for the functional heads above VP. Therefore, it would be surprising if D were to take its complement in a right-branching structure⁹. On this basis, the only plausible candidates for the category D must occur before the head noun in nominal phrases. This condition restricts the candidates to quantifiers, including numbers, and classifiers.

Classifiers normally occur with a number (Sneddon 1996: 134):

- (14) *dua ekor kuda*
 two CLASS horse
 'two horses'

But when they occur with the number prefix *se-* 'one', the combination can express two meanings. The meaning is either that one specific entity is being referred to, or that some non-specific entity is being talked of:

- (15) *seekor kuda*
 one.CLASS horse
 'one horse' OR
 'a horse'

⁹ Guilfoyle, Hung and Travis (1992: 401) state that: 'There is independent evidence that the determiner (sic) *itu* is only a modifier, not a functional head.' but without giving any details. I assume that what they have in mind is some version of the argument just given.

All Indonesian classifiers are originally nouns, and where there is no number associated with them, they revert to their nominal meaning:

- (16) *ekor kuda*
 tail horse
 'horse's tail'

This fact suggests that in examples such as (15), the non-specific reading is associated with the number prefix rather than the classifier, and that, in at least this context, a number can have a meaning similar to that associated with determiners in some other languages. Therefore two lines of argument converge on the conclusion that quantifiers are the most plausible candidates to be analysed as determiners in Indonesian. At least one quantifier has a determiner-like meaning in a certain context, and all other possible candidates have been eliminated.

Although this hypothesis is semantically plausible, it is also not without syntactic problems. Chung (1976b) discusses the possibility of quantifiers shifting from the left edge of their nominal phrases to the right edge:

- (17) *Semua pemain musik pulang pagi*
 all player music go.home morning
 'All the musicians left early.'

- (18) *Pemain musik semua pulang pagi*
 player music all go.home morning
 'All the musicians left early.'

She notes that this phenomenon is distinct from quantifier float, and that it is associated with some difference in meaning which she is unable to make specific. It should be noted that this possibility also exists for numbers and number/classifier combinations:

- (19) *Dia mengimpor kursi sebanyak 8000 buah*
 3SG AV-import chair as.many 8000 CLASS
 'He imported as many as 8000 chairs.' (Sneddon 1996: 140)

However, it is not possible in any of these cases to insert the quantificational element(s) within the remainder of the nominal phrase; the quantifier always must be on one edge of the structure. This need not be counter-evidence to the hypothesis being considered, but then we must assume that the ordering of D and its complement is not rigid. This would contradict the strong generalisation about the structure of Indonesian discussed above.

If we follow Guilfoyle et al. (1992) and Musgrave (2002) and assume the idea originally proposed by Postal (1969) that pronouns are determiners rather than nouns, then we would predict that pronouns and quantifiers should not co-occur. In fact, there are some possibilities for quantifiers to occur with pronouns, but they are limited in such a way as to lend some support to the hypothesis that both are types of determiner. The only numbers that can occur with pronouns are morphologically complex forms. Bare numbers cannot appear in this environment, only numbers prefixed with *ber-*:

- (20) *dua orang*
 two person
 'two people'

- (21) **dua mereka*
 two 3PL
 (FOR: 'two of them')

- (22) *mereka berdua*
 3PL *ber.two*
 'both of them'

and these numbers do not occur with other nouns (Sneddon 1996:58). As discussed previously, morphology in Indonesian is derivational; *ber-* is a prefix commonly associated with intransitive verbs and adjectives. These facts, and its position in structures such as (22), suggest strongly that it is a modifier of some sort in this usage and not a quantifier. Some other quantifiers can occur with pronouns also. These words precede nouns, except in the case of quantifier shifting discussed above, but they must follow pronouns (Sneddon 1996: 169-170):

- (23) *Kami semua harus membuka jalan dahulu*
 1PL.INCL all must AV-open road before
 'All of us must clear a road first.' (Sneddon 1996: 170)

- (24) **Semua kami.....*

Whatever the correct analysis of quantifier shifting may be, it is significant that it is obligatory in just this case. A possible interpretation is that it is a mechanism of last resort here which rescues a structure predicted to be impossible on other grounds. Therefore, in the two situations in which pronouns can co-occur with quantifiers, the quantifier does not behave as it does with other nouns. Given this evidence, it is possible that quantifiers could be analysed as functional heads, that is, as exponents of the category D in Indonesian. However, if this conclusion is accepted, we would be left with the question of why overt realisation of this category is rare. The next section will show that this question applies also to at least some of the clause-level functional heads; they also do not occur commonly in Indonesian text.

2. The use of temporal markers in written Indonesian

In the preceding discussion, it has been made clear that Indonesian does have a category which fulfils the function of temporal anchoring, but that this category is certainly not overtly realised in every clause. It is reasonable to argue that for negation and modality, the other two elements which appear to the right of Indonesian predicates, the absence of an overt realisation carries clear meaning. In the case of negation, absence indicates positive polarity, while in the case of modality, absence indicates an unmodulated assertion. The absence of a determiner in an English noun phrase has a similar status; such an absence is associated with a specific semantic value. In each of these cases, we can plausibly claim that there is a paradigmatic opposition between no overt realisation of the category and each of the possible overt realisations.

But there is no interpretation which can consistently be associated with clauses which lack temporal marking. They can be interpreted as present, past or future and also as either aspectually bounded or unbounded, as can be seen in the following example. In the case of the last verb in this sentence, it is not clear what the best English translation would be; either future or past tense is possible¹⁰.

- (25) *Anggota F-PAN Dradjad mencurigai adanya data-data*
 member (party) (name) AV-suspect-APPL there.be-3 data-RED

¹⁰ The last verb, *menjad,i* could also be translated as 'be' here, but two tenses would still be possible readings: '...the data which have been put forward in the speech were/are invalid.' (M.Ewing, personal communication)

terbaru yang disembunyikan sehingga data yang
 new REL UV-hide-CAUS until data REL

dikemukakan dalam pidato tersebut menjadi tidak
 UV.propose-CAUS in speech mentioned AV-become NEG

valid

valid

‘F-PAN member Dradjad suspects there are new data which are being hidden to the point that the data which have been put forward in the speech will / have become invalid.’

(From article *Presiden Pidato Lagi, Data Kemiskinan Jadi Sorotan*)

It might be suggested that such examples are unusual, and that the interpretation of isolated examples can be accomplished using cues from adjacent clauses which are specified for tense. The purpose of this section is to show that this suggestion is not true, and that clauses without temporal markers form the majority of clauses in written Indonesian at least.

No textual analysis is presented here of the use of quantifiers (although a bare count of such elements is given in section 3), or of alternative strategies for fixing the reference of noun phrases. There are two reasons for preferring to concentrate on the clause level elements. Firstly, although the discussion of the preceding section concluded that quantifiers were the most plausible candidates to be considered as overt realisations of the category D in Indonesian, this conclusion is much less certain than that concerning the status of three classes of elements which can appear between subject and verb in the clause. Secondly, the alternative strategies available for fixing reference are complex and numerous. In addition to those mentioned in section 1, there is the extensive use of modifiers. This can be seen in example (25): the noun *data* is immediately followed by a relative clause which makes the reference unambiguous, and, within that relative clause, the noun *pidato* is followed by the (derived) adjective *tersebut* although the natural English translation is to use the definite article. A full analysis of the use of such strategies would require careful judgments as to the referential status of each noun phrase in the texts. In comparison, the judgments required to obtain useful data about the use of clausal markers are clearcut.

2.1 Data and method

The results reported below are based on the analysis of a small corpus of written Indonesian. Two sources have been used for the text sample. Seven articles (totalling 264 clauses) published in the online edition of the newspaper *Kompas* were analysed, along with eighteen email messages (totalling 200 clauses) forming one thread on a discussion list. Full details of these sources are given in the Appendix. This sample is open to criticism on at least two grounds. Firstly, it is very small, and secondly, a corpus containing only two genres is not a representative sample. However, the results which are reported below are very clear, and I would suggest that results from a larger and more representative sample are unlikely to give results which are very different.

The texts were first divided into clauses. A clause was counted for each predication which I judged could be marked for polarity, modality and temporality. The count therefore includes main clauses, complement clauses, adverbial clauses and relative clauses. I then examined the texts for the occurrence of various elements. Of primary interest were the temporal markers. Those that occurred in the texts are listed in the following table:

- (26) *akan* 'will'
sedang 'be in the process of'
sudah 'already'
telah 'already'
belum 'not yet'
masih 'still'
pernah 'ever'

The two markers glossed with the meaning 'already', *sudah* and *telah* are equivalent, but *telah* only occurs in written contexts. *Sudah* is used both in writing and in speech. I also noted occurrences of the negation markers *tidak* (and its abbreviated form *tak*) and *bukan* which is used only to negate nominal predications. Occurrences of the following modal verbs were also noted:

- (27) *bisa* 'can, be able'
boleh 'be permitted'
dapat 'can, be able'
harus 'must'
mesti 'must'
perlu 'need'
tidak usah 'not have to'

In principle, *usah* is a free morpheme, but in fact it almost never appears without the negator *tidak* (or its abbreviation *tak*); all instances in this sample have the negator. All the markers mentioned thus far are those which were discussed in section 1 as possible functional heads above V in the clause structure. In addition to these, I also noted the occurrence of all other temporal adverbial elements. These included single words such as *sebelumnya* 'previously', phrases such as *pada 1999* 'in 1999', and entire clauses such as *sebelum pesawat itu lenyap* 'before the plane disappeared'. For the email data, quotes included in messages were not included in the count; such passages were counted only on their first appearance.

2.2 Results and discussion

The results for each text, and summaries for each group of texts and for the entire corpus, are given in the Table 1.

These results show that temporal marking occurs in only approximately 10% of clauses in this sample of written Indonesian, and that this does not vary a great deal across the two genres which are represented. The rate of use of overt temporal markers is very similar to the rates of use of overt markers of both negation and modality, allowing for a genre-specific variation in modality. This suggests that, for all of these categories, lack of overt realisation of the category equates with unmarked status in Indonesian.

The data on temporal adverbs show mixed results, but these figures do not suggest that the rare use of temporal markers is compensated for by a heavy use of temporal adverbs. Genre-specific variation in the use of temporal adverbs is even more evident than in the use of modality, and this is not surprising given that all the journalistic texts were news stories which, by their nature, are likely to emphasize time. In this connection, it should be noted that there are four clauses in the *Kompas* texts which contain both a temporal marker and a temporal adverb.

Although these results must be taken as tentative, given the limited nature of the corpus, they nevertheless indicate that most Indonesian clauses are likely to lack an overt temporal marker, and that each such clause is also unlikely to have a clause with an overt temporal marker adjacent to it. This in turn suggests that temporality in written Indonesian text is

Item	Clause	Temporal Marker	Negation	Modal	Temporal Adverb
Article1	42	5	3	0	8
Article2	43	2	1	3	11
Article3	43	2	1	0	10
Article4	34	7	4	1	4
Article5	35	0	2	0	2
Article6	35	1	3	4	5
Article7	32	1	1	3	4
Sub-total	264	18	15	11	44
Message1	20	1	1	3	2
Message2	13	2	1	4	1
Message3	12	3	1	0	2
Message4	2	0	0	0	0
Message5	6	1	0	1	0
Message6	6	1	0	0	1
Message7	8	0	1	2	0
Message8	18	2	2	1	0
Message9	15	0	2	1	0
Message10	13	1	1	5	0
Message11	23	3	1	2	1
Message12	27	2	5	8	0
Message13	1	0	0	0	0
Message14	20	6	4	3	1
Message15	2	0	0	0	0
Message16	8	0	2	1	0
Message17	4	0	1	0	0
Message18	2	1	0	0	0
Sub-totals	211	25	23	32	8
Totals	475	43	38	43	52

Table 1 – Occurrence of Temporal Markers, Negation, Modals and Temporal Adverbs in a small corpus of Indonesian text

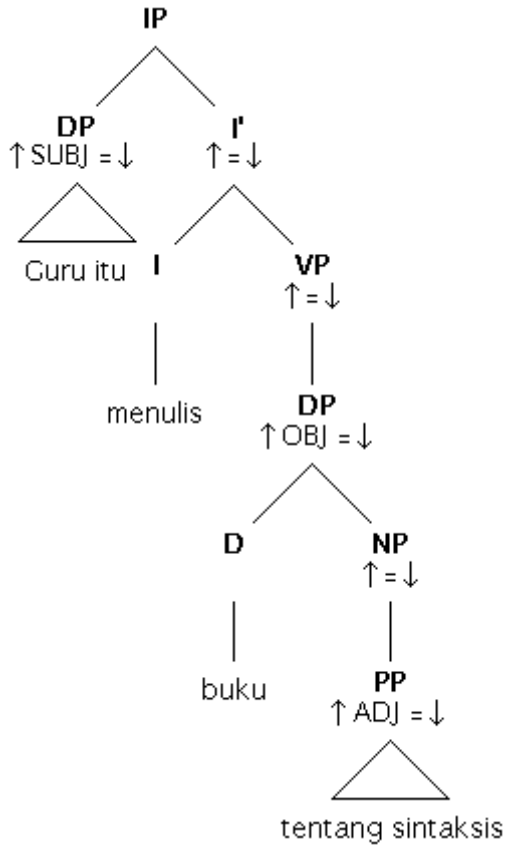
constructed on the basis of contextual information, and not from information explicitly coded by temporal markers. The conclusion has consequences for an analysis which takes I or its equivalent to be an obligatory category in the Indonesian clause, and I discuss these consequences in the next section.

3. The semantic content of functional categories

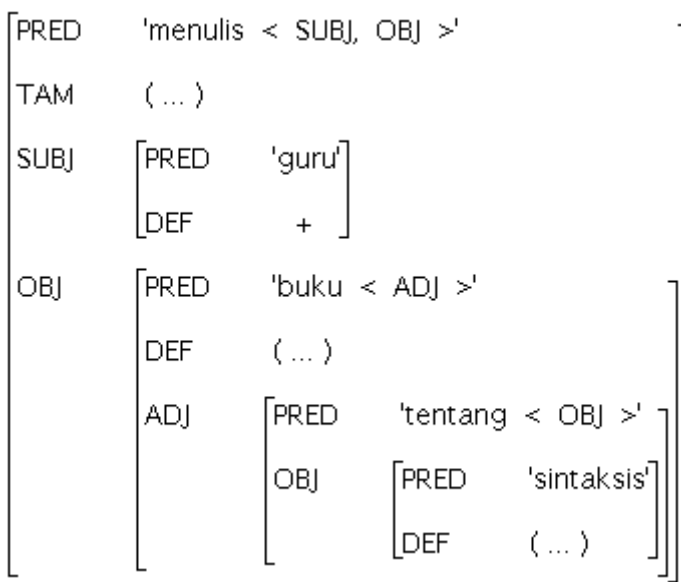
In Musgrave (2002), I argued that I and D are functional categories that exist in Indonesian. Following the standard account of such categories, this means that they are compulsory: every clause must be headed by an I and every referential phrase must be headed by D. But as shown in the previous section, functional categories are commonly not instantiated in Indonesian. In the Lexical-Functional Grammar account of Musgrave (2002), where there is no phonological material realising an obligatory functional category, the lexical head of the complement phrase will appear in the c-structure position of the functional head

(Bresnan 2001). I proposed that, for Indonesian, such structures are associated with a radically underspecified semantic value in the f-structure which is compatible with, and is given content by available contextual information. This is shown in the following example by the value (...) assigned to the attributes TAM (tense/aspect/mood) in the outer f-structure and DEF (definiteness) in the f-structure associated with the DP¹¹:

(28)



(29)



¹¹ Some non-branching nodes are omitted from the following c-structure.

- (30) *Guru itu menulis buku tentang sintaksis*
 teacher that AV-write book about syntax
 'The teacher wrote a book about syntax.'

The evidence presented in section 2 shows that, for the assumed functional head I, this situation of underspecified semantic content which is filled in by pragmatic inference is not an occasional occurrence. It is not a strategy used only to rescue otherwise uninterpretable structures; rather it is the normal strategy for assigning tense and aspect to clauses. The discussion in section 1 suggests that similar arguments may apply in the case of any assumed functional head D. Firstly, there is no really satisfactory candidate for an overt realisation of that category. Secondly, the best available candidate is a category which does not occur very commonly in texts; in the sample analysed in the previous section, 75 quantifiers occur in the 475 clauses, and there is certainly an average of more than one noun phrase per clause. In addition to this, a number of other strategies are available for fixing reference in Indonesian, and, as for tense and aspect, in many cases the strategy used depends on pragmatic inference from the context.

We can observe that very little changes in our account of how clauses are anchored temporally and NPs are assigned reference if we do *not* assume the existence of obligatory functional categories. Where an overt temporal marker is used, the semantic content of the lexical item is used in interpreting the clause. Where some element occurs in an NP which fixes its reference, that information is used for interpretation. But, in either case, where no such element occurs, interpretation is accomplished using pragmatic inference. The only difference in the account without functional categories is that the information derived via pragmatic inference is not assumed to be used to fill in the semantic content of a functional head before contributing to the interpretation of the utterance. Instead, that information is integrated directly in to the interpretation using whatever mechanism we assume to handle pragmatic inference in general.

According to this line of thinking, the covert functional heads I (really tense and aspect) and D are not needed for semantic interpretation of Indonesian utterances. The contribution which they could be argued to make can equally be made by other mechanisms which are independently motivated. Given the absence of compelling syntactic evidence for the presence of such covert categories, I suggest that there is no empirical argument that such covert categories are obligatory in Indonesian. There is no doubt that a projection above VP associated with tense and aspect is motivated in the cases where overt material appears between the subject NP and the verb. But there is no reason to assume such projections exist in other cases and Occam's Razor applies: where they are not realised overtly, a projection associated with tense and aspect does not exist in Indonesian. And the case for projections above NP is even weaker; it is not even clear what lexical elements might be good candidates for overt realisations of the heads of such projections, and the semantic work such heads might be assumed to do is accomplished by other mechanisms.

These arguments are only applicable in the cases of the two categories just discussed. Given that absence of negation or of modality has a distinct semantic value, it would be possible to argue for these two categories being obligatory in Indonesian clauses. And if that more nuanced position were adopted, then the analysis of Passive Type 2 clauses proposed by Guilfoyle et al. (1992) might be rescued. It should also be noted that the conclusions reached here may allow both the analysis of Guilfoyle et al., and that of Musgrave (2002) to use D⁰ as a category. If the proposal that quantifiers are determiners in Indonesian is accepted, then the category D is available as a category in the lexicon, which is what is needed to maintain the two analyses in question. They do not depend on the assumption that D obligatorily

dominates NP in Indonesian, and that is the assumption which I have been arguing against in this section.

4. Conclusion

I have argued above that it is a mistake to assume that a full range of functional heads above VP and above NP is obligatory in Indonesian syntax. The evidence leads to a more nuanced view, with some functional heads at clause level, those associated with negation and modality, possibly being obligatory, while others, determiners at noun phrase level and heads associated with tense and aspect at clause level, are optional. Indonesian was used here as an exemplar of formal Malay varieties, and I would suggest that these conclusions will extend at least to other formal varieties, and perhaps further into the spectrum of Malay varieties. Two analyses of Indonesian which have been discussed here, those of Guilfoyle et al. (1992) and of Musgrave (2002), seem to be unaffected by this reassessment; it is not clear that this will be true in general of previous analyses of the language, or of analyses of other Malay varieties.

Appendix – Sources of data

Journalism

Seven articles published at www.kompas.co.id

Title	Date and Time Posted
Presiden Pidato Lagi, Data Kemiskinan Jadi Sorotan	23 Agustus 2006 - 07:20 wib
Amnesti Internasional Tuduh Israel Sengaja Serang Warga Lebanon	23 Agustus 2006 - 07:28 wib
Pesawat Jatuh di Ukraina, 170 Penumpang Tewas	23 Agustus 2006 - 07:23 wib
China Bantah Jual Senjata ke Hizbullah	23 Agustus 2006 - 06:39 wib
Ribuan Korban Lumpur Panas Unjuk Rasa	22 Agustus 2006 - 10:45 wib
NU Berharap Kongres Pemuka Agama Tidak Beraroma Politik	23 Agustus 2006 - 03:39 wib
Mendagri: Perda Syariat Masih Dalam Lingkup UU Tentang Pemda	23 Agustus 2006 - 01:13 wib

(wib = waktu Indonesia Barat / western Indonesian time)

Email

18 messages written in March 1998 and archived under the title *Etis Penerjemah* at <http://www.geocities.com/Athens/Olympus/7484/archind.html> (site visited 23 August 2006)

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