The core-oblique distinction and core index in some Austronesian languages of Indonesia

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Abstract

This paper explores the nature of core-oblique distinctions in some Austronesian languages of Indonesia, focussing on the intermediate status between core and oblique categories. A core index is proposed to determine the core status of an argument. Investigation into core indices shows that there is a cline running from syntactically core to non-core (oblique) in Indonesian and Balinese. A core-index-based analysis allows us to claim syntactic transitivity with confidence and to successfully resolve the controversial transitivity problem of the Indonesian bare verb construction. The analysis also advances our understanding of the nature of syntactic transitivity and symmetricality of voice system. A core index is, however, not always available: the Austronesian languages of eastern Indonesia often show little or no grammatical properties associated with the core-oblique distinction. Implications of recognising semi-core arguments in theories of grammatical relations are also discussed.

1 Introduction*

The core-oblique distinction is perhaps one of the key distinctions in grammar. While the distinction is perhaps not universal, it is observed in many languages. The distinction is often important for language-internal reasons. For example, certain behavioural properties in Balinese and Indonesian (discussed in section 3) are sensitive to the core-oblique distinction. The languages of eastern Indonesia, however, do not exhibit clear signs that a core-oblique distinction plays a role in their grammars. The core-oblique distinction is also important at the level of linguistic analysis and language description, particularly in relation to syntactic transitivity — a central topic in linguistics. One often cannot talk about the syntactic transitivity of a structure without also talking about or assuming the core status of the argument(s) of the structure.

This paper explores syntactic transitivity and the core-oblique distinction in some Austronesian languages of Indonesia, focussing on intermediate status between core and oblique categories. In particular, the commonly adopted conception that the core and non-core classification is categorical is questioned. The categorical conception of the core-oblique distinction leads to the view that syntactic transitivity is also categorical. That is, an argument is often considered either a core or not. If a structure consists of two arguments, the two arguments are both cores, then the

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structure is syntactically transitive; or alternatively, if only one of them is core, then the structure is syntactically intransitive. Determining syntactic transitivity using the number of core arguments a verb has is not always easy in practice because the core status of an argument cannot always be easily determined. This is true even in languages which show clear morphosyntactic properties sensitive to a core-oblique distinction, such as Indonesian.

The paper argues that there is empirical evidence for a cline running from syntactically core to non-core (oblique). A semi-core category could be a legitimate class of arguments, at least in Indonesian. The existence of semi-core arguments poses a challenge to modern theories of grammars that pose discrete surface grammatical relations such as Lexical-Functional Grammar.

After defining cores and obliques in Section 2, Section 3 discusses the morphosyntactic properties of coreness in Balinese and Indonesian, showing that these languages demonstrate clear cases of core-oblique distinctions. It is also demonstrated that syntactic coreness is graded. There are arguments with intermediate status between cores and obliques, classified as 'semi-core'. Section 4 further discusses semi-coreness and the difficulty in drawing lines between cores and obliques/adjuncts in other Austronesian languages of central and eastern Indonesia. Section 5 discusses the theoretical implications of the present study. Direction for further research is given in Section 6.

2 Definitions

The terms 'core' and 'oblique' are often used without explicit definitions. When definitions (and representations) are given, they vary across theories, or across language descriptions. In LFG, for example, core arguments are a class of 'surface

syntactic arguments' called Grammatical Functions (GF) that include SUBJ, OBJ, and OBJθ, in contrast to OBL(ique)s, COMP(lement clause)s, and ADJ(unct)s (Bresnan 2001:96). In Role and Reference Grammar (Foley and Van Valin 1984; Van Valin Jr. and LaPolla 1999:29), core arguments are arguments required by a (core) predicate; hence they include macro-role arguments (Actor and Undergoer) and arguments which would be classified as obliques in LFG.[1] In Basic Linguistic Theory (BLT) (Dixon 1979; 1994), cores are the required generalised (syntactic-)semantic functions abbreviated as A, O (or P, as in Comrie (1978)), and S, as distinct from E. E stands for 'Extension to core', a non-A, non-O for an extended transitive, or a second obligatory argument in an extended intransitive (Dixon 1994:122-3). E would be classified as OBL in LFG, or oblique core in RRG. The labels G and T are also used for the generalised Goal and Theme roles of a tri-valent verb (Croft 2003:143).[2] I will also make use of these labels as defined in (1) below.

To start with, I assume a commonly adopted definition where core arguments are a class of arguments that include subject and object (or A and P/O, also S in BLT), excluding obliques or E. However, I do not share the assertion that, when an argument is not core, it should then be classified as an oblique, or vice versa, for reasons to be explicated in the ensuing discussions. Hence, an argument can be syntactically neither a core nor an oblique, but a semi-core.

To be precise, the syntactic status of an argument will be approached using two complementary definitions in this paper. The first approach is to use cross-

[1] Hence in RRG, core arguments are classified into direct core arguments (Actor and Undergoer) and oblique core arguments.

[2] To be more precise, G and T are respectively called 'ditransitive indirect object participant role cluster' and 'ditransitive direct object participant role cluster' by Croft.

linguistic defining properties, shown in Table 1, which give rise to the schematic classification shown in Figure 1. These properties are often useful as the first diagnostic tool for determining the status of a clausal unit, whether it is a core, an oblique, or an adjunct.[3] As noted, the three categories have overlapping properties. For example, while obliques are often considered as arguments, they also share the properties of adjuncts (shown by the shaded cells in Table 1). The dotted vertical lines are intended to show that the distinctions between classes are not always clear cut.[4]

<Table 1 HERE>

<Figure 1 HEE>

However, it is often necessary that we use a second approach, namely language-specific definitions, to further support and complement the analysis of the first approach. The language-specific definitions often make use of a set of diagnostic

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[3] Note that each property is a necessary, but not sufficient condition on its own (cf. Ross 2002:28). For example, properties (i)-(iii) may include not only cores but also obliques. Property (iv) says that core arguments (subject and object) are thematically unrestricted, captured by the feature *–r* (unrestricted) in the Lexical Mapping Theory of LFG (Bresnan and Kanerva 1989; Simpson 1991; Bresnan 2001, among others). This means that subject and object functions are highly neutralised with respect to thematic roles. Subject and object can be associated with a range of thematic roles. They even need not have a thematic role (e.g. an expletive or raised argument). Obliques, on the other hand, generally express specific roles, and are marked for this accordingly.

[4] The defining properties shown in Table 1 are the most common cross-linguistic generalizations. It should be noted that there may be 'language specific exceptions'. For example, while adjuncts in English are generally in line with the properties shown in the table, there are instances where they could be obligatory. This kind of 'subcategorised adjunct' (Dowty 2003:39) is exemplified below with the verb *behave*:

a. *Johnny behaved badly.*

b. * *Johnny behave.* (Acceptable only with a different meaning for behave)

coding and behavioural properties that may differ from one language to another. The behavioural properties often require a deep understanding of the grammar of the language. (See Tables 2 and 3 for the core properties in Balinese and Indonesian.)

This paper proposes that core-oblique be defined in terms of a core index calculated on the basis of the defining properties of the two approaches (discussed in 3.1). There are at least three advantages of using a core index. First, for a language-internal analysis, the index provides a useful tool to assess the core status of an argument. It therefore allows us to compare it with other arguments, which in turns allows us to claim the syntactic transitivity of a structure with confidence. Second, for cross-linguistic studies, while the exact defining properties for the core index may differ from one language to another, the core index makes it possible to have a rough comparison of coreness/obliqueness of arguments of similar structures between languages. Third, related to the second point, research into core indices sheds light on broader issues of voice systems, e.g. degrees of symmetricality in voice systems in Austronesian languages (briefly discussed in (briefly discussed in 3.2).

I will also follow the work by typologists to use the abbreviations[5] shown in (1) with the following qualifications. They are used here in generalised (semantic) roles. Unless otherwise stated, they are considered as cores 'by default' (i.e., in the unmarked structure.) A and P are (almost) always cores according to the definition

[5] Abbreviations used in the glosses of the examples in this paper: 1 'first person', 2 'second person', 3 'third person', A 'attitudinal deictic', ABS 'absolutive', AM 'Ambonese Malay', APPL 'applicative', ART 'article', AV 'agentive voice', BEN 'benefactive', D 'dative', DEF 'definite', DETR 'detransitivising', FUT 'future', INTF 'intensifier', IR 'irrelais', LOC 'locative', NOM/N 'nominative', OBJ 'object', OP 'object prefix', POSS 'possessive', PROX 'proximal', p(l) 'plural', PT 'primary transitive', RE(AL) 'realis', s/SG 'singular', SF 'stem prefix former', TZ 'transitiviser', UV 'undergoer voice',

given in Table 1. G may be core or oblique. G may also alternate between core and oblique with/without language-specific morphology. T is, as we shall see, the least core.

(1) A = Actor (of a bivalent predicate)
P = Patient (of a bivalent predicate)
G = Goal (recipient, beneficiary, or goal of a trivalent predicate)
T = Theme (of a trivalent predicate)

3 Coreness/obliqueness in Indonesian and Balinese

3.1 Core properties and the core index

Balinese and Indonesian show an explicitly definable distinction between cores and obliques. Cores in these languages are characterised by a number of morpho-syntactic properties listed in Tables 2 and 3, adapted from Arka (2003) and Arka and Manning (to appear), but see also Vamarasi (1999) and Musgrave (2001; to appear).[6] The properties are purely syntactic in nature, incorporating the defining core properties previously shown in Table 1.[7] However, there are cases where the

[6] 'Extraction' is regarded as a property of core in Indonesian by Musgrave (to appear) (for unprefixed verbs). It is not included in Table 3 as it applies only in non-standard Indonesian. In standard Indonesian, extraction is only possible with subject. While it could be found in informal (spoken) Indonesian, the judgment of its unacceptability varies and is often in dispute. The inclusion of the extraction property would not significantly affect the core index shown in Table 3 (and the analysis based on table): A, G, P and T would have the same indices as their counterparts in Balinese, which are 1.00 (12/12), 0.91 (11/12), 0.83 (10/12), and 0.66 (8/12) respectively. The only difference would be the core index of the A of the UV verb, which would be 0.66 (8/12), meaning that it is slightly less core that the one now shown in the Table (even though it is still a core argument).

[7] For example, the property of being 'thematically restricted' (iv) is realised by categorical expressions of NPs (no marking of specific roles) and PPs (where a P marks a specific role).

syntactic properties are inseparable from non-syntactic properties, discussed briefly below.

The core index of an argument is calculated and displayed in the last row of the table. The core index is the proportion of (language-specific) core properties which are positively satisfied by the argument of a verb. The index therefore will range from 1.00 (all positive, 'highly core') to 0.00 (all negative, 'highly oblique').[8] This simple calculation of a core index will be used to determine and compare degrees of coreness/obliqueness of arguments (discussed in 3.2 ff).

In this subsection, I focus on the clear contrast of the core-oblique distinction and the nature of sharing core properties by the so-called 'core arguments'.

A contrast of core and oblique status is evident when the A argument of the agentive voice structure (henceforth A_{AV}) and the A argument of the passive voice structure (A_{PASS}) are compared.[9] The two realisations of the A argument are in sharp contrast with each other: all core properties are positive for A_{AV} but are negative for A_{PASS}, as reflected in the maximum core index of 1.00 (columns 1) vs. an index of 0.00 (column 6) in Table 2.

<Table 2 here>

<Table 3 here>

[8] It should be noted that the core index calculation assumes that the core properties are of equal status. I have investigated whether core properties in Indonesian and Balinese listed in Tables 2 and 3 may have some kind of ranking, but found no conclusive result. It remains to be investigated further whether this is indeed the case, and/or whether other languages may show evidence for relative prominence among core properties. I leave this for future research.

[9] For simplicity, if necessary, an abbreviation of voice type is subscripted to the argument, e.g. A_{UV} is the A argument of the UV (undergoer voice) verb.

A similar contrast is also observed for the expressions of G in Indonesian, e.g. with the verb *bawa* 'bring', which can be both a non-core and a core. The difference would be between a core index of 0.91 and 0.00 (see columns 2 and 7 Table 3). Only the contrast with respect to quantifier float is exemplified in (2) below. *Semua* 'all' cannot quantify *anak saya* 'my children' (G) in (2a) because the G role is not core (in PP, unacceptability of reading (ii)). The quantifier can quantify the G argument when this argument is realised as a core (object) in the applicative structure (2b-c).

(2) a. *Saya membawa uang itu untuk anak saya kemarin semua.*
1s AV.bring money that for child 1s yesterday all
i) 'I brought all of the money for my child(ren) yesterday.'
ii) ?*'I brought the money for all of my children yesterday.'

b. *Saya membawa-kan anak saya uang itu kemarin semua*
1s AV.bring-APPL child 1s money yesterday all
i) 'I brought all of the money for my child(ren) yesterday.'
ii) 'I brought the money for all of my children yesterday.'

c. *Anak saya saya bawa-kan uang itu kemarin semua*.
child 1s 1s UV.bring-APPL money that yesterday all
i). 'For all of my children, I brought that money yesterday.'
ii) 'For my children, I brought all of the money yesterday.'

d. *Anak saya saya bawa-kan uang kemarin semua.*
child 1s 1s UV.bring-APPL money yesterday all
i). 'For all of my children, I brought money yesterday.'
ii) *'For my children, I brought all money yesterday.'

Tables 2 and 3 also show that certain properties are only partially shared by the arguments classified as cores. There are at least two reasons for this.

First, certain properties appear to be properties of 'highly' or 'higher-ranked' cores, and are therefore (often) not shared by arguments of marginal core status. For example, G and P in Balinese and Indonesian always participate in subject alternations. Subject alternation is not possible for T in Indonesian. However, while

T possibly alternates with subject in Balinese, native speakers of Balinese would often consider that G alternates more easily with subject than T.[10]

It should be noted as well that information structure, such as definiteness, may also be a factor, and interact with the core properties. In a ditransitive structure, A and G are generally definite, whereas T is typically indefinite. Then quantifier float is always acceptable for A and G, but not so for T. Quantifier float for the T argument is fine as in (2c) when the T argument is definite; otherwise the quantifier float fails (the unacceptability of reading (ii) in (2d), in contrast to reading (ii) in (2c)). I would say that quantifier float is still operative for the coreness of T in (2d), but it happens to be blocked by definiteness, a property of information structure, which is strictly speaking non-syntactic.

Second, core properties are sometimes inseparable from semantic and/or grammatical subject properties. For example, the actor voice (AV) marking on the verb picks up the simultaneous properties of an argument being a core, an actor, and the surface subject/pivot. Likewise, reflexive/operator binding in Balinese may require the binder argument to be a core and thematically superior to the bindee, otherwise reflexive binding fails, as exemplified in (3). The third person argument binder 'he' (*ia/=a*, index *i*) can bind the reflexive *awakne* only in the AV and UV structures (3a-b), where this binder is simultaneously actor and core. Binding fails in

[10] The constraint responsible for variations in function alternation of the two objects is captured by the AOP (Asymmetry Object Principle) in LFG (Bresnan and Kanerva 1989; Bresnan and Moshi 1990). A language that allows only one object to alternate with subject is referred to as a language with asymmetrical objects. The argument-structure based analysis of the AOP in the Indonesian languages of Nusa Tenggara is discussed in Arka (to appear). Parameterized properties in voice system and object doubling are also discussed in Foley (1998).

(3c) because the intended binder *ia* is an oblique, marked by *teken*, even though the argument is an actor,

(3) a. *Ia*$_i$ *ngedengin anak-e cenik ento*$_j$ *awakne*$_{i/j}$ *di kaca-ne*
3 AV.show person-DEF small that self.3 at mirror-DEF
'He$_j$ showed the child$_i$ himself$_{i/j}$ in the mirror'

b. *Anak-e cenik ento*$_j$ *edengin=a*$_i$ *awakne*$_{i/j}$ *di kaca-ne*
person-DEF small that UV.show=3 self.3 at mirror-DEF
'He *j* showed the child *i* himself *i/j* in the mirror'

c. *Anak-e cenik ento*$_j$ *edengin-a awakne*$_{j/*i}$ *di kaca-ne*
person-DEF small that show-PASS self.3 at mirror-DEF
teken ia$_i$
by 3
'The child$_j$ was shown himself$_{j/*i}$ in the mirror by him$_i$. '

3.2 Prominence and degree of coreness

There are logically at least three ways to rank arguments: (i) ranking based on 'surface' grammatical relations (e.g. grammatical subject>non-subjects, (ii) ranking based on 'semantic' role prominence (e.g. Actor>non-Actor), and (iii) ranking based on coreness of the arguments (e.g. cores>non-cores). Discussing all of these rankings in detail, their interrelationship and significance in the grammar of a language, or grammars across languages, is beyond the scope of the present paper. In this section, I mainly focus on (iii) in relation to Balinese and Indonesian, based on the core index discussed in 3.1.

The point I want to make is that syntactic transitivity is graded if viewed in terms of the core index. Table 4 (based on Tables 2 and 3) shows the relative degree of coreness/obliqueness of arguments in Balinese and Indonesian. As seen, the ranking shows striking parallelism.

<Table 4 here>

The following two points are worth noting from Table 4: i) the cut-off point between core and non-core classes, and ii) the degree of coreness within the core group.

The cut-off index of the core class in both languages differs slightly, but it is over 0.60. In contrast, typical obliques have a core index of less than 0.10 for the passive A, and an index of 0.00 for other types of obliques. Thus, there is a big gap between cores and typical obliques. Arguments having a core index of less than 0.60 but more than 0.10 are an interesting area to be investigated. What kind of verbs/structures are these arguments associated with? This is the topic discussed in section 4.

The number in the last row of Table 4 shows that, within the core group, the core members have different degrees of coreness. The A_{AV} argument is the most core, and T is the least core in both languages. In between, in descending order, are G, P, and A_{UV}.

It is widely accepted that A and P are the typical core arguments of transitive verbs. Table 4 shows that A_{AV} and P arguments have a core index of over 0.80. Then, we can say that typical core arguments in Balinese and Indonesian are the ones having a core index of 0.80 or more. Note that G is also a decidedly core argument, the second most core after A_{AV}.

The core index of A_{UV} is over 0.70, between P and T. While A_{UV} is not a core like A_{AV} or P, its core index of 0.75 (Balinese) or 0.72 (Indonesian) is high enough to qualify it as a core argument.

Then, the alternation from agentive voice (AV) to undergoer voice (UV) is not the same as passivisation. While it does indeed result in a decrease in the degree of coreness of A, the decrease does not significantly demote the core A to an oblique.

Note that oblique A_{PASS} has a core index of 0.00 (Balinese) or 0.09 (Indonesian). We now have a core index as quantitative evidence to support the analysis that A_{UV} is a core, and therefore the UV verb in Balinese or Indonesian is not passive. The UV structure is syntactically still transitive. In short, core indices of A_{AV} and A_{uV} in Indonesian and Balinese provide support for the symmetrical voice system analysis (cf. Foley 1998).

The core index proposed in this paper has been applied to Cebuano (Shibatani 2005). Shibatani shows that A of the UV construction in Cebuano is highly core having a core index of 0.82, but P of the UV construction has a core index of 0.09, much less than its Balinese and Indonesian counterparts. The Cebuano system therefore appears to be less symmetrical than the Balinese system. Viewed in terms of core indices, symmetricality of voice systems is also a matter of degree. Thus, languages should not be simply categorically classified as symmetrical vs. non-symmetrical, but rather as having degrees of symmetricality (i.e., a cline from highly symmetrical, less symmetrical to highly non-symmetrical). [11]

Finally, the status of T: it is the least core member among what are traditionally classified as core arguments. The core index of T is slightly over 0.60. It is close to the borderline between core and non-core classes, on the assumption that the borderline index between core and non-core is around 0.50.

4 Investigation into borderline cases

The borderline cases between core and oblique are of special interest. Research into this area could shed light on the nature of arguments and the related

[11] Shibatani's analysis was based on limited data and needs further research. To what extent symmetricality of voice systems varies in other Austronesian languages is also a matter of future research.

(syntactic) argument structure of the verb or verb class involved. It could lead to a better understanding of variations in argument expressions within a language or across languages. In the following subsections, data from Indonesian and other Austronesian languages of Indonesia are discussed.

4.1 The stimulus of the verbs 'like' and 'hate' in Indonesian and Balinese

There is some evidence that Balinese grammar imposes a more categorical core-oblique distinction than Indonesian. Consider the difference of status of the stimulus of the verb 'like', which is *demen* in Balinese and *suka* in Indonesian:

(4)		i) **Balinese**:	ii) **Indonesian**:	iii) **Status of the stimulus**:
(a)		NP *demen* PP	NP *suka* PP	(oblique)
(b)	*	NP *demen* NP	NP *suka* NP	??
(c)		NP *N-demen-in* NP	NP *meN-suka-i* NP	(object)

As noted, both Balinese and Indonesian allow (4a) and (4c) structures: bare verbs followed by stimulus obliques (a) and transitive applicative verbs with stimulus NP objects (c). However, Indonesian further allows the structure of 'like', (b), which is barred in Balinese. This is the structure containing a bare verb followed by a stimulus NP.

The question now is, what is the syntactic status of the stimulus NP in Indonesian (4b)? The core index of this stimulus NP was calculated, and displayed in comparison with the other two structures in Table 5.

<Table 5 HERE>

The table clearly shows that the stimulus in the three constructions has different degrees of coreness. The stimulus NP of the applicative [MEN-SUKA-I NP] structure (column 1) is a highly core argument (object) (with a core index of 0.82). In contrast, the stimulus PP of [SUKA PP] is an oblique (with a core index of 0.09, column

3). The stimulus NP of [SUKA NP] is in between core and oblique (with a core index of 0.54, column 2).

I will use a broad term, 'semi-core', for the argument that is not really a core, but it is not an oblique either.[12] This is a convenient label to mean 'partly core and partly oblique'. A semi-core in this paper is assumed to have a core index of less than 0.60 but more than 0.40 (i.e. around 0.50). In this view, the stimulus NP of [SUKA NP] is a semi-core argument.

How does the notion of 'semi' core adopted here fit with syntactic transitivity? I would like to state that it can also be used to define syntactic (semi-) transitivity. A structure having one core and one semi-core argument is 'semi-transitive'. A structure having two core arguments and one semi-core is 'semi-ditransitive'. The three structures with *suka* in Indonesian can be analysed as having different syntactic transitivity as shown in (5). The question remains as to what kind of grammatical relation the semi-core stimulus argument holds in surface syntax. It is called 'semi object'[13] in (5b), in contrast to a core in the applicative structure (5c), which is widely accepted as an object in the AV structure, or subject in the UV/passive structure. I return to the issue of surface grammatical relations in 5.

(5)		STRUCTURES/ CONSTRUCTIONS	SYNTACTIC TRANSITIVITY	STATUS OF THE STIMULUS
	a.	[NP *suka* PP]	Intransitive	non-core or oblique
	b.	[NP *suka* NP]	Semi transitive	semi-core, or semi-object
	c.	[NP *meN-suka-i* NP]	Transitive	core, or object

[12] One could perhaps alternatively use the labels 'semi-oblique', 'prepositionally-marked core', or 'oblique object'. These labels struck me as being a terminological issue.

[13] Musgrave (2001) classifies the stimulus of [SUKA NP] as an 'object-theta' in LFG, equivalent to the second object or T of the ditransitive verb.

Note that the term ‘semi-transitive’ is used here in relation to the degree of the coreness of an argument. The term is also generally used to refer to a verb that can appear in intransitive and transitive frames, typically with the object being optionally present or being optionally adpositionally marked. While these could be signs of semi-coreness, it is not always the case they signal syntactic semi-transitivity. In fact, there may be no semi-transitive structure involved, as in the following case with the verb *benci* ‘hate’. Like *suka* ‘like’, the Indonesian verb *benci* ‘hate’, can appear in [NP *benci* PP] and [NP *benci* NP] structures, equivalent to [NP *suka* PP] (5a) and [NP *suka* NP] (5b) respectively. This gives the impression that the stimulus is optionally prepositionally marked for both verbs, and we have cases of semi-intransitive for both verbs. However, if checked, the degree of coreness of the stimulus NP of *benci* and *suka* differs, as shown in Table 6. The NP of *benci* (column 1) is a core (with a core index of 0.67), whereas the NP of *suka* (column 2) is semi-core (with a core index of 0.54).

<Table 6 HERE>

The fact shown by *benci* and *suka* highlights the point that coreness is not semantically/lexically predictable: a stimulus of semantically similar verbs does not necessarily have the same core status (core, semi-core or oblique).

4.2 The A of the di-verb in Indonesian

The *di*-verb construction in Indonesian provides further evidence for degrees of coreness. It allows three different expressions of the actor argument: a pronominal clitic on the verb (DI-VERB=PRO), an independent NP (DI-VERB NP), and a PP (DI-VERB PP). They are exemplified in (6).

(6) a. *Saya* *di-lihat=nya/mereka* (DI-VERB=PRO)
1s di-see=3s/3p
'Me, (s)he/they saw' (or I was seen by her/him/them)

b. *Saya* *di-lihat* *orang itu* (DI-VERB NP)
1s di-see person that
'I was seen by the person'

c. *Saya* *di-lihat* *oleh* *orang* *itu* (DI-VERB PP)
1s di-see by person that
'I was seen by the person/ by people'

The degrees of the coreness of different forms of the A argument are calculated and the core indices are displayed in Table 7. There are three points to note.

Firstly, the PP A in the [DI-VERB PP] construction certainly is an oblique A, having a core index of 0.00 (column 3).

Secondly, the NP A of the [DI-VERB NP] construction has a relatively low core index (0.31) (column 2). Put differently, it is quite an oblique argument, even though it is less oblique than the PP A of the [DI-VERB PP] construction. Arka and Manning (to appear) classify it as an oblique on the basis of the reflexive binding alone. However, investigation in this paper reveals that it has three core properties (including the reflexive binding), and another one (the imperative actor) with qualification. While it could be classified as oblique, it is not a typical oblique.

Thirdly, the core index of the A argument of the [DI-VERB=PRO] construction shows that it is a semi-core argument. It has the same core index as the stimulus NP of *suka* shown in Table 6, which is 0.54. A summary of the core status and related syntactic transitivity of the *di-* constructions is given in (7).

<Table 7 HERE>

(7)		CONSTRUCTIONS WITH *di-*	CORE STATUS OF THE ACTOR (CORE INDEX)	SYNTACTIC TRANSITIVITY
	a.	DI-VERB=PRO	semi-core (0.54)	semi-transitive
	b.	DI-VERB NP	not a typical oblique (0.31)	intransitive
	c.	DI-VERB PP	a typical oblique (0.00)	intransitive

Note that *di*-verbs are associated with different kinds of syntactic transitivity. Therefore, it is not absolutely accurate to claim that all *di*-verbs are passives, or that *di-* is a passive marker. In particular the [DI-VERB=PRO] construction is syntactically not intransitive, but 'transitive-like', even though it is not really transitive with two highly core arguments. Indeed the [DI-VERB=PRO] does not conform to the information structure typical of a passive: its patient subject is often new or indefinite, the (PRO) (non-subject) agent maintains topic continuity in the discourse (at least in the narrative text), and the sentence should be translated into 'active' in English (McCune 1979; Purwo 1989).

Furthermore, the realisation of the A argument as a semi-core, as in DI-VERB=PRO, raises problems for the analysis of surface grammatical relations (further discussed in section 5).

4.3 Semi-core in other Austronesian languages of Indonesia

There is not much discussion on the degree of coreness especially the borderline cases between core and oblique in the literature of the Austronesian languages of Indonesia. This is perhaps partly because the languages so far described may indeed lack systematic behavioural properties related to core-oblique distinctions in their grammars. It could also be due to the common practice of focussing more on the clear cases first, and leaving the borderline cases for later studies. A precise

analysis of such borderline cases commonly requires a deep understanding of the grammar of the language, which almost always requires lengthy research.

Fortunately, however, there has been a growing body of literature with quite detailed studies on the grammatical relations of the Austronesian languages of Indonesia. In what follows, I note cases that could be taken as reflecting semi-coreness. (The discussion could be biased since it is based on the limited data I am familiar with.)

4.3.1 Oblique object?

A case of an argument with intermediate status is reported with the verb 'thirsty' in Tukang Besi (8a).[14] While coded by the core marker *te-*, the stimulus of 'thirsty' shows oblique properties. It is optional[15] (indicated by the brackets in (8a)), cannot alternate with the subject/pivot marked by *na* (8b), and cannot be the head of

[14] Tukang Besi (1998; Donohue 1999; Donohue 2002) shows evidence of grammatical subject/pivot, core and voice alternations. Core arguments in this language have the following four properties. i) They are obligatory (but the subject is not always so). ii) They are realised as verbal bound forms on the verb, cross-referenced by *te*-marked NP for non-PIV and na for PIV. iii) An object core can alternate with a subject, in an undergoer voice and passive. iv) A core argument can be the head of a relative clause. Obliques are negative with respect to all these properties. Quantifier float is a property of subject/pivot in Tukang Besi, not a property of core as in Balinese and Indonesian (see 3.1)

[15] Furthermore, a verb such as 'eat' without an overt NP object is not necessarily intransitive as it is treated as transitive in certain aspects, e.g. causativisation. Also, a verb that has both subject prefix and object suffix is not necessarily transitive, as with a restricted number of verbs the two affixes may co-refer and the verb is intransitive.

no-wila-nono'o-ke *na* *amai*
3R-go-be.six-3OBJ NOM they
'All six of them went.' (Donohue 1998: 96)

the relative clause (8c). Donohue also calls it a 'false' object' or 'oblique object', and classifies it as a kind of oblique[16] because the stimulus of other verbs of the same type is expressed as an oblique in this language. (Note that the same verb class does not guarantee that the role has the same core status, as evidenced by the stimulus of *benci* and *suka*, section 4.1 above.) However, given the fact that the argument satisfies one out of four core properties, it is certainly not a typical oblique. It is more on the oblique side rather than the (semi-)core side of the core-oblique continuum.

(8) a. *Ku-motinodo'u* *(te* *tee)* (Tukang Besi)
1sg-thirsty CORE tea
'I'm thirsting after some tea'

b.* *ku-muntondo'u-ke* *na* *tee*
1sg-thirsty-3OBJ NOM tea

c. **Te* *ana* *te* *tee* *i-omtindo'u-no*
CORE this CORE tea OP-thirsty-3POSS
'This is the tea that is thirsted after.' (Donohue 1998:90-91)

4.3.2 Obliquely-marked core arguments?

There have also been cases of 'obliquely- or adpositionally-marked' cores reported in the Austronesian languages of central and eastern Indonesia. These languages often have true ditransitive verbs, mainly derived by applicativisation with all three core arguments (A, G, T) being bare NPs (i.e. not adpositionally marked). The applied argument (G) typically comes immediately after the verb. This is Applicative 1 shown in (9a). However, these languages also have an alternative structure, Applicative 2, shown in (9b), where the verb comes with the same applicative morphology, but the applied G argument is adpositionally marked. In

[16] Further investigation is needed on the exact structural position of the optional te-NP in (8). If it is in an object position rather than in an oblique/adjunct position then it can be certainly classified as semi-core rather than oblique, as it would satisfy two out of five core properties (with a core index of 0.40).

addition, the applied argument does not immediately come after the verb. Thus, G is registered as 'core' on the verb but is marked as an oblique by the adposition. (In a way, this is just like the dative-shift as in English, except that the verb in these languages is morphologically complex with an overt applicative/transitiviser affix.)

(9) a. Applicative structure 1: [A VERB-APPL. G_{APPL} T]
b. Applicative structure 2 [A VERB-APPL T G_{APPL}]

Examples (10) are from Pendau (Quick 2003). Sentence (10a) belongs to Applicative 1 and sentence (10b) belongs to Applicative 2. Both verbs in (10) contain an overt transitiviser suffix *-a'*. They differ in the mood involved (IR(realis) vs RE(ealis)). Quick does not have diagnostic properties of coreness in Pendau. He is unsure about the precise syntactic status of the *sono* NP in (10b), whether it is a kind of object that is obliquely marked for its 'goal' semantic role, or indeed an oblique.[17]

(10) a. *A'u* *mombagia'oo* *bulaan* (Pendau)
1SG/AB M-pong-bagi-a' 2SG/AB gold
IR-SF/PT-give-TZ
'I will give you gold'

b. *Ula uo* *nombagia'* *doi'* *sono* *langkai uo*
snake yonder N-pong-bagi-a' money COM male yonder
RE-SF/PT-give-TZ
'That snake gave the money to that man.' (Quick 2003:276)

The following are from Bima (Jauhary 2000). Sentence (11a) is the applicative ditransitive verb (Applicative 1) with the beneficiary (G) *nahu* appearing immediately after the verb. Sentence (11b) is Applicative structure 2 with the verb having applicative morphology but the supposedly applied G argument obligatorily marked by a preposition (*ruu nahu*). Applicative 2 in (11b) is triggered by the passivisation of the T of an applicative verb as shown by the contrast between (11b) and (11c), in which the G argument cannot appear as a bare NP.

[17] It remains to be checked as to whether G can appear in a non-applicative structure.

(11) a. *Sia* *ndawi-**wea**-na* ***nahu*** *kuru* *nasi* (Bima)
3SG make-APPL-3.REAL 1SG cage bird (AV)
'(S)he has made a bird cage for me'

b. *Kuru* *nasi* *ede* *ndawi-**wea*** *ba* *sia* ***ruu nahu*** (PASS)
cage bird that make-APPL by 3SG for 1SG
'The bird cage was made by him/her for me'

c.* *Kuru* *nasi* *ede* *ndawi-**wea*** ***nahu*** *ba* *sia* (PASS)
cage bird that make-APPL 1SG by 3SG
'The bird cage was made by him/her for me'

The G argument in Bima is clearly expressible as a core and a non-core. It is a core in Applicative 1 (11a). Further evidence comes from the fact that the G of Applicative 1 can alternate with the subject in the 'passive construction' as shown in (12). The G argument is expressible as a non-core argument in the non-applicative verb (13), where it is not subcategorised by the verb and is therefore optional.

(12) *Nahu* *ndawi-**wea*** *ba* *sia* *kuru* *nasi* (Bima)
1SG make-APPL by 3SG cage bird (PASS)
'For me, the bird cage was made by him/her'

(13) *Sia* *na-tunti-ku* *sura* (*ru'u* *nahu*).
3s A3 /FUT-write- INTF letter for 1s
'(S)he really will write a letter (for me).'

The status of G in Applicative 2 (11b) is intermediate: it shows signs of core and non-core. The PP G argument is like a core because it is registered on the verb by the applicative morphology. The applicative morphology generally 'promotes' a non-core to a core position in Bima as indeed is the case with Applicative 1 (11a). The applied argument in Applicative 2 is obligatory, as shown by the contrast in (14). This is some sign of coreness. In the absence of other core properties, it is unclear whether G is a core with non-typical marking, or indeed a semi-core.

(14) a. *Sia* *na-tunti-wea-ku* *sura* *ru'u* *nahu*. (Bima)
3s A3 /FUT-write-APPL-INTF letter for 1s
'(S)he really will write me a letter'

b. * *Sia na-tunti-wea-ku sura.*

Unlike the languages so far discussed, Taba (Bowden 2001) has no language internal evidence for subjecthood, and no voice system. (It does, however, show a very limited lexical 'passive'.) Crucially, it exhibits applicativisation of the two types, similar to those in Pendau and Bima. Bowden discusses a distinction between actor and undergoer arguments (i.e. cores) and adjuncts, but does not mention explicitly the distinction between core arguments and obliques. (Presumably, obliques and adjuncts are not clearly distinguished in Taba.)

However, what he calls a 'remote' U in Taba exemplifies an argument with an intermediate degree of coreness belonging to Applicative 2, discussed previously. First of all, the remote undergoer, the instrument *peda*, in (15) is optionally adpositionally marked by *ada*. This is not a property of a 'primary' and 'close' undergoer. The 'primary' undergoer (*yak*) and the 'close' undergoer (*yan*) as in example (16), must be bare NPs in Taba. Note that (15) and (16) are two applicative sentences representing Applicative 2 and Applicative 1 respectively.

(15) *Ahmad* *npunak* *kolay* *(ada)* *peda* (Taba)
name n=pun=ak snake with machete
3s-kill-APPL (Bowden 2001:2004)
'Ahmad killed the snake with a machete'

(16) *Banda* *notik* *yak* *yan*
name n=ot-ik 1sg fish
3s=get-APPL
'Banda gave me some fish' (Bowden 2001:209)

The optional adposition marking could be taken as an intermediate property between core and non-core, because a real non-core, e.g. the instrument in the non-applicative structure as shown in (17), is obligatorily adpositionally marked:

(17) *Ahmad* *npun* *kolay* (*ada* *peda*) (Taba)
name n=pun snake with machete
3s-kill
'Ahmad killed the snake with a machete' (Bowden 2001:204)

Secondly, in terms of subcategorisation, the 'remote' applied argument such as (*ada*) *peda* in (15), is part of the meaning of the applicative verb, and is obligatorily present. (However, it may be ellipsed and is understood to be present in a given context.) A non-core instrument of the type in (17) is not part of the meaning of the verb and is therefore not obligatory.

Thirdly, in terms of its structural position, the remote undergoer is positioned after the primary undergoer (P), and cannot possibly alternate with the primary undergoer.

Fourthly, a remote undergoer can never be made the 'subject' of the 'passive' *ta*-verb (Bowden p.c.). Thus, in the following structure, the primary undergoer *kofi* 'coffee' has to appear preverbally in the *ta*-verb, and the applied locative, *meja* 'table', remains sentence-finally.

(18)	*kofi*	*tasoak*	*meja*	*li*	(appl. verb)
	coffee	ta-so-ak	table	LOC	
		DETR-exit-APPL			
	'Coffee is split all over the table.'				(ex. 113, p.220)

The properties of the remote undergoer presented above, point to its status as an argument having a degree of coreness less than its primary (P) counterpart. It is even less than a 'close' undergoer (T), e.g. the theme *yan* 'fish' in the ditransitive verb in (16). In a sense, the remote undergoer in Taba is comparable to 'semi-core' in Indonesian: both are on language-specific evaluation less core than the T argument, the least core of a 'true' ditransitive verb.

Applicative 1 may alternate with Applicative 2 as in Pendau and Bima. The alternation is not possible in Taba, where Applicative 1 is associated with the goal/benefactive role, whereas Applicative 2 is associated with instrumental and locative roles. Alune (Florey 2001), an Austronesian language of Maluku, also shows Applicatives 1 and 2, but is reported to prefer Applicative 2, even for the beneficiary

role. In example (19) the beneficiary is in PP when the verb has an overt applicative affix:

(19) *Au dilu-'e atu mama 'ai bapa=si* (Alune)
1s give-APP BEN mother(AM) and father(AM)=3P
'I gave (it) to mother and father and them.

4.3.3 The isolating languages of Flores

The Austronesian languages of Flores such as Manggarai (Verheijen 1977; Kosmas 2000; Arka and Kosmas 2005), Rongga (Arka 2005), Keo (Baird 2002), Sikka (Sedeng 2000) and Lio (Sawardi 2000), are isolating. They do not have voice and applicative morphology on the verb. Nevertheless, they do exhibit grammatical alternations comparable to morphological voice and applicative phenomena in the non-Flores languages so far discussed. The absence of applicative morphology turns out to blur the core-oblique distinction.

Consider the data (20) below from Palu'e (Donohue 2005), where the stimulus of the verb 'love' must be prepositionally marked. Donohue claims that the prepositionally marked NP behaves like a P (i.e. 'object'). It is a rather exceptionally case-marked argument of the verb because the stimulus as shown by (21), behaves like a typical P in Palu'e, in that it can alternate with the subject in the 'analytic passive'.[18] (Note that this alternation would require both passive and applicative markings on the verb in languages like Balinese.) The stimulus is certainly not an adjunct since it is part of the meaning (i.e. argument) of the verb and is obligatorily present. However, it cannot be a typical P either, because it cannot appear as a bare NP, as evidenced by the unacceptability of (20b). It is also not a 'real' oblique, since it shows a property of P (i.e. core) in being a possible passive subject (21a). In short,

[18] Donohue (2005) argues that (21a) is a passive-like structure with the 'fronted' P having subject properties in the language.

the prepositionally marked stimulus represents an intermediate case between core and oblique status.

(20) a. *Aku ŋaro* ***noʔo kau***. (NP – V – PP) (Palu'e)
1SG love PREP 2SG
'I love you.'

b. * *Aku ŋaro kau*

(21) a. ***Ia*** *aku ŋaro.*
3SG 1SG love
'I love him.'

b.* ***Noʔo ia*** *aku ŋaro*

Manggarai also shows a similar case. It even shows the case where an adjunct-like can alternate with (or 'be directly promoted to') the passive subject.

Cores are bare NPs in Manggarai. Obliques and adjuncts are PPs. Grammatical subject is attested (Kosmas 2000; Arka and Kosmas 2005). It generally comes preverbally. Sentence (22a) is a canonical (mono)transitive structure in Manggarai with the G (beneficiary) role being an adjunct rather than an oblique. The G role of the verb *pande* 'make' is not subcategorised, not part of the meaning of the verb, prepositionally marked, and structurally mobile. Sentence (22b) is unacceptable because G is made object in this sentence, making the structure ditransitive. Manggarai does not allow a ditransitive structure, except for the verb *teing* 'give' (Kosmas 2000: 61).

(22) a. *Hia pande layang-layang* (*te hi Ali*) (Manggarai)
3SG make kite-kite for Art name <A, P> G[19]
'(S)he made kites for Ali' (monotrans.)

b.* *Hia pande hi Ali layang-layang*
3SG make Art name kite-kite *<A, G, T>
'(S)he made kites for Ali' (*ditransitive)

[19] The roles within angle brackets < > are core arguments.

Manggarai has an analytic passive. Unlike Palu'e and other languages of eastern Flores, the typical alternation of passive is attested: the A argument is demoted into oblique and prepositionally marked, and the P becomes subject. The following is the passive counterpart of (22a):

(23) *Layang-layang* *pande* *le hia* *te hi Ali*
kite-kite make by 3SG for Art name <P> A, G
'The kites were made by him/her for Ali' (pass.)

Crucially, non-subcategorised and prepositionally marked units such as *te hi Ali* 'for Ali' (22a), which are adjunct-like, can alternate with a passive subject. It is like a P. In addition to passive sentence (23), sentence (24) below is another passive counterpart of (22a), where G is made core subject. Note the T (theme/patient) *layang-layang* is still core, coming postverbally:

(24) ***Hi*** ***Ali*** *pande* *layang-layang* *le hia*
Art name make kite-kite by 3SG <G, T> A
'For Ali, the kites were made by him/her' (pass.)

The direct promotion to subject is the only way for G to be promoted to core. We already see that G is not an acceptable object in the active (ditransitive) sentence (22b). The following shows that the G argument *hi Ali* is also not acceptable as an object in the passive (cf. sentence (23)):[20]

(25) * *Layang-layang* *pande* *hi Ali* *le hia* subj obj
kite-kite make Art name by 3SG <T , G> A
'The kites were made by him/her for Ali' (pass.)

Palu'e and Manggarai show that promotion to passive subject is not necessarily from a (highly core) object. Oblique-like argument in Palu'e or adjunct-like in Manggarai can directly alternate with a passive subject. This highlights the point that alternation to passive subject is not really a good test for core-

[20] A detailed argument-structure analysis of the core/non-core alternation of this type in the Nusa Tenggara languages of Indonesia, is discussed in Arka (to appear).

oblique/adjunct distinction in these languages. These languages lack applicative morphology (and indeed, any other morphology), which can generally be used as diagnostic evidence for change of core-oblique status (see the Balinese examples (26) below).

It should be noted that the restriction of simultaneous promotion to the passive or undergoer voice subject is not confined to the isolating languages of Flores. The Instrumental or Locative Voice (or Focus) in the Philippine-type of languages is of this nature. These languages have no applicative morphology. The Indonesian-type languages such as Balinese, which have applicative morphology, show obligatory direct promotion to subject with certain verbs, similar to cases in Palu'e and Manggarai. Consider:

(26) a. *Nyoman demen* [*teken be siap*] (Balinese)
name like with meat chicken
'Nyoman likes chicken meat.'

b. *Be siap ane demen-in-a teken Nyoman*
meat chicken REL like-APPL-PASS by name
'Chicken meat is the thing that Nyoman likes.'

c.?* *Nyoman nemen-in be siap*
name AV.like-APPL meat chicken

d.* *Be siap ane demen-a teken Nyoman*
meat chicken REL like-PASS by name

Be siap 'chicken meat' in (26a) is an oblique. Like in Palue/Manggarai, it can only be core when it is also made the passive subject (26b). Promotion to a core object (in the applicative active verb), shown in (26c), is not acceptable. However, unlike in Palu'e/Manggarai, the passive construction in (26b) must have its verb also overtly marked by the applicative *-in*, in addition to the passive *-a*. The obligatory presence of the applicative *–in*, as seen by the unacceptability of (26d), signals a core promotion. This tells us that the PP in (26a) is not a core in Balinese. This kind of evidence is lacking in the isolating languages of Flores.

4.4 Summary

This paper has discussed syntactic core-oblique distinctions in some of the Austronesian languages of Indonesia. Special attention has been given to the degree of syntactic coreness (measured in terms of a core index) and to the borderline cases.

Arguments having intermediate properties, called 'semi-core' arguments, are encountered even in languages such as Indonesian, which show a clear core-oblique distinction. These arguments are not only associated with the stimulus of a cognition/emotion verb such as *suka* 'like', *benci* 'hate' (Indonesian) and *ŋaro* 'love' (Palu'e), but also with an agent of an action verb as in the Indonesian *di*-verb. In other languages of eastern Indonesia, it could be also associated with the goal argument of the Applicative 2 construction.

Identifying arguments as syntactically core or oblique is often a problem in the languages of central and eastern Indonesia where limited or no behavioural properties reflecting the distinction are observed. Overt coding of NP and PP is often not helpful since an argument of intermediate status can be either NP or PP, or both. It has been shown that applicativisation (with overt applicative morphology) as in Taba, does not always results in (clear) core promotion. Passivisation is often not a good test for coreness/obliqueness particularly in the isolating languages of Flores, because passivisation does not exclusively apply to a transitive object. An oblique or adjunct-like role in Manggarai and Palu'e can be directly promoted to passive subject. The absence of applicative morphology makes it difficult to know whether the promoted role is, or is not, core prior to passivisation.

5 Theoretical implications

The evidence for the existence of semi-core argument discussed in this paper poses a challenge for a theory of 'surface' grammatical relations. Semi-coreness particularly does not fit comfortably with a theory that posits or imposes discrete relations, particularly between objects and obliques.[21] One modern syntactic theory, which makes use of the terms SUBJECT, OBJECT and OBLIQUE as discrete surface grammatical relations (called grammatical functions) is LFG. This is for example, reflected in the conception of the theory that such grammatical functions can be captured by using binary features such as [+/-o] and [+/-r] (Bresnan and Kanerva 1989; Bresnan 2001), or [+/-subject] and [+/-oblique] (Alsina 1996). I will not discuss the mechanism of how arguments receive their surface grammatical functions, as this could be quite lengthy. However, I wish to point out that 'semi-coreness' cannot be easily captured, at least in the current conception of the theory that I am familiar with.

A binary feature [+/-oblique] (cf., Alsina 1996), for example, implies the idea that an argument is either oblique or core. We have observed that the Actor of the *di-* verb in Indonesian could be neither oblique nor core. Put differently, when the Actor is not oblique, it does not mean that it is core either. If one adopts this discrete

[21] This is not a problem for typologists and descriptivists, who generally recognise the fuzzy borderlines between cores and obliques, as evidenced from their terminology, such as 'oblique-core' and 'oblique-object'. It is also certainly not a problem for theories which often use the labels 'object' and 'oblique' informally, not as part of the basic theoretical construct, e.g. transformational grammar in its different versions (GB, PP, Minimalist) (Chomsky 1981; Chomsky 1995; Webelhuth 1995), the Constructions grammar as outlined in (Croft 2001), and RRG (Foley and Van Valin 1984; Van Valin Jr. and LaPolla 1999).

conception, one might be forced (mistakenly) to label what is empirically a semi-core argument either as a core or as an oblique (sometimes quite arbitrarily).

Musgrave (2001; to appear) discusses the stimulus of a verb like *suka* in Indonesian within LFG. He concludes that it is not SUBJ, nor OBJ. The most plausible alternative, he claims, is that it is classifiable as a kind of restricted object, called OBJ-theta in LFG. OBJ-theta is the second object of a ditransitive verb. This analysis is forced by the theory, which he admits is too restrictive in the version that is currently formulated. However, Musgrave further elaborates that such an analysis is unsatisfactory empirically, in terms of the Indonesian data. The stimulus NP shows properties different from the second object of a ditransitive in Indonesian. He then concludes and prefers an analysis in which the stimulus NP is classified as a regular (transitive) OBJ. However, he conceives two kinds of grammar in Indonesian: one that regulates the standard/formal register (characterised by prefixed transitive verbs) and the other regulates the informal register (characterised by unprefixed transitive verbs). The emotion/cognition verb (in both registers) is regulated by the second grammar, in which case it is a regular OBJ. His account, he admits, has one oddity (which is not well explained): emotion/cognition verbs need applicative morphology to form a prefix verb (e.g. as in the passive *di-*), even in the informal register.

In contrast, my analysis in this paper shows that the stimulus NP is not a core, as evidenced by its core index. In this analysis, it is expected that the stimulus NP cannot be identified as any of the core members (SUBJ, OBJ, or OBJ-theta) because it is a semi-core argument (in both registers). The present analysis also predicts that if this NP stimulus has to be realised as grammatical SUBJ (which has to be a core), it must be associated with the verb having applicative morphology since the stimulus

has to be promoted to core status. This analysis is simpler than Musgrave's and, crucially, the presence of applicative morphology is accounted for.

The question remains as to how semi-coreness can be couched within LFG. There are at least two ways; both may have far-reaching consequences within the theory. The first one, also discussed (and rejected) in Musgrave (to appear), is to allow an expansion of the inventory of the grammatical functions. For example, a category of semi-OBJ, different from OBJ and OBJ-theta, could perhaps be introduced as the realisation of the semi-core argument. This proliferation of surface function classification is not attractive, however. The semi-core class itself is often a negatively defined class (i.e. neither core nor oblique). The verbs it is associated with might not form a well-defined class. (Note semi-cores may be also associated with A arguments of action verbs.) In addition, it remains a problem as to how its precise mapping mechanism fits in with the standard mapping theory (using binary features) that is currently adopted in LFG. As pointed out by Musgrave, an introduction of one feature with positive and negative values would yield more than one new class of function.

The second way out is to adopt a simplified, surface grammatical function classification, where only subject and complement functions are differentiated. This is a traditional distinction, which is also made explicit in the feature structure of HPSG (Pollard and Sag 1994). This approach seems to be attractive. Firstly, the distinction between subject and complement is more discrete than the distinction between core and non-core/oblique. It is empirically supported, at least by the Indonesian languages that show subjecthood; as discussed in this paper (and elsewhere). Secondly, the complement function itself is a broad natural class. It encompasses core as well as obliques. Crucially, (the degree of) coreness/obliqueness

is not a defining criterion for complement class membership. One is not forced to sub-classify an argument into an 'incorrect' relation, the complement analysis also does not prevent one from making a sub-classification of complements, e.g. into a core complement, a semi-core complement, or an oblique complement. The idea that the complements contain members which have graded degrees of coreness/ obliqueness can be easily accommodated in this analysis.

The gradient nature from core to oblique/adjunct also appears to pose a challenge to Dixon's Basic Linguistic Theory (BLT) (Dixon 1979; 1994), particularly in relation to Dixon's label E. Recall that E is defined as 'extension to core, a non-A non-O for an extended transitive, or second obligatory argument in an extended intransitive (Dixon 1994:122-3). In Dixon's classification, the semi-core stimulus NP of *suka* 'like' (see 4.1) would be either E or O. Analysing it as an O means that it is analysed in the same way as the O of the actual AV transitive *menyukai*, which is a real core. Analysing it as an E means that it is analysed in the same way as the stimulus PP of *suka*, which is highly oblique and whose whole structure is syntactically intransitive. Both analyses are empirically incorrect: the stimulus NP of *suka* is not core (O), nor oblique (E).

Taking into account the degree of coreness, we can perhaps still employ Dixon's E, but a sub-classification of E is needed. One way of doing this is shown in (27).

(27)

cores					extensions of cores[22]		
A_{AV}	G	O/P	A_{UV}	T	E_1 (semi-core)	E_2 (oblique)	E_3

[22] Classified as E3 could be certain subcategorized adjuncts, see footnote 4.

The argument structures of *suka* PP, *suka* NP and *menyukai* NP can be shown in (28). In this way, we capture the facts in Indonesian that a typical oblique (E_2) behaves differently from a core object (O) and a semi-core argument (E_1).[23]

(28)	a. NP *suka* PP	<S, E_2>	(intransitive)
	b. NP *suka* NP	<S, E_1> or <A, E_1>	(semi-transitive)
	c. NP *menyukai* NP	<A, O>	(transitive)

6 Further research

It is worth highlighting the question, why do languages make core-object distinctions clear or unclear in certain cases?[24] To answer this, one must look at the coding or morphosyntactic resources available across languages, and a range of variables related to or motivating core-oblique distinctions, if such distinctions are made. When there are limited or no such distinctions in other languages, then one must investigate the equivalent variables and the related expressions in these languages.

It has been now recognised that semantic and pragmatic variables interact in a complex way to determine transitivity (Hopper and Thompson 1980). A satisfactory account for (syntactic) semi-coreness/obliqueness must take into account these non-

[23] However, there is a problem shown in (28b), where the experiencer NP is represented as S and A. It is unclear at this stage whether or not this labelling has any implication for (semi)transitivity. I do not explore this issue any further.

[24] The question of whether an argument is or is not a core is of interest to syntacticians, rather than to the ordinary (native) speaker of a language. The speaker generally does not worry about whether something is really a core or not. Rather, s/he is generally concerned with the related 'meaning(s)' (implied) such as whether something was or was not affected. A similar point is outlined by Dowty (1991), in relation to the problems of determining the number, definition, and boundaries of thematic roles, e.g. whether an argument is a Theme, Source, etc.

syntactic factors. There has been some work on the pragmatic motivation of the different expressions of A of the *di*-verb in Indonesian by Purwo (1989),[25] but not on the pragmatics of other semi-core arguments. There has been no research done on the pragmatics of core-obliques and borderline cases in Balinese. Pastika (1999) mainly discusses the pragmatics of the main core arguments in Balinese. Information on cores and obliques in the literature of the Austronesian languages consulted so far in this paper is also generally limited to overt morphosyntactic coding. There is certainly still much to be investigated concerning the pragmatics of semi-coreness in these, and also other, languages.

Nevertheless, one thing worth noting from the research reported in this paper: a pragmatically motivated distinction of core-oblique is often more evident in the alternation of oblique↔subject than of oblique ↔object. There are in fact cases of prohibited alternation of oblique and core object (see examples from Manggarai, Palue, Pendau and Balinese). This suggests topicality and contrastive focus might have been grammaticalised and tied to subject, which then becomes the only constraint to license promotion of a role to core status. An object is not associated with this grammaticalised pragmatic function, and does not attract or license promotion of a non-core role to core status. The nature of the pragmatic difference between objects and the other non-subject functions (semi-objects, non-typical

[25] Purwo (1989) discusses the discourse factors of AV (*meN*-) verbs, UV (∅-) verbs, and *di*-verbs, focusing on the different forms and positions of core arguments (A and P). With respect to *di*-verbs, he found that *di- -nya* signals that the verb is not emphasized (in contrast to *dia*∅-verb), and the referent of *–nya* is 'thematic' (i.e. described further in the succeeding clauses, i.e. *-nya* maintains topic continuity). He also noted that the NP agent of *di-* could be generic or non-generic, but did not discuss it any further, nor did he investigate the discourse of the PP agent of the *di*-verb.

obliques and real obliques) in the Austronesian languages of Indonesia is a matter for further investigation. Research of the type outlined in Thompson (1997), would be worth undertaking into the Austronesian languages of Indonesia..

A semantically motivated distinction of core-oblique is often encountered in the alternation of an oblique and a highly core object. The difference is typically associated with the affected meaning of the *load/spray* in English, or with additional volition and a slight change in lexical meaning, e.g. Balinese [*demen* PP] 'X likes $Y_{[stimulus, oblique\ PP]}$' vs. *demen-in* NP 'X makes.love.with $Y_{[stimulus, coreNP]}$. Other meanings noted to be involved in core alternations include (temporary/permanent) transfer of ownership, trivalent 'give-like' verbs found in Kimaragang (Kroeger 2005: 420-421), Indonesian and Balinese. A close scrutiny of other verb types could reveal further important meanings motivating the core alternation.

Finally, there may be no clear semantic motivation. Sociolinguistic factors could be involved. In Indonesian, when an argument is possibly realised as a core, semi-core, or oblique, the distinction is often semantically tenuous. For example, the semantic difference in Indonesian between [*suka* NP] 'like NP' (semi-core) and [*suka* PP] 'like PP' (non-core) is hard to pin down. The choice could be stylistic (which is personal). But the difference between [*suka* NP] (unaffixed) (semi-core) and [*MeN-suka-i* NP] (affixed) (core) has been recognised as register-related, informal vs. formal/standard Indonesian.

A systematic study is indeed needed to disentangle a range of inter-related variables involved in the distinctions of core, semi-core and oblique arguments.

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	Defining properties	CORE	OBLIQUE		ADJUNCT
i.	Subcategorised & obligatory?	Yes	Yes	No	No
ii.	Participant-related (i.e. role assigned by the predicate)?	Yes	Yes		No
iii.	Modifying the predicate?	No	No		Yes
iv.	'Semantically' restricted?	No	Yes		Yes

Table 1. General characterisations of argument status (core, oblique and adjunct)

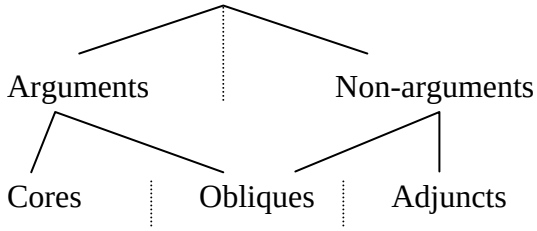

Figure 1. Classification of syntactic units

		1	2	3	4	5	6	7
		CORE					OBL	
	ARGUMENTS ⇒ CORE PROPERTIES ⇓	A of AV	G of V.dtr	P	A of UV	T of V.dtr	A of PASS	Non-A
1.	QF with simple Qs	√	√	√	*	√	*	*
2	QF with complex Qs	√	√	√	√	√	*	*
3	Topicalisation of possessor phrase	√	√	√	n.a.	√	*	*
4	Topicalisation of with resumptive pronoun	√	√	√	√	*	*	*
5	Depictive predicate	√	√	√	*	√	*	*
6	Imperative actor (= zero)	√	n.a.	n.a.	√	n.a.	*	*
7	Binding: binder of a core	√	√ for T only	*	√	*	*	*
8.	Control of complex[26] arguments	√	√[27]	√	√	n.a.	*	*
9	Marking of the verb, participation in voice alternation	*N-*	*N-*/ ∅-	*N-*/ ∅-	∅-	*N-* ∅-	*ka-*	Appl. suff. needed
10	Categorial marking	never PP	never PP	never PP	never PP	never PP	PP	PP
11.	Obligatory?	√	√	√	√	√	*	*
12.	Structural positions: (a) fixed, A-position, (b) not fixed, non-A position	(a)	(a)	(a)	(a)	(a)	(b)	(b)
	Core index:	12/12 (1.00)	11/12 (0.91)	10/12 (0.83)	9/12 (0.75)	8/12 (0.66)	0/12 (0.00)	0/12 (0.00)

Table 2: Core properties in Balinese

[26] There is a semantic constraint for this (see Arka and Simpson to appear; Arka 2003)

[27] Examples of this type include *baang* 'let, allow' where the complex argument behaves like the third core argument in Balinese.

		1	2	3	4	5	6	7
		CORE					OBL	
	ARGUMENTS / CORE PROPERTIES	A of AV	G	P	A of UV	T	A of PASS	Non-A
1.	QF with *semua* 'all'	√	√	√	*	√	*	*
2	Topicalisation of possessor phrase	√	√	√	n.a.	√	*	*
3	Topicalisation of with a resumptive pronoun	√	√	√	√	?√	*	*
4	Depictive predicate	√	√	√	*	√	*	*
5	Imperative actor (= zero)	√	n.a.	n.a.	√	n.a.	*[28]	n.a.
6	Binding: binder of a core	√	√/*	*	√	*	*	*
7	Verbal marking/ participation in voice alternation	*meN-*	*meN-* /∅-	*meN-* /∅-	*di-* /∅-	*meN-* /*	*di-*	*Appl needed*
8	Categorial marking	never PP	never PP	never PP	never PP	never PP	PP/ NP	PP
9	Obligatory?	√	√	√	√	√	*	*
10	Proclitic on the verb	√ (for ku=)	√	√	√	*	*	*
11.	Structural positions: (a) fixed, A-position, (b) not fixed, non-A position	(a)	(a)	(a)	(a)	(a)	(b)	(b)
	Core index	11/11 (1.00)	10/11 (0.91)	9/11 (0.82)	8/11 (0.72)	7/11 (0.63)	0.5/11 (0.04)	0/11 (0.00)

Table 3: Core properties in Indonesian

[28] A 'passive' *di-* verb can be used in the imperative to encode politeness, e.g. *diambil saja*! 'just take it'. However, this *di-* verb is most likely not a syntactically passive verb, because when the agent is made explicit in PP, the imperative is not acceptable, e.g. **Diambil saja oleh kamu*! 'Take it, by you!' See discussion in 5.2., where a *di*-verb could be 'transitive-like' with the A being 'core-like'.

		CORE					OBL	
		A_{AV}	G of V.dtr	P	A_{UV}	T of V.dtr	A_{PASS}	Non-A
Core indices	Balinese	12/12 (1.00)	11/12 (0.91)	10/12 (0.83)	9/12 (0.75)	8/12 (0.66)	0/12 (0.00)	0/12 (0.00)
	Indonesian	11/11 (1.00)	10/11 (0.90)	9/11 (0.83)	8/11 (0.72)	7/11 (0.63)	0.5/11 (0.09)	0/11 (0.00)
Ranking:		1	2	3	3	4	5	

Table 4: Core indices of Balinese and Indonesian compared

		1	2	3
		STIMULUS OF [MEN-SUKA-I NP]	STIMULUS OF [SUKA NP]	STIMULUS OF [SUKA PP]
1.	QF with *semua* 'all'	√	*	*
2	Topicalisation of possessor phrase	√	√	*
3	Topicalisation of with a resumptive pronoun	√	√	*
4	Depictive predicate	√	√	*
5	Imperative actor (= zero)	N/A	N/A	N/A
6	Binding: binder of a core	*	*	*
7	Categorial marking	not PP	not PP	PP
8.	Verbal marking, participation in voice alternation	√	* (appl. needed)	*
9	Obligatory/subcategorized?	yes	yes	Yes
10	Proclitic on the verb	√	*	*
11.	Structural positions: (a) fixed and/or A-position, (b) not fixed and/or non-A position	(a)	(a)	(b)
	Core index:	9/11 (0.82)	6/11 (0.54)	1/11 (0.09)

Table 5: Core indices of the stimulus arguments in *suka*-based constructions.

		1	2	3
		STIMULUS OF [BENCI + NP]	STIMULUS OF [SUKA NP]	STIMULUS OF [BENCI/ SUKA + PP]
1.	QF with *semua* 'all'	*	*	*
2	Topicalisation of possessor phrase	√	√	*
3	Topicalisation of with a resumptive pronoun	√	√	*
4	Depictive predicate	√	√	*
5	Imperative actor (= zero)	N/A	N/A	N/A
6	Binding: binder of a core	*	*	*
7	Categorial marking	not PP	not PP	PP
8.	Verbal marking, participation in voice alternation	√	* (appl. needed)	*
9	Obligatory/subcategorized?	yes	yes	Yes
10	Proclitic on the verb	*	*	*
11.	Structural positions: (a) fixed and/or A-position, (b) not fixed and/or non-A position	(a)	(a)	(b)
	Core index:	7/11 (0.64)	6/11 (0.54)	1/11 (0.09)

Table 6: Core indices of the stimulus of *benci* and *suka* compared.

		1	2	3
		A OF DI-VERB=PRO	A OF DI-VERB NP	A OF DI-VERB PP
1.	QF with *semua* 'all'	*	*	*
2	Topicalisation of possessor phrase	N/A	*	*
3	Topicalisation of with a resumptive pronoun	√	√	?*
4	Depictive predicate	*	*	*
5	Imperative actor (= zero)	√	√ (only with vocative NP)	*
6	Binding: binder of a core	√	*	*
7	marking of the verb	*di*	di-	di-
8	Categorial marking	not PP	not PP	PP
9	Obligatory?	No	No	No
10	Proclitic on the verb	√	No	No
11.	Structural positions: (a) fixed, A-position, (b) not fixed, non-A position	(a)	(a)	(b)
	Core index	6/11 (0.54)	3.5/11 (0.31)	0/11 (0.00)

Table 7: Core indices of the A arguments of *di*-constructions