Control and complex arguments in Balinese

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1 Introduction

This paper is about verbs that take "states of affairs"(SOA) as arguments, known as raising and equi constructions. We are interested in the syntactic and grammatical functional expression of these state of affairs arguments in relation to voice alternations. Balinese is useful to examine in this respect, since it shows both raising and equi constructions, and has alternations between Active Voice, Objective Voice and Passive.

Consider the equi example in (1).

(1) Tiang   negarang   [__ naar   ubad   ento]
     1   AV.try   AV.eat   medicine   that
     `I tried to take the medicine'

The meaning of a clause containing an Active Voice (AV) verb *negarang,* like its English counterpart `try', requires a *trier* (an entity), and some *action* that they try (eating in (1), a State of affairs). In both Balinese and English the *trier* is expressed overtly as the Subject of the higher verb. In both Balinese and English the *action* is expressed overtly as a clause, non-finite in English, unmarked for finiteness in Balinese. We assume that this clause is embedded in the higher clause. In both languages the Subject of the lower clause, the *eater*, is left unexpressed, but is understood to be coreferent with (i.e. controlled by) the *trier*, the Subject of the higher clause.

Existing theories of control would have no trouble representing the Balinese example in (1). But Balinese has another version of (1) which English lacks. In (1) the verb *n/tegarang* is in the Active Voice, in which (roughly) Actor maps to Subject, and Theme to Object. (2) shows the same verb in the Objective voice (OV):

(2) [__ naar   ubad   ento]$_{SUBJ}$ tegarang   tiang

     AV.eat   medicine   that   OV.try   1

`To take the medicine is what I tried'

*`*To take the medicine was tried'*

In this sentence the Theme (the clause representing the *action*) maps to Subject, while the Actor (the *trier*) is expressed as a pronoun following the verb. We will show later that this Actor is not an Adjunct, (as a demoted Agent is in an English passive) but a core or `term' argument, expressed as a Term-Complement of the verb. Both (1) and (2) are complex sentences, consisting of two clauses, one embedding the other, and sharing a common element. They differ in the morphological shape of the verb (Active Voice or Objective Voice), in the phrase structure position of the embedded clause (initially or finally), and in the grammatical function of the controller (Subject or Term-Complement).

Existing theories of control do have trouble representing the Balinese example in (2), because, by and large, they have inbuilt mechanisms to rule out the English counterpart, the passive of subject-controlled verbs like `try'. Our hope in this paper is to extend existing representations of control to capture both (1) and (2) in Balinese.

1.1 How languages express "state of affairs" arguments

Languages vary as to whether verbs can semantically select states of affairs as arguments, and as to how selected SOAs are represented, both categorially and functionally. These three properties are often linked; for example, Warlpiri, like many Australian languages (e.g. Dixon 1995 for Dyirbal) has very few verbs that select SOA arguments (Hale 1982), a categorial restriction only allowing nominals to act as arguments of sentences, and a functional restriction on categories such as those identified for English by Bresnan (1982), COMP and XCOMP English (Simpson 1990).

But unlike Warlpiri, many languages allow clauses (finite or non-finite) to act as arguments of a verb. For convenience, we list the syntactic expressions of SOA arguments in a left-right line:

Tensed clauses	With expletive anaphor	Anaphoric control	Equi	Raising	Complex predicates French
That Peter was dismissed shocked me	*I love it that you can do it so easily*	*Mary signalled (for us) to leave*	*John tried to go.* *We persuaded John to go*	*John seemed to like Mary.* *We believe Mary to like John.*	*Je ferai manger les pommes à Jean*
	serial verb constructions of varying degrees of tightness, in which one verb and its arguments constitute an argument of the other verb				

The leftmost share the least number of features with the matrix clause; the rightmost share the most. Thus, on the extreme left, no argument of a finite sentential Subject in English is expected to be an argument of the matrix clause. On the extreme right, all arguments of certain complex predicates have been taken as arguments of the matrix clause (see also Urdu permissive constructions discussed by Butt 1997). In between are several kinds of embedded clause that can act as arguments, but which share one (or sometimes more than one) argument and perhaps other properties, with the embedding clause (see Andrews (1982) for Icelandic raising and equi constructions, and Neidle (1982) for similar facts in Russian).

As the line suggests, Raising constructions share some but not all properties with Complex predicates. They

contain one argument which is shared in a very tight way between both predicates. Work in recent years on the syntactic realisation of complex predicates (Alsina 1992, Mohanan 1995, Butt 1997) has led to the positing of a syntactic level of argument structure at which many of these complex predicates are formed by argument sharing. Moreover, some of the mechanisms which Bresnan (1982) used to explain control phenomena, in particular functional control equations and the use of lexical rules to change functional control equations, no longer exist, or now have analogues in argument structure. So it seems worth exploring the possibility that control phenomena (in which we include both Raising and Equi constructions) should be handled at argument structure. Balinese provides a useful place to explore this, because the system of Active, Objective and Passive Voice provide rich material for exploring the syntactic status of the constructions.

1.2 Bresnan's (1982) account of control

Within Lexical-Functional Grammar, Bresnan (1982) argued that representing control phenomena involved both semantics (via the lexical entries of verbs), and syntax (via the grammatical functions of the controller and the controlled argument). She gave a detailed account of control phenomena in English, addressing the four central properties that need to be accounted for:

1. how are the two clauses linked?

For control phenomena she assumes that the clauses are linked by embedding. One clause acts as an argument of the other. The subject of the lower clause is understood to be shared between the two clauses. Otherwise the clauses are independent. There are two kinds of sharing, absolute identity (functional control) and referential identity (anaphoric control).

In functional control, the phrasal category representing the controlled clause is an XP with a missing Subject identified obligatorily with some function in the higher sentence. In "anaphoric control", the clause is a full sentence with an invisible zero pronominal Subject which may be identified anaphorically with some element of the higher clause (and sometimes understood to refer outside the sentence), or may be treated generically:

(3) At the moment, the goal of the police is to try to prevent a riot

At the moment, the goal is to try to prevent a riot

The unexpressed subject of *try* is anaphorically controlled by *the police* in (7a) but is arbitrarily controlled in (7b). The unexpressed subject of *prevent* is functionally controlled by the unexpressed subject of *try* in both sentences.

2. what are the functions of the two clauses in the sentence?

The higher clause is taken to provide the argument-taking predicate for the complete functional structure. The lower clause is assigned the function XCOMP or COMP, depending on whether the shared element is absolutely or referentially identical to some element in the higher clause.

XCOMP is a special kind of grammatical function, distinct from Subject, Object, Adjunct etc. The X was intended to show it could be expressed by any lexical category (N, V, A, P), and the COMP showed that it expressed a complement of the verb. XCOMP is an `open' grammatical function -- that is, XCOMP can only be assigned to a phrasal category XP, where XP does not include an element representing the Subject. In English, XCOMP is assigned to a particular place in the VP, following the Object if there is one. In this way Bresnan captured Bowers' (1972) insight that English has a "Predicate" constituent following the verb in its phrase structure, which does not behave like an Object.

The embedded clause headed by *prevent* in (3) is an instance of XCOMP and the one headed by *try* is an instance of COMP. This difference may have syntactic manifestations -- for example an Adjunct agreeing with the understood subject of an XCOMP should have the same case as the controller of that XCOMP, while an Adjunct agreeing with the understood subject of a COMP would normally have the same case as an overt subject of that COMP (Andrews 1982, Neidle 1982, Simpson 1983).

3. how is the shared element represented in the sentence?

The shared element is realised once, as an argument of the higher verb.

4. how do we know what is the shared element?

Referential identity can be assigned in a variety of ways, both lexical and pragmatic. For purely referential identity (i.e. when the SOA argument is expressed as a COMP), a null anaphor was assumed, what is called `anaphoric control'. For absolute identity (i.e when the SOA argument is expressed as an XCOMP), the lexical entry of the higher verb tells us what the grammatical function of the shared element is both in the higher clause and in the lower clause. That is, information about possible controllers is represented as functional equations in lexical entries of verbs. This is what is called `functional control'. Thus for `John believed Mary to have left' the lexical entry for *believe* states that the Subject of the lower clause is identical to the Object of the higher clause. In this way Bresnan captured both the claim that, in English, and many languages, only Subjects are controlled and the claim that only arguments of the verb could act as controllers. Such functional control equations could be altered by the operation of lexical rules such as passive, allowing for the change of function of the controller in ``Mary was believed to have left''. In this way Bresnan captured Visser's generalisation that subject control verbs can't be passivised, *I was promised to leave. If they were passivised, their controller would be an Adjunct.

Bresnan's approach accounted very well for the structures discussed above in which one clause represents a complex argument of another clause, one argument is shared between two clauses, that argument is the Subject of the lower clause.

In what follows, we show that, while surface-grammatical relations or f-structures still play a role in control, there is evidence from Balinese voice marking and mapping that:

(a) control relations involve syntax-semantic interactions, where the notion of a syntacticised *a-structure* is crucial

(b) complex arguments, like simple arguments, can be either terms (core) or non terms, and participate in regular voice/function alternations (just like simple arguments), suggesting that they are not necessarily expressed as (X)COMPS.

(c) Bresnan's explanation of Visser's generalisation makes an interesting and correct prediction about the possible voice alternations in control structures in Balinese.

Bearing in mind that there are non-functional constraints involved, we still maintain the distinction between `functional control' (i.e. obligatory control) and `anaphoric control' (i.e. optional control), because these two types of control are syntactically distinguishable.

1.3 Grammatical functions and argument structure

The levels of representation that we adopt here are:

- Lexical semantic structure (sem-structure): arguments, argument-taking predicates and decomposition of these into Jackendoff-style structures
- Syntactic argument structure (a-structure): (see below)
- Functional structure (f-structure): a set of grammatical functions (SUBJ, OBJ, etc.), and constraints on what constituted a well-formed functional structure
- Constituent structure (c-structure): morphological or syntactic realisations of grammatical functions

We summarise the properties of the version of syntactic argument structure (*a-structure*), which we are adopting (Arka 1998; Arka and Manning 1998; Manning 1996a; Manning 1996b; Wechsler and Arka 1998):

A-structure:

a. It carries information about the syntactic valency of a predicate (i.e. number of arguments: one-place predicate, two-place predicate, etc.)

b. It carries information about termhood (i.e. whether an argument is a term or not; hence syntactic transitivity: intransitive, monotransitive, etc.)

c. It contains syntactic arguments having the following prominence:

  (i) terms outrank non-terms

  (ii) within sets of terms/non-terms, prominence reflects semantic prominence

Manning (1995:27) has proposed that ``universally there are features of language that are sensitive to each of the two levels of grammatical relations and argument structure''. The kinds of features that are sensitive to grammatical relations include word order, the realisation of discourse functions (in Balinese the appearance of the particle *(s)ane* is such a feature) and what can be raised. Features sensitive to argument structure are often ``construal processes'' including reflexive binding, Equi target and complex predicate formation. Construal features are often sensitive to ``termhood'' properties. The property of being a ``term'' captures much of what was previously captured by the grammatical function feature [-restricted], a natural class which encompasses subjects and objects.

In Balinese, as we shall argue, the Objective Voice alternation changes the grammatical functions borne by the Actor and Theme, but not their termhood status. Both are term arguments.

2 Introduction to voice-marking in Balinese

We begin with a brief overview of voice marking in Balinese. Three concern us here, Active Voice (AV), Objective Voice (OV) and Passive, as shown in (4):

(4) a. Tiang ng-alih Nyoman

   1 AV-search name

   `I searched for Nyoman'

   b. Nyoman ∅-alih tiang

name	OV-search	1

`Nyoman, I searched for'

c.
Nyoman	sampun	ka-rereh	(antuk	ida)	(high register)
name	PERF	PASS-search	by	3	

`Nyoman has been searched (by him/her)'

We translate the Objective Voice as far as possible by fronting, rather than by passive, because the fronting of Objective Voice has a pragmatic effect, and because Balinese has a passive anyway. Sentence (4a) shows the AV verb, marked by a homorganic nasal prefix replacing the initial consonant, whereas sentence (b) shows the OV counterpart. The unmarked form can be thought of as having a zero prefix (-) because there seems to be no convincing syntactic reason to regard either AV or OV as more basic than, or as derived from, the other.

Balinese canonically has SVO order (Arka 1998; Artawa 1994; Wechsler and Arka 1998), hence the Subject in (4a) is the AV Actor *tiang*, while the OV Theme *Nyoman* in (4b) is the Subject (hereafter GF-Subject, to distinguish it from other kinds of subjects). Arguments for claiming that a particular constituent acts as a GF-Subject come from a number of syntactic properties: word-order, exclusive access to relativisation with *(s)ane*, exclusive access to raising and control, exclusive access to fronting as a question word, privileged access (among term arguments) to extraposition to sentence-final position and contrastive focus with *anak* (see Arka 1998 for details).

Note that Balinese has two Passives, one used in high register, which involves prefixing *ka-* to the verb and can used with an agent of any person, optionally expressed by a PP, and the other used in low register, which involves suffixing *-a* to the verb and expressing the Agent as a PP (what the P is can vary):

(5)
"Gusti Aji	lunga	kija,	Gusti Biang?"
name	go	where	name

`Where is Gusti Aji going, Gusti Biang?'

"Ka	Badung.	Mara	gati	*alih-a*	teken	timpal-ne"	(low reg.)
to	name	just	very	escort-PASS	by	friend-3POSS	

(He's going) to Badung. (He was) just picked up by his friends (TLS:114)

(6)
Nyoman Santosa	tau	teken	*tingalin-a*	baan	Made Astiti	(low reg.)
Name	know	with	see-PASS	by	name	

`Nyoman Santosa was aware of being seen by Made Astiti' (TLS: 116)

(7)
Nglemeng	tiang	ka-duka-in	ring	I	guru	(high reg.)
Every day	1	PASS-angry-APPL	by	Art	teacher	[more polite]

`Every day, the teacher was angry with me'

The Objective Voice and Passive Voice differ with respect to the function of the Agent. In the Passive voice, the Agent has some low-end grammatical function, Oblique or Adjunct, as it does in English. It is expressed as a PP in both the high and low register. In the Objective Voice, Arka (1998) argues that at the level of syntactic argument-structure, the Agent is a term argument. At the functional level, it acts as a kind of Object, which we will call `Term-complement'. Categorially it is expressed as an NP.

Arka (1998) lists several tests for term arguments, of which only one (Quantifier Float) is shown here. (8a) shows the quantifier phrase *ajak makejang* modifying a term argument Agent expressed as Subject in an AV verb construction, while (8b) shows it modifying a term argument Agent expressed as a Term-complement in an OV verb construction. And (8c) shows it modifying a (theme) object.

8 a.   Tiang   ng-   Nyoman   ibi   *ajak*   *makejang*
                   alih

         1   AV-   name   yesterday   with   all
                   search

   `*We all searched for Nyoman yesterday'*

   b.   Nyoman   alih   tiang   ibi   *ajak*   *makejang*

         name   OV.search   1   yesterday   with   all

   `*For Nyoman we all searched yesterday'*

   c. Ketut   ng-   anak-e   ento   ibi   *ajak*
                ajak

        name   AV-   person-DEF   that   yesterday   with
                take

   `*Ketut took all of the person there yesterday'*

That is, Quantifier Float is associated with the Agent, regardless of whether it is the Subject in Active Voice, or a Term Complement in Objective Voice. Many different verbs can appear with this Quantifier Float. Contrast this with the high register passive.

(9)   Guru-ne   ka-aturang   teken   murid-e   jinah   sareng   sami

      teacher-DEF   PASS-offer   by   student-DEF   money   with   all

   i. `*All the teachers were given money by the students'*

   ii. *`*The teacher(s) was/were all given money by all the students'*

(*Sareng sami/akeh* `(lit.) with all/many' is the high-register variant of *ajak makejang).* The PP Agent *teken muride* `by the students' in the passive is not a term argument, and so cannot be quantified by a free quantifier. (Complex quantifiers with *ajak/sareng* are for animate nouns only, hence *sareng sami* in (9) cannot modify *jinah* `money'.)

2.1 Objective voice alternations on derived transitive and

ditransitive verbs

We must briefly discuss the relation of applicativisation to voice alternations, especially the one that yield a ditransitive verb. A verb such as *n/tanem* `plant' takes three semantic arguments, a *planter*, *something planted*, and a *place where things are planted*. In the applicative, as in (10) all three appear as NPs. This applicativised verb can appear in Objective Voice (10b-c), in which case either of the two postverbal NPs can be expressed as the preverbal NP, the Subject.

(10)   a.   Ia   nanem-in   teban-ne   kasela-kutuh

         1   AV.plant-   backyard-3POSS   cassava
                     APPL

         `(S)he planted cassava in his/her backyard'

    b   Kasela-   tanem-in=a   teban-ne
                kutuh

                cassava   OV.plant-   backyard-3POSS
                            APPL

                `(S)he planted CASSAVA (i.e. nothing else) in his/her backyard'

    c   Teban-ne   tanem-in=a   kasela-kutuh

                backyard-   OV.plant-   cassava
                3POSS   APPL

                `In his/her backyard, (s)he planted cassava'

We analyse all three arguments in (10) as term/core arguments. We assume a sentence can have more than one non-subject core/Term-Complement (including what Kroeger 1993 calls OBJagent). The ability to have more than one non-subject core argument, and for free assignment of SUBJECT function to arguments of the verb, is typical of Western Austronesian languages, and has been called a "symmetrical voice system" (Foley 1998). However, Western Austronesian languages differ as to which elements can be Subject; some are claimed to allow certain non-subcategorised elements (e.g. locative) to act as Subject (Foley and Van Valin 1984, Kroeger 1993, Foley 1998); others, like Balinese, allow only core arguments (whether basic or derived by applicativisation) to act as Subject; Indonesian is still more restrictive; while basic core arguments can act as Subject, only (locative) core argument derived by applicativisation can act as Subject.

To conclude, the Objective Voice alternation does not demote the Actor argument in the way the Passive does in English and Balinese. AV/OV voice-marking differences reflect different mapping alternatives for the term arguments onto surface grammatical relations.

The mapping between semantic roles, arguments and grammatical functions is summarised below (from Arka 1998).

(11) Balinese mapping and marking:

I. Subject selection:

a. AV marking: map an Agent term argument onto Subject

b. OV marking: map a non-Agent term argument onto Subject

c. Passive: map a non-Agent term argument onto Subject

II. Complement function:

Map the other term(s) onto Term-complement(s) (which include Object)

III. Oblique non-term:

Passive: treat an Agent as a non-term, map onto Oblique

These mapping rules make the prediction that if a clausal complement is a term argument, it should be able to appear sentence-initially in OV verb clauses, while if it is not it should not be able to appear there. But before considering what voice alternations reveal about the grammatical functions borne by the states of affairs arguments, we must first consider the properties of the expression of states of affairs arguments as controlled clauses, in particular their categories, what can be controlled, and what are possible controllers.

3 General properties of control in Balinese

3.1 The category of the embedded clause

Although a Balinese verb is not inflected in the same way as an English verb, the finiteness distinction is still relevant for some verbs. For example *edot* `want' takes a non-finite complement so that an auxiliary item such as *lakar* `FUTURE' cannot appear with it. However, the tense/non-tense distinction does not appear to be relevant to whether or not the clause can be controlled. Raising can apply from tensed complements in Balinese (see Arka 1998).

3.2 What can be controlled?

It is claimed that, cross-linguistically, the shared argument can only bear the Subject function. While we reserve judgment on whether this is true universally, it seems to hold in Balinese. Only Subjects can be controlled (Artawa 1994, Arka 1998).

(12)	a.	Tiang	tawang=a	[__	ng-alih	Luh Sari]
		1	OV.know=3	(1)	AV-look.for	name

`Of me she knew I was looking for Luh Sari'

	b.	*Tiang	tawang=a	[Luh Sari]	alih	__]
		1	OV.know=3	name	OV-look.for	(1)

`Of me (s)he knew that Luh Sari was being looked for by me'

Sentence (12a) has a controlled Agent as GF-Subject in the lower clause (in parentheses), (acceptable), whereas sentence (12b) has the controlled argument Agent as a non-GF-Subject (unacceptable).

3.3 What can be a controller?

It is generally accepted that the meanings of verbs which take part in equi constructions and those which take part in raising constructions are important in determining what gets controlled and what controls it (Kiparsky and Kiparsky 1971, Jackendoff 1972, Foley and Valin 1984; Sag and Pollard 1991, Van Valin 1993, Dixon 1995). Arka (1998) follows the classification of equi verbs in Sag & Pollard (1991) and Pollard and Sag (Pollard and Sag 1994), and, as a first cut, divides Balinese verbs into the *orientation* type, the *commitment* type and the *influence* type. As well, there are verbs which participate in raising constructions. The relevant ones that we shall discuss are verbs of seeming (subject raising) and verbs of thinking and knowing (object raising).

For simplicity, we summarise a number constraints discussed in detail by Arka (1998):

Syntactic constraint on control

> The lower argument must bear the grammatical function Subject.

Semantic constraints

- Orientation verbs require the experience to be the controller.
- Commitment verbs require the committer to be the controller.
- Influence verbs require the undergoer to be the controller.
- Influence and commitment verbs both place a restriction on the argument representing the Subject of the lower clause that it be one that could bring about the state of affairs.

The semantic description is very rough, but it is adequate for the purpose at hand. For example, the influence verb *tunden* `ask' has the following the partial specification:

sem-str: (asker, askee_i, (DO-er_i, (thing to be DONE)))

(Here, DO just stands for something that the "asker" can expect the person asked to carry out). The indices show that the "askee" and the "DO-er" are linked in semantic structure; they must be identical.

We turn now to the alternations caused by voice-marking.

4. Control and voice alternations in Balinese

4.1 Verbs with three semantic arguments

Underived verbs with three arguments show Objective Voice alternations. (13) shows an influence verb *n/tunden* `ask', first in Active voice, then in Objective Voice.

(13)	a.	Tiang	nunden	ipun	maang	Nyoman	pipis
		1	AV.ask	3	AV.give	name	money

'I asked him to give Nyoman money'

	b.	Ipun	tunden	tiang	maang	Nyoman	pipis
		3	OV.ask	1	AV.give	name	money

'He I asked to give Nyoman money'

Both are quite acceptable. They both respect the semantic constraint on the shared argument that in the higher clause the controller is the person asked, and, in the lower clause, the syntactic constraint that the controlled argument be the GF-Subject, and the semantic constraint that it be an Agent. This last is achieved by having the lower verb in Active Voice. The grammatical realisations of the matrix controller (as GF-Subject in (13a) or as Object in (13b)) are expected, because they are licensed by the mapping and marking principle stated in (11).

The following two sentences violate the syntactic constraint, in that the shared argument is not the GF-Subject of the lower clause.

(14)	a.	* Ipun	tunden	tiang	pipis	baang __	Nyoman
		3	OV.ask	1	money	OV.give	name

'He I asked money to be given to Nyoman by'

	b.	* Ipun	tunden	tiang	Nyoman	baang __	pipis
		3	OV.ask	1	name	OV.give	money

'He I asked money to be given to Nyoman by'

Now consider (15), in which the lower verb is in Objective voice. The GF-Subject of this lower verb is the Recipient, not the Agent. It violates the semantic constraint that the shared argument be the one in control of the state of affairs described by the embedded verb.

(15)	*	Tiang	nunden	Nyoman	[__ baang	ipun	pipis]
		1	AV.ask	name	OV.give	3	money

??`I asked Nyoman to be given money by him'

Thus, satisfaction of the syntactic constraint alone does not seem to be enough: the sentence must also satisfy the semantic constraint that the GF-Subject must be perceived to have a degree of control over the state of affairs.

The commitment type also shows a similar semantic restriction.

(16)	*	Tiang	majanji	[__ baang	ipun	pipis]
		1	promise	OV.give	3	money

??`I promised to be given money by him'

The shared argument is the GF-Subject of the lower clause, but also the Recipient in that lower class. But for the argument to be shared, it must have the meaning in the lower clause that it represents a person who is in control of the state of affairs (that (s)he is promising to bring about), not a Recipient. And as a result, the sentence is bad.

To conclude, for the influence type and commitment type of control verbs in Balinese, the controlled argument must be not simply a GF-Subject, but specifically an *Actor* GF-Subject. Therefore the lower clause must be in Active Voice. In this they contrast with an orientation verb like *edot*, which doesn't place any Actor restriction on its shared argument, and so the lower clause can be in Active or Objective voice.

We turn now to the question of what grammatical function the clause bears. For the examples we have seen so far, we could adopt Bresnan's (1982) analysis of functionally controlled Equi clauses in English, and treat them as XCOMPs. However, there is some evidence against this. This comes from a second Objective Voice alternation. We saw earlier that, in ditransitives (example (10)), either non-a-subject argument can become the GF-Subject in the Objective Voice alternation. Exactly the same is true for these constructions. The controlled clause can alternate with *Nyoman* as the GF-Subject if the verb is in Objective Voice:

(17) [__ teka   mai   prajani]   ane   orahin   tiang   Nyoman

      come   here   immediately   REL   OV.ask   1   name

      `*Coming here immediately is what I asked Nyoman to do*'

The sentence-initial presence of the clause in (17) and the presence of *(s)ane* argue for the clause *teka mai prajani* being not only a term argument of the sentence but also the GF-Subject. The question then arises, what is the relation between *Nyoman* and the clause? Bresnan (1982)'s account of functional control in such clauses has two parts, first, that there cannot be functional control into the GF-Subject of a sentence, only into XCOMPs and XADJs. The permitted equation should be, for example, $(\perp \text{XCOMP SUBJ}) = (\perp \text{SUBJ})$, and not $(\perp \text{SUBJ SUBJ}) = (\perp \text{OBJ})$ (Zaenen and Engdahl 1994). And second, the controller must be a semantically unrestricted function (i.e. term or core in our terminology here).

If (17) is a true case of functional control, we would expect:

(i) no possibility of an overt GF-Subject in the *teka mai prajani* clause

(ii) no possibility of omitting *Nyoman* in the clause

(iii) *Nyoman* must be a term, in order to be a functional controller

As for (i), an overt Subject (*ia*) renders the sentence unacceptable:

(18) * [Ia   teka   mai   prajani]   ane   orahin   tiang   Nyoman

         3   come   here   immediately   REL   OV.ask   1   name

         `*Coming here immediately is what I asked Nyoman to do*'

As for (ii), the controller can occasionally be omitted, but is understood as someone specific/definite, not generic.

(19) [__teka   mai   prajani]   ane   orahin   tiang

      come   here   immediately   REL   OV.ask   1

      `*Coming here immediately is what I asked him/her/them to do*'

As for (iii), there is evidence that the three arguments are all terms. Consider the simultaneous tests of termhood:

relativisation, topicalisation with a pronominal copy, and QF shown by (20).

(19) Nyoman //   [__teka   mai   prajani]   ane   orahin   tiang   ia

      name   come   here   immediately   REL   OV.ask   1   3

   ibi   ajak   makejang

   yesterday   with   all

   `As for Nyoman, coming here immediately is what we all asked him to do yesterday'

Note that the three semantic arguments (one being a SOA) are all treated equally as terms: relativisation shows that the SOA/controlled clause is the GF-Subject , topicalisation with a resumptive pronoun shows that *Nyoman*/the askee is a term, and the QF shows that the Agent *tiang* is also a term. In short, we need to capture what appears to be (⊥ SUBJ SUBJ) = (⊥ OBJ) prohibited in Bresnan (1982) and Zaenen and Engdahl (1994).

The upshot is that the data supports one part of Bresnan's account, but not the other. Functional control into an embedded clause acting as the GF-Subject of the sentence argues against restricting functional control to XCOMPs and XADJUNCTS. However, if *Nyoman* is a term argument, not an Oblique or a chomeur, then Bresnan's account predicts correctly that as a term argument it should be eligible as a controller, in contrast to the corresponding English sentence: *To go there was asked of John by me. This is unacceptable because we cannot express the controller of John as a term argument, as an NP.

Furthermore, Bresnan's proposal that only term arguments can be functional controllers makes the correct prediction that Balinese commitment verbs, such as *promise*, which have "Committer" controlled complements, should be able to appear in Objective Voice, in contrast to their English counterparts, which reject subject control. This rejection in English is part of what Bresnan (1982) called ``Visser's generalisation''.

(21) *John was promised by Mary to buy herself a spaceship

(22) a. Ci   nyanjiang   ia   [__ meli   montor]

      2   AV-   3   AV.buy   motor-bike
             promise

   `You promised him to buy a motor bike'

   b. Ia   janjiang   ci   [__ meli   montor]

      3   OV-   2   AV.buy   motor-bike
             promise

   `Him you promised to buy a motor bike'

   c. [__ meli   montor]   janjiang   ci   ia

      AV.buy   motor-bike   OV.promise   2   3

   `Buying a motor bike is what you promised him'

The English form is unacceptable because the controller, the promiser, is an adjunct, expressed as a PP. The Balinese form is acceptable, because the promiser controller is a term argument: the GF-Subject in the AV construction (22a) and a Term Complement in the OV construction (22b-c). Passivisation demotes the agent controller into a non-term, hence the following contrast is expected:

(23)   a.   Ia   nyanjiang   I   Bapa   [__ lakar   enggal-enggal   nganten]

                3   AV-promise   art   father   FUT   quick-quick   get.married

                `(S)he promised Father to get married quickly'

    b. ?*   [__ lakar   enggal-enggal   nganten]   ane   janjiang-a

                FUT   quick-quick   get.married   REL   promise-PASS

                I   Bapa   teken   ia

                Art   father   by   3

                *`*Getting married quickly is what is promised Father by him/her'*

The difference between commitment verbs and influence verbs can therefore be shown by the argument sharing in their a-structures:

(24)   a.   Influence verbs: e.g. *orahin* `ask'

            asker   askee   State of affairs   *semantic structure*

                    (DO-er_i, (thing to be DONE))

            term   term   term   *syntactic argument structure*

    b.   Commitment verbs: *janjiang* `promise'

            promiser   promisee_i   State of Affairs   *semantic structure*

                    (DO-er_i, (thing to be DONE))

            term   term   term   *syntactic argument structure*

Both kinds of verbs semantically and syntactically have three arguments: two simple arguments and one complex argument with obligatory control. All of them are terms. Thus, by the mapping principles in (11), any of them can be GF-Subject. The two verbs differ in choice of controller, which is semantically determined. And, the mapping principles result in the controller bearing different grammatical functions. Crucially, since a controller must be a term, Balinese allows a non-subject controller with the commitment verb `promise' but the verb must be in OV because the controller `the promiser' is still a term in this clause. In its passive counterpart, however, a non-subject controller is prohibited because the `promiser' is not a term.

4.2 Verbs with two semantic arguments

4.2.1 *edot*: an orientation verb

With a verb of desire like *edot* `want', the embedded verb can be in Active or Objective Voice, because the meaning of the verb doesn't require that the GF-Subject of the lower clause be an Agent. In (25) the complement clauses differ only in the voice markings, which therefore cause the controllee *cai* `2' to be associated with different grammatical functions. The controllee is the Agent-Subject in the AV verb (25a) and Patient-Subject in the OV-verb (25b). Note that simply switching the marking but retaining word-order in effect triggers different control relations and, as the translations suggest, different meanings.

(25) a. Cai   edot   [__   nyakitin   bapa]?

2   want   AV.hurt   father

`Do you want to hurt me (Father)?' (KA:127)

b. Cai   edot   [__   sakitin   bapa]?

2   want   OV.hurt   father

`Do you want to be hurt by me (Father)?'

In contrast to (25), the following are unacceptable because the controlled argument would not be linked to Subject, even though in (26a) it is the Agent.

(26) a. * Bapa   sing   edot   [cai   sakitin __
]

father   NEG   want   2   OV.hurt

`I (Father) do not want to hurt you'

b.   * Bapa   sing   edot   [cai   nyakitin __
]

father   NEG   want   2   AV.hurt

`I (Father) do not want you to hurt me'

edot doesn't show any voice alternation between Active and Objective voice. The clause cannot act as the Subject. Thus, in contrast to (25), the following is not acceptable:

(27) * [__   nyakitin   bapa]   ane   edot   cai?

AV.hurt   father   REL   want   2

`Hurting me (Father) is what you want?'

This fits with the fact that *edot* doesn't take an NP argument, but rather a PP argument, and so doesn't show Active/Objective Voice alternations.

(28) Ia   edot   [teken   poh]

3   want   to   mango

`(S)he wants a mango'

In other words, *edot* acts as though it is syntactically intransitive with the SOA being treated as a non-term argument. The proposed parallel structures are therefore the following:

(29)   Orientation verbs: e.g. *edot* `want'

wanter_i   State of affairs   *semantic structure*

Doer_i thing to be DONE

term   non-term   *syntactic a-structure*

Subject   XCOMP (i.e. non-term complement)   *f-structure*

4.2.2 *n/tegarang*: a commitment verb

Edot contrasts with another class of verbs with two semantic arguments, the *n/tegarang* class, a kind of commitment class. These show the Active/Objective Voice alternation.

(30)   a.   [Tiang]_{SUBJ}   negarang   [__ naar   ubad   ento]_{OBJ}

1   AV.try   AV.eat   medicine   that

`I tried to take the medicine'

b.   [__ naar   ubad   ento]_{SUBJ}   tegarang   tiang

AV.eat   medicine   that   OV.try   1

`Taking the medicine is what I tried'

We claim that in (30b) *naar ubad ento* is indeed the Subject of *tegarang*. The presence of a relativiser *(s)ane* bears this out.

(31)   [__ naar   ubad   ento]_{SUBJ}   ane   tegarang   tiang

AV.eat   medicine   that   REL   OV.try   1

`It is taking the medicine that is what I tried'

Thus, like the clausal complement of influence and commitment verbs, and indeed like any non-subject term argument, the clausal complement of *n/tegarang* can become the Subject in the Objective Voice mapping. We suggest therefore that it is a term argument. It thus contrasts with the verb *edot*, whose clausal complement is a non-term argument. It also contrasts with English *try* which cannot be passivised. That is, Balinese *n/tegarang* has two terms whereas English *try* has one term. The proposed structures for *tegarang* in (31) are shown below:

(32)   Commitment verbs: e.g. *n/tegarang* `try'

trier_i	State of affairs	*semantic-structure*
	Doer_i thing to be DONE	
term	term	*syntactic a-structure*
term-complement	Subject	*functional-structure*

Bresnan (1982) argues that *To go there was tried by me* is unacceptable as functional control because the controller *by me* is an adjunct, not a grammatical function such as Subject or Object. In the Balinese example however, the controller *tiang* is not an adjunct, but a term complement. So it doesn't violate the constraint on functional control.

4.2.3 Raising verbs

The verb *n/tawang* `know' has two semantic arguments, a *knower* and a SOA, *what is known*. It has several realisations of these arguments. First, the semantic SOA can be realised as a single syntactic argument. This argument can appear as the Subject in an Objective Voice construction.

(33) a.   Tiang   nawang   [Nyoman Santosa   ng-alih   Luh Sari]

            1   AV.know   name   AV-look.for   name

      `I knew that Nyoman Santosa was looking for Luh Sari'

      b.   [Tiang   ng-alih   Luh Sari] _SUBJ_   tawang=a

            1   AV-look.for   Name   OV.know=3

      `That I was looking for Luh Sari, (s)he knew'

But (33a) is actually ambiguous in structure, because *n/tawang* has a second realisation - as a raising verb:

(34) Tiang   nawang   [Nyoman Santosa]   [ng-alih   Luh Sari]

      1   AV.know   name   AV-look.for   name

      `I knew Nyoman Santosa to be looking for Luh Sari'

Semantically the (whole) state of affairs `Nyoman Santosa looked for Luh Sari' is *what is known*. Syntactically, however, as shown by the bracketing in (34), the embedded subject *Nyoman Santosa* is taken as a syntactic dependent NP of the matrix verb. This is not obvious in (34) where it occurs in its usual position before the embedded verb. But it becomes obvious as soon as we look at the voice alternations.

Unlike *edot*, *n/tawang* can appear in both Objective Voice and Active Voice. In (35a) and (35b) the shared argument acts as the GF-Subject of the higher clause.

(35) a.   Nyoman Santosa   tawang   tiang   [__ ng-alih   Luh Sari]

            name   OV.know   1   AV-look.for   name

      `Of Nyoman I knew him to be looking for Luh Sari'

b. Tiang   tawang=a   [__ ng-alih   Luh Sari]

    1   OV.know=3   AV-look.for   name

`Of me (s)he knew that I was looking for Luh Sari'

Hence, syntactically there are three arguments in the sentences, corresponding to two semantic arguments. Thus *n/tawang* parallels English raising-to-object verbs like `believe'.

That *tiang* really is the GF-Subject in (35b) is shown not only by its initial position, but also by the fact that it can be relativised:

(36)   Tiang   ane   tawang=a   [__ ng-alih   Luh Sari]

        1   REL   OV.know=3   AV-look.for   name

`It is me who is known by him to have looked for Luh Sari'

(37) shows that *any* combination of embedded Subject argument can raise, for all four combinations of AV and OV on the matrix and embedded predicates are attested (all four sentences have the same logical relations, indicated by the translation below):

(37) a. Ia   nawang   Wayan   lakar   tangkep   polisi

        3   AV.know   name   FUT   OV.arrest   police

`He knew that Wayan would be arrested by the police.' (Wayan=lower S(pt) raised to O)

b. Wayan   tawang=a   lakar   tangkep   polisi

    name   OV.know=3   FUT   OV.arrest   police

`Of Wayan he knew that he would be arrested by the police.' (Wayan=lower S(pt) raised to S)

c. Ia   nawang   polisi   lakar   nangkep   Wayan

    3   AV.know   police   FUT   AV.arrest   name

`He knew that the police would arrest Wayan.' (Police=lower S(ag) raised to O)

d. Polisi   tawang=a   lakar   nangkep   Wayan

    police   OV.know=3   FUT   AV.arrest   name

`Of the police he knew that they would arrest Wayan.' (Police=lower S(ag) raised to S)

(38) shows that only the GF-Subject of the lower clause can raise; that is only the Agent of an Active Voice verb, and the Undergoer of an Objective Voice verb can raise to be in the main clause:

(38) a. *Ia   nawang   <u>polisi</u>   Wayan   lakar   tangkep

                                                                     —

          3   AV.know police   name   FUT   OV.arrest

    * `He knew that as for the police Wayan would be arrested.'

      b. *<u>Polisi</u>   tawang=a   Wayan   lakar   tangkep __

          police   OV.know   name   FUT   OV.arrest

    * `Of the police he knew that Wayan would be arrested. '

      c. *Ia   nawang   Wayan   polisi   lakar   nangkep

                                                                     —

          3   AV.know name   police   FUT   AV.arrest

    * `He knew that as for Wayan the police would arrest.'

      d. *Wayan   tawang=a   Polisi   lakar   nangkep __

          name   OV.know   police   FUT   AV.arrest

    * `Of Wayan he knew that the police would arrest'

More interesting, however, is the second Objective Voice alternation. We have seen earlier that the clausal complements to *n/tegarang* `try' and *orahin* `ask' can become the GF-Subject in the Objective Voice alternation. Like them, the clausal complement in a raising construction can occur sentence-initially. And it can occur with *(s)ane* indicating it is the GF-Subject. And there is control by the Agent term-complement.

(39) [___ ng-alih   Luh Sari]_{SUBJ}   ane   tawang=a   tiang

      AV-look.for   name   REL   OV.know=3   1

      `Looking for Luh Sari is what (s)he knows of me'

A parallel in English would be the unacceptable *To have gone was believed me by her*. Again the English is unacceptable because the controller cannot be expressed as an NP following the verb, while the Balinese is acceptable because the controller is a term argument expressed as an NP.

The following show that the raising can occur with a tensed complement including the Future *lakar*.

(40) a. Tiang ngaden   Nyoman   lakar   kema

          1   AV.think   name   FUT   go there

      `I think that Nyoman will go there'

      b. Nyoman   kaden   tiang   lakar   kema

          name   OV.think   1   FUT   go there

      `Nyoman, I think, will go there'

      b. lakar   kema   kaden   tiang   Nyoman

          FUT   go there   OV.think   1   name

      `That Nyoman will go there is what I think about Nyoman'

We propose that `raising' verbs such as *n/tawang* `know' and *ng/kaden* `think' have a-structure shown in (41). It explicitly shows the split where a single argument (i.e. the SOA) correspond to two term arguments, with one of them being `athematic' and shared with an embedded argument, y (not necessarily an agent). Then, by mapping principles any if these terms can be selected as GF-Subject as shown by examples in (37) and (39).

(41)   *n/tawang* `know'

        knower   State of Affairs   *Semantic structure*

                                        (=85y_i =85.)

        term   term_i   term   *Syntactic argument*
                                                                  structure

5 Summary

We have demonstrated how complex arguments involving control can be accounted for by having a syntacticised *a-structure* as an intermediate level between semantic and surface syntax. It provides a natural account for change in the surface grammatical function assignment of a controller in connection with changes in voice marking. The alternation follows the general mapping and marking principles applicable to simple arguments. The analysis presented here correctly predicts that there may be a number of alternative syntactic expressions of such arguments. Crucially, an argument representing a SOA can be either a term or non-term. As a term, it can be the GF-Subject of an intransitive verb or of an OV transitive verb. Syntactically, the SOA can be split with one of its arguments being `raised' to Subject or Object. Our analysis accounts for control into subject which is barred in earlier analyses (Bresnan 1982, Zaenen and Engdahl 1994) and further confirms Bresnan's proposal (1982) that, in functional control, a controller is restricted to core/term argument.

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