Syntactic and Semantic Valence: Morphosyntactic Evidence from Minangkabau

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0. Introduction

Following Role and Reference Grammar, in this paper it will be claimed that there is more than one type of valence which should be considered in analyzing verbs. There are two distinct, albeit related, types of valence: semantic valence and syntactic valence. I will provide empirical evidence for the theoretical necessity of distinguishing two types of valence with data from Minangkabau, an Austronesian language. A comparison of three passive-like constructions seen in this language supports this distinction. I argue that the distinction between these two types of valence is not only a viable theoretic construct, but is in fact a necessary one, to produce a successful analysis of this system of passive constructions.

1. Valence

The notion of valence (which is sometimes referred to as transitivity) and its implications for argument structure are central to any theory of grammar. However, there has frequently been a lack of clarity surrounding the term, which has traditionally been used to encompass two related, yet discrete, phenomena: co-occurrence restrictions and interpretative phenomena.

In order to illustrate this lack of clarity, consider your own usual interpretation of the term *transitivity*. If you would claim that a verb such as *read* is always transitive, regardless of its syntactic context, you are referring to the verb's *semantic* transitivity, the interpretative phenomenon. Or, if you would claim that *read* is sometimes transitive and sometimes intransitive, depending on its context, you are referring to its *syntactic* transitivity, or its co-occurrence restrictions. Or, to account for both of these, you might instead claim that *read* is listed twice in the lexicon, once as transitive and once as intransitive (Payne 1997: 171).

Several syntactic theories, including Head-Driven Phrase Structure Grammar (HPSG), Lexical Functional Grammar (LFG), and Role and Reference Grammar (RRG), seek to resolve this lack of clarity by clearly distinguishing two distinct

types of valence in the grammar itself. The approach followed in this paper is that of RRG, which maintains a difference between semantic valence and syntactic valence. (1) below summarizes the key differences between the two types of valence.

(1) Semantic and Syntactic Valence

Semantic valence	*Syntactic valence*
Determined within the lexicon	Determined by the clause
Thematic structure (an interpretive phenomenon)	Co-occurrence restrictions
The invariant number of semantic arguments that a verb *may* take (Van Valin and La Polla 1997: 147)	The number of arguments present in any given clause, where an *argument* is any nominal element that bears a grammatical relation to the verb (Payne 1997: 170-2)

Croft's (1991: 99) notion of *inherent relationality* is one way of conceptualizing semantic valence, which is perhaps somewhat less tangible than the notion of syntactic valence. As an illustration, consider the following example. Native English speakers have the intuition that a verb such as *read* presupposes the existence of two entities: that who is doing the reading, and that which is being read. Thus, *read* has a semantic valence of two. Conversely, a verb such as *walk* presupposes the existence of just one entity: that which is doing the walking; *walk* has a semantic valence of one. Finally, a noun such as *ball* presupposes the existence of no other entities beside itself. Thus, the semantic valence of *ball* is zero.

In a theory of grammar, these two types of valence should be differentiated because, although they are clearly closely related, they do not always precisely align; whence the lack of clarity surrounding the term as discussed in the previous paragraphs. Speakers frequently encounter cases where the semantic and syntactic valences of a verb are not equivalent. For example, as discussed above, the English verb *read* always has a semantic valence of two. However, its syntactic valence may be one OR two:

(2) Pat read.
(3) Pat read the *Washington Post.*

When an argument is semantically unspecified, as in (2) above, it is not realized syntactically. Certain semantic arguments may be left unspecified, according to the semantics of the verb, where the speaker feels it is permitted by the discourse. This often occurs with verbs which have a sort of 'default' object, as *read.*

There are definite constraints on when, and in which ways, the syntactic and semantic valences are permitted to mismatch. According to the semantics of the

verb, semantic underspecification of an argument is not always an option. Compare (4) and (5) below:

(4) Pat wore a red shirt.
(5) * Pat wore.

The precise difference between *wear* and *read* is obviously difficult to quantify, given that both are activity-type verbs with a semantic valence of two. However, it would appear that *wear* does not seem to have a default object in the way that *read* does, thereby causing (5) to be ungrammatical.

Just as it is not always possible for the semantic valence of a verb to exceed its syntactic valence, the opposite restriction holds as well. The syntactic valence of the verb may never exceed its semantic valence, or ungrammatical constructions, such as (7) below, result.

(6) Pat laughed (at the comedy).
(7) * Pat laughed the comedy.

To summarize, there are sentences, such as exemplified in (2) above, in which the semantic valence of a verb is greater than the syntactic valence of the clause in which it appears. In other words, the verb's argument structure, which is lexically specified, is greater than the number of overt noun phrases that are licensed by the verb in the clause in question. These sentences should be able to be clearly accounted for within a syntactic theory.

Further empirical evidence for this claim will be presented in the remainder of this paper. The empirical data is drawn from Minangkabau, an Austronesian language of the Western-Malayo-Polynesian family.

2. Semantic and Syntactic Valence in Minangkabau

Distinct notions of syntactic and semantic valences are reflected in the entire system of Minangkabau verbal affixes (in total, six). Furthermore, native speakers have clear intuitions regarding the morphological distinctions which provide the evidence of this split.

Certain verbal affixes affect *syntactic* valence only. They alter the syntactic distribution of arguments and verbal adjuncts.

Certain verbal affixes further affect the *semantic* valence of the verb. They alter the verb's semantic argument structure.

This distinction is exemplified by a consideration of the different 'passive' constructions in Minangkabau. (For the purposes of this discussion, a 'passive' construction is defined as any construction which reduces the semantic and/or syntactic valence of the verb, thereby allowing 'a "reassignment" of argument NPs from the unmarked configuration of grammatical relations to the desired one' (Croft 1991: 150). These constructions are what will be considered in detail in this paper. In total, there are three prefixes which attach to verbs to generate passive

constructions.

One of these prefixes, *di-*, alters only the syntactic structure of the clause.

Two of these prefixes, *ta-* and *bar-*, further alter the semantic structure of the verb; specifically, it may alter the semantic roles that are available to the verb to assign to its arguments.

A preliminary summary of the differences between the various passive constructions is seen in (8) below.

(8) Minangkabau Passives

Affix	*Property*	*Type of Valence Targeted*
di-	Syntactic Passivizer	Syntactic
bar-	'Active' marker	Semantic
ta-	'Involuntary' marker	Semantic
	Stative marker	

With regard to the verbs themselves, the distributions of these morphemes differ (and occasionally overlap), but they never co-occur. In other words, while a given verb may be affixed with, in different situations, *di-*, *ta-*, and *bar-*, there are no cases in which a verb is affixed with more than one of these prefixes simultaneously.

Before turning to the constructions themselves, there is one more theoretical convention to be explained that is assumed in the analysis. This is the notion of semantic macroroles.

2.0. Macroroles

Following Role and Reference Grammar, thematic relations may be distilled down to two generalized semantic roles, or macroroles. The ACTOR macrorole, which represents a generalized agent-type semantic role, subsumes such thematic roles as agent, experiencer, instrument, source and force. The UNDERGOER macrorole, which represents a generalized patient-type semantic role, subsumes such thematic roles as patient, theme, and location (Van Valin and La Polla 1997).

Semantic macroroles are relevant to this analysis of passive constructions in Minangkabau on two levels. First, if we consider an 'active' construction to be one which represents, as per Croft, the 'unmarked configuration of grammatical relations', we may further define the active construction in terms of macroroles. That is, for a semantically transitive verb such as *read,* in the active construction (as seen in (3) above), the 'subject' will bear the ACTOR macrorole and the 'object' the UNDERGOER macrorole. Passive constructions, therefore, represent a deviance of sorts from this unmarked configuration of grammatical relations; generally speaking, the grammatical relations are altered such that the UNDERGOER macrorole is instead borne by the 'subject' of the sentence. Second, the two 'semantic passive' constructions in Minangkabau differ, in part, according to their ability to assign certain macroroles to the verb's arguments.

The semantic passives, which are formed with *ta-* and *bar-*, will be discussed

in 2.2. below. First, we will consider the purely syntactic passive, which is formed with *di-*.

2.1. The Syntactic Passive : *di-*

The verbal prefix *di-* is the passivizing morpheme. It reduces the syntactic valence of the verb by one. However, the semantic valence of the verb is not affected. This construction is extremely productive; in discourse, it arguably appears to be preferable to the active counterpart.

Structurally, this construction resembles the passive construction in English. The noun phrase bearing the UNDERGOER macrorole is reassigned to the subject position, preceding the verb. Simultaneously, the noun phrase which bears the ACTOR macrorole is also reassigned to another position in the sentence. If it is a lexical NP, it must be within a prepositional phrase. With a few marked exceptions, the ACTOR macrorole must still be specified within the sentence.

An example of a syntactic passive formed with *di-* is shown below. The active construction, shown in (9), represents the unmarked configuration of grammatical relations: the subject is the ACTOR, the object is the UNDERGOER. Conversely, in the passive construction, shown in (10), the subject is the UNDERGOER, and the ACTOR appears in a prepositional phrase.

(9) anjiang manggigik anak ketek
anjiang maN[1]- gigik anak ketek
dog TRANS-bite child small
'A dog bit the child.'

(10) anak ketek+tu digigik dek anjiang
anak ketek +itu **di-** gigik dek anjiang
child small +DEM PASS- bite by dog
'That child was bitten by a dog.'

Verbs with a semantic valence of less than two (e.g., *run, sleep, arrive*) may not be passivized with *di-*. However, verbs which have a semantic valence of two or more, as the direct result of suffixation of a valence-increasing morpheme, may be passivized with *di-*. An example of this phenomenon is seen below. The verb root, *jago* 'wake', has a semantic valence of one. In the active construction shown in (11), the verb now has a semantic valence of two following the affixation of the causative morpheme *–kan*, which increases the valence by one. The corresponding passive construction is shown in (12). (13) shows that it is ungrammatical to passivize the verb root *jago*, which in its underived form has a semantic valence of one.

Finally, note that in the passive construction in (12), the ACTOR is represented by a full NP in a prepositional phrase; alternatively, the ACTOR may be

[1] The prefix *maN-* marks semantic transitivity.

represented instead by the 3rd person pronominal clitic *nyo*. However, it is not possible for the actor to remain unspecified in a passive (as in the so-called 'agentless passives' seen in English), as demonstrated by the ungrammatical (14).

(11) inyo manjagokan ambo
inyo maN- jago -kan[2] ambo
3 TRANS-wake -CAUS 1
'She woke me up.'

(12) ambo dijagokan dek padusi+tu
ambo **di-** jago -kan dek padusi +itu
1 PASS- wake -CAUS by woman+DEM
'I was woken up by this woman.'

(13) *ambo dijago dek padusitu

(14) *ambo dijagokan

In the following section, we shall compare the syntactic passive construction formed with *di-* to the two semantic passives, which are formed with *ta-* and *bar-*. Henceforth, I'll refer to the resulting constructions as *di-passive*, *ta-passive*, and *bar-passive*.

2.2. The 'Semantic Passives': *ta-* and *bar-*

Although these two morphemes, when affixed to verbs, result in passive-like constructions, there are crucial differences between them and the canonical passive-creating morpheme *di-*. These two morphemes further have the ability to alter the macroroles which are assigned by the verb, whereas *di-* only has the ability to alter the configuration in which the macroroles are assigned.

2.2.a. The Involuntary Marker: *ta-*

The first semantic passive is formed with the verbal prefix *ta-*, which has two related functions: it marks lack of volition on the part of the single argument of the verb, and it may further mark the clause as stative. Following the affixation of *ta-*, the verb assigns the UNDERGOER macrorole to its single remaining argument; volition (and in a sense, agency) is thereby removed from the semantic structure. In other words, the argument structure of the verb itself, as it was lexically specified, is somehow altered within a *ta-*passive. Therefore, although this construction appears similar to the syntactic passive formed with *di-*, in that both result in the UNDERGOER macrorole being reassigned to subject position, it is semantically quite different.

There are several differences between the general distribution of *ta-* and the

[2] The suffix *–kan,* here glossed as CAUSATIVE, is very productively used in Minangkabau to add an argument to the verb. In this case, the semantically intransitive verb *jago* 'to wake' is causativized – made transitive – with the affixation of *–kan.*

syntactic passivizer *di-*. Unlike *di-*, *ta-* may be affixed to verbs with a semantic valence of one (as well as those with a semantic valence of greater than one). Furthermore, unlike *di-*, *ta-* may not be affixed to verbs whose valency has been *increased* following derivation, with the suffixation of a valence-increasing morpheme such as *–kan*. Nonetheless, the *ta*-passive is also very productive.

Two examples of *ta*-passives are seen below, the first illustrating a semantically intransitive verb, *lalok* 'sleep', the second illustrating a semantically transitive verb *baka* 'burn'. (15) and (17) represent active constructions containing the verbs; in both cases, as expected, the subject is the ACTOR. The corresponding *ta*-passives are shown in (16) and (18); here, the subject is assigned the UNDERGOER macrorole, as the action is understood to be involuntary. Recall that in (16), the semantic valence of the verb root, *lalok*, is one; following the affixation of *ta-*, the valence is then not reduced, although the semantic role assigned to the single argument undergoes a change from ACTOR to UNDERGOER. In (18), the semantic valence of the verb is reduced by one, from two to one, along with the change in assignment of macrorole to the single argument.

(15) ambo sadang lalok
ambo sadang lalok
1 PROG[3] sleep
'I'm sleeping.'

(16) ambo talalok sajam
ambo **ta-** lalok sa- jam
1 INVOL- sleep one- hour
'I (accidentally) fell asleep an hour.'

(17) si Upiak mambaka sarok
si Upiak maN- baka sarok
NM[4] Upiak TRANS-burn garbage
'Upiak is burning the garbage.'

(18) pohan tabaka
pohan **ta-** baka
tree INVOL- burn
'The trees are burning.'

A further difference between the *di*-passive and the *ta*-passive lies in the constraints on the ways in which the ACTOR macrorole may or may not be specified. In a *di*-passive, the ACTOR generally must be specified[5]; however, in the *ta*-passive, the opposite situation obtains. Only in rare instances is the 'ACTOR' NP to be specified, within in a prepositional phrase. However, in these cases the ACTOR is clearly understood to be a non-agent. Again, this is the key semantic difference between the *ta*-passive and the *di*-passive; there is no volition in the argument structure of the verb with the *ta*-passive. This contrast is shown below with respect to the semantically transitive verb root *bunuah* 'kill'. (19) displays the *di*-passive, (20) the *ta*-passive. In (20) the ACTOR, the first person pronoun *ambo*, is understood to have not killed the chicken on purpose, while in (19), the killing is understood as deliberate.

[3] PROG = progressive.
[4] NM = name marker.
[5] There are certain *di*-passives, not discussed here, wherein the ACTOR need not be specified. In order for an agentless *di*-passive to be grammatical, the clause must contain a tense or aspect particle.

(19) kabaw+tu dibunuah dek si Ujan
kabaw +itu **di-** bunuah dek si Ujan
buffalo +DEM PASS- kill by NM Ujan
'That water buffalo was killed (i.e., hunted) by Ujan.'

(20) ayam tabunuah dek ambo
ayam **ta-** bunuah dek ambo
chicken INVOL- kill by 1
'The chicken was accidentally killed because of something I did.'

The *ta*-passive is further interpreted as representing stativity; that is, it is used to refer to a certain state of affairs. This represents a further contrast between the *di*-passive, which refers to the action itself (not the state of affairs which results from the action) and the *ta*-passive. An example of this is shown below with respect to the semantically transitive verb *buek* 'make'. In (21), the *di*-passive is shown, and in (22), the *ta*-passive is shown; (21) describes the action of making a cake, while (22) describes the state of affairs resulting from the drug being made. It would be ungrammatical to use a *di*-passive to describe a state of affairs such as that depicted in (22).

(21) kue+ko dibuek dek si Ujan
kue +iko **di-** buek dek si Ujan
cake +DEM PASS- make by NM Ujan
'This cake was made by Ujan.'

(22) ubek+tu tabuek dari akarakaran
ubek +itu **ta-** buek dari akar -REDUP -an
drug +DEM INVOL- make from root -REDUP -NOM
'This drug is made from many different kinds of roots.'

2.2.b. The Active Marker: *bar-*

The second semantic passive is formed with the verbal prefix *bar-*, which may be described as the 'active' marker. Pragmatically, *bar-* has the opposite effect of *ta-*, in that it is used when the speaker wishes to emphasize agency on the part of the single argument of the verb[6]. Therefore, in a *bar*-passive, the ACTOR macrorole is assigned to the single argument of the verb, regardless of which role the 'subject' of the verb would be assigned by the verb root. Consequently, if the semantic valence of the verb root is two or greater, the semantic valence will be reduced by one, as the UNDERGOER macrorole is eliminated from the verb's argument structure. As in a *ta*-passive, then, this process alters the argument structure of the

[6] *bar-* is further frequently used to mark certain types of semantically transitive, activity type verbs (in particular, it obligatorily occurs with certain verbs of motion), to indicate iterativity, and to derive certain verbs from nominal roots. These other functions of the affix will not be discussed in this paper.

verb. Finally, *bar-* is used to indicate reciprocity.

The distribution of *bar-* is quite similar to that of *ta-*. Like *ta-*, *bar-* may be affixed to verbs with a semantic valence of one or two. Also like *ta-*, *bar-* may not be affixed to verbs whose valency has been *increased* as a result of derivation. However, this construction appears to have a much more limited productivity than either the *di*-passive or the *ta*-passive.

An example of a *bar*-passive is shown below, with respect to the semantically transitive verb *tapuak* 'clap'. (23) displays the active construction; (24) displays the *bar*-passive, in which the verb has a semantic valence of one, following suppression of the UNDERGOER macrorole.

(23) ambo manapuak meja
ambo maN- tapuak meja
1 TRANS-clap table
'I clapped the table.'

(24) urang urang batapuak
urang REDUP **bar-** tapuak
person REDUP ACT- clap
'The people applauded.'

A *bar*-passive is frequently used when the speaker wishes to imply that the single specified argument is the ACTOR. Therefore, even if another entity is actually responsible for the action described, it would logically never be specified (not even within a prepositional phrase, which is the device utilized by the other two passive constructions). This phenomenon is illustrated below, with respect to the semantically transitive verb *puta* 'spin'. Again, the active construction is shown in (25), and the corresponding *bar*-passive in (26); in (25), the inanimate object *mainan* 'toy' is assigned the UNDERGOER macrorole, while in (26), it receives the ACTOR macrorole.

(25) anak ketek mamuta mainan
anak ketek **maN-** puta main -an
child small TRANS-spin play -NOM
'The child spins the toy.'

(26) mainan+tu baputa
main -an +itu **bar-** puta
play -NOM +DEM ACT- spin
'This toy is spinning.'

The pragmatic difference between *ta-* and *bar-* is further illustrated below, with respect to semantically intransitive verb *gantuang* 'hang'. In the *ta*-passive in (27), the single argument is the UNDERGOER; the picture, an inanimate object, is hanging involuntarily. In the *bar*-passive in (28), the single argument is the ACTOR; the monkey is understood to be hanging voluntarily.

(27) gambar+tu tagantuang di dindiang
gambar itu **ta-** gantuang di dindiang
picture DEM INVOL- hang on wall
'This picture is hanging on the wall.'

(28) baruak bagantuang di pohan
baruak **bar-** gantuang di pohan
monkey ACT- hang on tree
'The monkey is hanging from the tree.'

A *bar*-passive is also used when the action described is reciprocal. An example of this is shown below, with respect to the semantically transitive verb *paguik* 'hold, hug'. (29) contains the active construction, and (30) the *bar*-passive, which is interpreted as a reciprocal. Semantically, this is similar to English: compare the interpretations of 'Upiak hugged the child' - Upiak is the ACTOR, the child the UNDERGOER - to 'we hugged', where all involved are ACTORS.

(29) si Upiak mamaguik anak ketek
si Upiak maN- paguik anak ketek
NM Upiak TRANS-hold child small
'Upiak hugged the child.'

(30) kito bapaguik
kito **bar-** paguik
2PLINCL ACT- hold
'We hugged (each other).'

2.3. Summary of Minangkabau Passives

A summary of the three Minangkabau passive constructions is shown (31) below, along with the relevant aspects of their usage and distribution that were discussed above.

(31) A Summary of Minangkabau 'Passive' Constructions

Affix	*Properties*	*Type of valence targeted*	*Argument structure affected?*	*Occurs with verbs with a minimal semantic valence of*
di-	Syntactic Passivizer	Syntactic	No	Two
bar-	'Active' marker Reciprocal marker	Semantic	Yes	One
ta-	'Involuntary' marker Stative marker	Semantic	Yes	One

3. Conclusion

Empirical evidence of the validity in distinguishing between two types of valence, syntactic and semantic valence, is seen in the array of passive-type constructions exhibited by Minangkabau. In total, there are three types of passive-like structures.

The first passive construction, the *di*-passive, behaves like a canonical passive construction. Only the syntactic valence of the verb is reduced, as a

reconfiguration of grammatical relations is all that is involved. The UNDERGOER macrorole, which is normally assigned to the object of the verb, is reassigned to its subject; simultaneously, the ACTOR macrorole is assigned to a noun phrase which must be licensed by a prepositional phrase, as the verb no longer has the ability to do so. The argument structure of the verb, as it is lexically specified, is not itself affected.

The other two constructions, the *ta*-passive and the *bar*-passive (the so-called 'semantic' passives), further modify the semantic structure of the verb. The argument structure of the verb itself, as it is lexically specified, is affected in these two constructions. In each case, the semantic valence of the verb is reduced, not merely its syntactic valence. In the first semantic passive, in which the verb is affixed with *ta-*, the INVOLUNTARY marker, the UNDERGOER macrorole is assigned to the single argument of the verb. In the second semantic passive, in which the verb is affixed with *bar-*, the active marker, the ACTOR macrorole is instead assigned to the single argument of the verb. The macroroles assigned within the *ta*-passive and *bar*-passive are independent of the macroroles assigned by the verb itself outside of these constructions.

In this paper, it is claimed that this system of passive constructions can be successfully analyzed only in light of the distinction between semantic and syntactic valence as proposed by HPSG, LFG, and especially RRG. As such, it may be suggested that such a theoretical distinction has the potential to provide a straightforward solution for other long-standing problems concerning argument structure. Furthermore, this distinction is supported by the richly differentiated system of morphosyntax seen in Minangkabau.

References

Croft, William. (1991). *Syntactic categories and grammatical relations: the cognitive organization of information.* Chicago: The University of Chicago Press.

Payne, Thomas E. (1997). *Describing morphosyntax: a guide for field linguists.* Cambridge: Cambridge University Press.

Van Valin, Robert. and La Polla, Randy. (1997). *Syntax: structure, meaning and function.* Cambridge: Cambridge University Press.

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