Untangling the Balinese Bind: Binding and Voice in Austronesian

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1. Introduction

Voice alternations in Balinese interact with binding phenomena in a way that appears problematic for common views of the A/A’-distinction. In simple sentences, movement to Spec-TP does not create new antecedents for binding, suggesting that Spec-TP is an A’-position. In raising constructions, however, movement to a higher Spec-TP does create new antecedents for binding, behavior expected of an A-position. This paradox is dubbed the Balinese Bind by Wechsler (1998), who uses the phenomenon to demonstrate the superiority of HPSG approaches. In this paper, I argue that the paradox is illusory, and that Balinese Spec-TP is an unambiguous A-position, if we adopt a new account of the Balinese voice system and the Agree-based theory of Binding advanced by Rooryck and Vanden Wyngaerd (2011).

The remainder of the paper is organized as follows: Section 2 demonstrates the interaction of Balinese Voice and binding. Section 3 presents a novel derivation of the Balinese voice system. Section 4 illustrates how the binding facts fall out from this derivation, if we adopt Rooryck and Vanden Wyngaerd’s proposal. Section 5 concludes with discussion of the true A/A’-status of Spec-TP.

2. Voice and Binding Interactions

Balinese displays SVO word order and the standard Austronesian Voice Alternation. Transitive predicates appear in two voices: morphologically unmarked Objective Voice (OV) (1a); and Agentive Voice (AV) (1b), marked by a phonologically conditioned nasal prefix.

(1) a. jaran-e gugut ciciŋ
    horse-DEF bite dog
    ‘A dog bit the horse.’

    b. ciciŋ ŋugut jaran-e
    dog. bite horse-DEF
    ‘A dog bit the horse.’

In OV, the internal argument appears to the left of the verb while the external argument appears to the right. The relative order of the two arguments is reversed in AV. Wechsler and Arka (1998) observe that only the pre-verbal element can undergo relativization, raising, extraposition, quantifier float, and host PRO suggesting they occupy the same position (Spec-TP).

The Voice Alternation has interesting consequences for anaphoric binding. In OV, an anaphor must appear in pre-verbal position, and cannot be realized post-verbally (2). Conversely, in AV, the anaphor must appear in post-verbal position and cannot be realized pre-verbally (3).

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In OV reflexive constructions, like (2a), it is the internal argument in Spec-TP that must be reflexive, as if Spec-TP were an A’-position, invisible to Binding Theory. It would appear that it is the vP-internal θ-positions that count as the crucial A-positions for binding (as argued by Guilfoyle, Hung, and Travis (1992: GHT) for Malagasay). This conclusion is compatible with AV clauses, in which it is again the internal argument that is reflexive. Assuming that Spec-TP is consistently an A’-position, the traditional GHT analysis of the Austronesian Voice Alternation could be utilized to derive the two distinct transitive patterns. GHT propose that in AV the internal argument receives Case in base-position (Compl-V) while the external argument raises to Spec-TP. In OV, it is the external argument that receives Case in its base-position (Spec-vP) and the internal argument that moves for Case.

However, additional evidence from raising suggests that a consistent treatment of Spec-TP as an A’-position is untenable. The raising predicate *yenah‘seem’ optionally takes an experiencer-PP complement. A raised NP subject can bind an anaphor embedded within that complement (4).

(4) takonaŋ tiaŋ apa [ia, *yenah sig awakne jelek sajan].
OV.ask 1st Q 3.sg seem to self bad very
‘I asked (him) whether he seemed to himself to be very ugly.’

The ability of the raised NP to bind an anaphor in the medial clause is completely unexpected if Spec-TP is an A’-position. Rather, we would expect (4) to be ungrammatical as movement from Spec-TP of the most embedded clause to that of the medial clause should not create new antecedents for binding, and should not ameliorate the Binding Principle A violation. The variable behavior of elements in Spec-TP with respect to binding leads to a contradiction: for the purpose of binding by a raised NP in the matrix clause, Spec-TP must be an A-position, while for binding in a simplex clause that same position must be an A’-position. It is this contradiction that Wechsler terms the Balinese Bind. He argues that HPSG is better suited to handle the binding facts in Balinese, as binding relationships are determined before nominals are mapped into argument structure.

Within the GB/Minimalism framework, a possible solution to the problem posed by (4) would be to posit that Balinese Spec-TP is a mixed A/A’-position¹. In a principled mixed position analysis, the element that moves to Spec-TP would determine that position’s A/A’-status. Specifically, if the external argument moved to Spec-TP it would be an A-position, but if the internal argument raised to Spec-TP it would be an A’-position. In OV constructions, like (2) movement of an anaphor to Spec-TP would not create new antecedents for binding. Movement of the external argument to Spec-TP, in (3), would trivially create new antecedents as the binding relationship established between the antecedent and anaphor in their base-positions would remain unaltered. Crucially, in (4) the raised NP is the external argument of the embedded clause thus movement to Spec-TP of that clause would be A-movement. Raising into the medial clause would also be A-movement creating new antecedents for binding, and allowing the reflexive awakne embedded in the medial experiencer PP to be bound.

¹ Analyses proposing mixed positions have been offered for a number of languages. For example, see Diesing (1990) on Yiddish and Mahajan (1991) on Hindi. Travis (1998) proposes another solution to the problem. She suggests that A-positions can be further divided into T(heta)- and T’-positions. Crucially, binding relationships are only determined between DPs in T-positions, which Spec-TP is not.
Unfortunately, a principled analysis of the kind sketched above is also untenable. The analysis predicts that Spec-TP in OV constructions is uniformly an A’-position, while Spec-TP of AV constructions is uniformly an A-position. However, evidence from control constructions suggests that Spec-TP of both voices must (at least at times) be an A-position, because it can host PRO. Crucially, only the pre-verbal argument, whether the internal argument of an OV clause (5) or the external argument of an AV clause (6), can be a controller.

(5) a. tiaŋ edot [PRO periksa dokter]  
1.sg want OV.examine doctor  
‘I want to be examined by a doctor’

b. *tiaŋ edot [dokter periksa PRO]  
1.sg want doctor OV.examine  
(‘I want to examine a doctor.’)

(6) a. tiaŋ edot [PRO meriksa dokter]  
1.sg want AV.examine doctor  
‘I want to examine a doctor.’

b. *tiaŋ edot [dokter meriksa PRO]  
1.sg want doctor AV.examine  
(‘I want to be examined by a doctor.’)

Of course, the behavior of PRO in Balinese does not by itself rule out a mixed-position analysis of Spec-TP. However, it greatly reduces the plausibility of such an analysis. Given that the pre-verbal position of OV constructions display both A- and A’-properties, we cannot predict the A/A’-status of Spec-TP solely by the element which moves to that position. A mixed position analysis would require a just-so story – Spec-TP is an A-position when it needs to be and an A’-position when it needs to be. This analysis is conceptually unfavorable, and it is not clear to me how to encode such optionality without significant stipulation. Below, I will illustrate that adopting the Agree-based Binding Theory of Rooryck and Vanden Wyngaerd (2011; R&W) will allow us to capture the behavior of Balinese binding without recourse to the A/A’-status of Spec-TP. Independent properties of Balinese will provide support for the treatment of Spec-TP as an unambiguous A-position.

3. Deriving the Voice Alternation

Before, addressing the behavior of binding, we must establish the correct derivation of OV and AV clauses. In brief, I posit that OV and AV are derived via a parameterization of \( v^0 \) (a similar analysis of the Voice Alternation in Indonesian is proposed by Aldridge (2008)). AV clauses which resemble English transitive clauses in their word order – external argument, verb, internal argument – are formed when an accusative assigning \( v^0 (v_{ACC}) \), realized as a phonologically conditioned nasal prefix, enters the derivation. \( V_{ACC} \) assigns accusative case to the internal argument and bears an EPP-feature which forces obligatory object shift of the internal argument to a higher Spec-vP position above the base-position of the subject. OV clauses, which display the reverse ordering of internal and external arguments can be formed by merging a non-accusative assigning \( v^0 (v_{ERG}) \). \( V_{ERG} \), like its accusative counterpart bears an EPP-feature forcing obligatory object shift of the internal argument to Spec-vP. However, it does not assign any case to the internal argument. The properties of the two transitive \( v^0 \)’s of Balinese are summarized in (7).

(7) PARAMETERIZATIONS OF TRANSTIVE \( v^0 \)

a. \( V_{ACC} \) – Assign ACC to DP in Compl-V; bears EPP-feature; spelled out as /N/.

b. \( V_{ERG} \) – Assigns no Case to DP in Compl-V; bears EPP-feature; spelled out as /Ø/.
3.1. The Balinese vP

Equipped with the parameterization in (7), we can now properly derive the Balinese transitive voice system as seen in (8).

(8) a. be-e daar Nyoman
fish-DEF OV.eat N.

b. Nyoman naar be-e
N. AV.eat fish-DEF
‘Nyoman ate the fish.’

Adopting UTAH (Baker 1988), regardless of surface position, the external argument Nyoman, which appears pre-verbally in (8b) and post-verbally in (8a) is always generated in Spec-vP. The internal argument be-e ‘the fish’ is likewise always generated in Compl-V. In order for the internal argument to raise to Spec-TP in OV constructions as outlined above, it must raise to a higher Spec-vP position than the external argument in order to be a target for T⁰. Under the current proposal, such movement happens regardless of the Voice of the clause – both instantiations of transitive v⁰ bear an EPP-feature. The structure of the Balinese vP is uniform as seen in (9)

(9) STRUCTURE OF OV/AV BALINESE vP

The crucial difference between the two transitive clauses is that in OV the internal argument is not assigned Case by vERG, while in AV the internal argument is assigned accusative Case by vACC. As the relative ordering of arguments is identical upon completion of the vP, it is the projection above vP, TP, which is responsible for determining which argument moves to the pre-verbal position.

3.2. Derivation of OV Constructions

In OV, the internal argument does not receive case in its base-position; VERG lacks a Case-feature. As such, after undergoing object shift, the internal argument will still be an Active goal (Chomsky 2001) for probing by higher functional heads. I adopt the commonly held position that T⁰, which merges with vP, enters the derivation with unvalued φ-features, a valued (nominative) Case-feature, and an EPP-feature. Probing to value its φ-features, T⁰ will find the internal argument in the higher Spec-vP position, value its Case-feature and trigger movement to Spec-TP. The complete OV derivation is provided in (10).
The astute reader will observe that in the course of the OV derivation, the external argument never values its Case-feature. This would appear to be a violation of the Case Filter (Chomsky and Lasnik 1977). However, evidence suggests that the post-verbal external argument incorporates in OV effectively avoiding the Case Filter (Baker 1985 _passim_).

### 3.2.1. Evidence of Incorporation

The current paper is not suitable for a complete discussion of incorporation in Balinese². However, I will provide some evidence that an incorporation analysis appears to be correct. First, Wechsler and Arka (1998) observe that post-verbal nominals in OV constructions receive an indefinite interpretation.

(11) I Wayan gugut cicing/*cicing-e ento
    ART W. OV.bite dog dog-DEF that
    ‘A/*the dog bit Wayan’

As seen in (11), the post-verbal nominal cannot appear with the definite suffix –e or demonstrative determiners like ento ‘that’. Such an interpretation is expected if incorporation prevents the DP from escaping existential closure (Diesing 1992).

Second, the verb and post-verbal external argument show a strict adjacency requirement. Elements cannot intervene between the two in OV constructions.

(12) a. siap-e uber ciciŋ ke jalan-e S V O_EA PP
    chicken-DEF OV.chase dog into street-DEF
    ‘A dog chased the chicken into the street.’

b. uber ciciŋ ke jalan-e siape-e V O_EA S PP

c. *uber siap-e ciciŋ ke jalan-e *S V O_EA PP

d. *siap-e uber ke jalan-e ciciŋ *S V PP O_EA

² Balinese poses a number of problems for commonly held theories of incorporation. First, as seen in (1), elements which are thought to be definite, such as pronouns and proper names, can appear in post-verbal position. It is important to note that such elements are, nevertheless, subject to the same syntactic restrictions as indefinite post-verbal nominals. Second, only external arguments display incorporation behavior. Cross-linguistically, agent incorporation is quite rare. However, in all other languages in which agent incorporation occurs object incorporation is possible as well. This is not the case in Balinese.
In (12), the post-verbal external argument *ciciŋ* ‘dog’ must be right-adjacent to the verb. Non-argument PPs like *ke jalan-e* ‘in the street’ (12d) and extraposed subjects like *siap-e* ‘the chicken’ cannot intervene. Although as seen in (12b), extraposition of the subject to the right of the verb-external argument cluster is permissible. These results are expected under an analysis whereby the nominal has, in fact, adjoined to the verb (Baker 2012) or incapable of movement (Massam 2001).

Third, while it is possible to *wh*-move a post-verbal internal argument in an AV construction (13), it is not possible to *wh*-move a post-verbal external argument in an OV construction (14).

(13) buku cen John maca.
    book which J. AV.read
    ‘Which book did John read?’

(12) *anak cerik cen be-e daar
    person small which fish-DEF OV.eat
    (‘Which boy at the fish?’)

The inability to overtly *wh*-move post-verbal external arguments suggests that either they are NPs incapable of moving or have undergone covert head-movement into the verb.

The data in (11-14) strongly supports the claim that the external argument does fail to receive Case in OV constructions, and undergoes incorporation to escape the Case Filter.

3.3. Derivation of AV Constructions

The crucial difference between OV and AV constructions is that in AV, and not OV, the internal argument is valued for Case in its base-position. Unlike *v*<sub>ERG</sub>, *v*<sub>ACC</sub> does assign Case to the direct object. Upon case-valuation, the internal argument will be rendered Inactive and unavailable for probing by higher functional heads. Thus, when T<sup>0</sup> enters the derivation it will by-pass the internal argument and target the external argument in lower Spec-vP position valuing it with nominative Case and triggering movement to Spec-TP. The derivation of AV is schematized in (13).

(13) FULL AV DERIVATION

Unlike OV clauses, both arguments in AV are Case-licensed. As such we expect the internal argument to show no incorporation behavior. This prediction is confirmed. In AV, the post-verbal argument can be modified with definite morphology and demonstrative determiners (14), it can be separated from the verb by a PP (15), and it can undergo *wh*-movement (16).

(14) Wayan ŋugut ciciŋ-e ento
    W. AV.bite dog-DEF that
    ‘Wayan bit that dog.’
One might object to the derivation in (13) as a violation of Relativized Minimality (Rizzi 1990). If $T^0$ probes its c-command domain for an element which bears $\phi$-features, the first element it will encounter is the internal argument. In OV, I posited that $T^0$ does target the internal argument, because it has yet to be Case-licensed. Even, if $T^0$ cannot target the internal argument, because it has been Case-licensed by $v_{\text{ACC}}$ in AV, we might expect the internal argument to trigger Defective Intervention (Chomsky 2000) blocking $T^0$ from agreeing with the external argument. I do not have much to say about this concern, but note that common analyses of some ergative-absolutive Case systems (ABS=NOM languages (Legate 2008)) involve $T^0$ looking past the external argument, valued with lexical ergative case by $v_0$, to target the internal argument and value it with absolutive Case$^3$.

4. Binding as Agree

Employing the derivation of the Balinese voice system proposed above, we can capture the binding phenomena (2–4) without appealing to the A/A'-status of Spec-TP. Crucial to this analysis is the adoption of the novel Binding Theory proposed by Rooryck and Vanden Wyngaerd (2011) which reduces anaphoric binding to Agree. I will briefly outline the relevant aspects of the proposal, and then show how it can be applied to Balinese.

4.1. The Proposal

R&W, adopting Pesetsky and Torrego’s (2007) formulation of Agree (17), suggest that self-anaphors are pronominal elements with unvalued $\phi$-features.

(17) **AGREE** (Pesetsky & Torrego 2007)

a. An unvalued feature $F$ (a probe) on a head $H$ at syntactic location $\alpha$ ($F_\alpha$) scans its c-command domain for another instance of $F$ (a goal) at location $\beta$ ($F_\beta$) with which to agree.

b. Replace $F_\alpha$ with $F_\beta$, so that the same feature is present in both locations.

In the course of the derivation, the anaphoric element raises to an adjoined position (Spec-vP) and probes its c-command domain for a goal to agree with$^4$. The adoption of a feature-sharing approach to Agree imparts the interface levels with the ability to tell which features entered the derivation valued, and which got valued along the way. At LF, the nominal valued during the derivation will be interpreted as bound, and at PF it will be spelled out as a properly inflected anaphor.

R&W’s proposal is particularly advantageous for anaphoric binding in that it reduces to Agree (an independently needed operation) properties of Binding Theory that were previously handled via stipulations in Binding Principle A (BPA) (18).

(18) **BINDING PRINCIPLE A** (Chomsky 1981)

An anaphor must be bound it its local domain.

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$^3$ Also see Breuning (2012) who argues that classic intervention effects in French and Italian can be reduced to more general linearity requirements.

$^4$ R&W are noncommittal regarding how this movement occurs. They suggest it may either be triggered by an additional EPP-feature on $v_0$ or unvalued feature-driven movement (e.g. Boskovic 2007).
BPA, in conjunction with the definition of *bound* (c-commanded by and co-referent with an antecedent) rules out ungrammatical examples in which anaphors lack antecedents (19a), do not agree in φ-features with antecedents (19b), or are not c-commanded by their antecedents (19c).

(19) a. *Himself smiled.
    b. *I invited himself.

BPA rules out the examples in (19), because in each case the anaphor is not properly bound. In (19a), no possible antecedent is present, thus the anaphor cannot be bound. In (19c), even though a potential antecedent is present, it does not c-command the anaphor. Lastly, (19b) places the anaphor in the c-command domain of a potential antecedent. However, as the potential antecedent *I* and the anaphor *himself* do not match in φ-features, it is not possible for them to be co-referent.

R&W’s proposal can also capture (19) as failures of Agree or its proper application. (19a) is ruled out because the unvalued φ-features of the *self*-anaphor cannot be valued. (19b) is ruled out as a Spell-Out failure. The *self*-anaphor will raise above the antecedent *I* in Spec-vP, where it will probe the pronoun for φ-features and be valued with first person, singular features. As such, the anaphor must be spelled out as *myself not himself*. R&W, following Heinat (2008), suggest that in (19c) an Agree-relationship holds between *v₀* and the object DP *John* leaving both featurally-complete. Adopting the Activity Condition (Chomsky 2001), both the object DP and *v₀* are unavailable for further Agree. With the *self*-anaphor unable to value its φ-features the derivation will crash.

4.2. Binding in Balinese
4.2.1. Simplex Clauses

Returning to Balinese, we will see that R&W’s proposal can be straightforwardly incorporated. As illustrated in Section 2, in simplex sentences the position of an anaphor is conditioned by the voice of the clause. In OV the anaphor must be realized in pre-verbal position (2a), and in AV the anaphor must be realized in the post-verbal position (3a), repeated below.

(20) a. ragan idane ciŋakin ida
    self    OV.see 3.sg

b. ida  n-yiŋakin ragan idane
    3.sg AV-see self

‘(s)he saw herself/himself.’

Given the proposed derivations in Section 3, the anaphor in both OV and AV clauses occupies the position of the internal argument. In both Voices the internal argument raises to a position above the external argument in Spec-vP, yielding the structure in (9), due to the EPP-feature on both instantiation of *v₀* which participate in the Voice Alternation. Crucially, just as R&W propose for English, obligatory object shift in Balinese forces the appropriate configuration for an anaphor generated in Compl-V to c-command an antecedent in Spec-vP. In a higher Spec-vP position above the external argument, an anaphor with unvalued φ-features will probe the external argument and value its φ-features. Whether that argument raises further to Spec-TP or remains in Spec-vP is determined by whether or not the anaphor has received Case in Compl-V. In OV, the anaphor (like all internal arguments) will not receive Case and thus be a viable target for probing by T₀. In AV, the anaphor (like all internal arguments) will receive Case from vACC, and not be a viable target for T₀. Furthermore, we can straightforwardly rule out the ungrammatical examples in (2b, 3b).

(21) a. *ida  ciŋakin ragan idane
    3.sg OV.see self
Regardless of Voice, the ungrammatical examples involve generating the anaphor in Spec-vP. In effect, these examples are identical to the ill-formed English example in (19c), and can be accounted for in the same manner. \( V^0 \) will enter a \( \varphi \)-agreement relationship with the pronoun \( ida \) in Compl-V, this agreement relationship will render \( V^0 \) Inactive blocking the unvalued \( \varphi \)-features of the anaphor from probing it. Additionally, the internal argument itself cannot be targeted for \( \varphi \)-agreement in R&W’s proposal as they adopt a very strict version of the Phase Impenetrability Condition (Chomsky 2000) in which elements within the c-command domain of \( v^0 \) become unavailable for probing as soon as the vP is formed by External Merge of the anaphor in Spec-vP.

### 4.2.2. Raising Constructions

Recall examples like (4), repeated below as (22), are problematic for classic BT.

\[(22) \text{takonaŋ tiaŋ apa ia ŋenah sig awaknei jelek sajan.} \]
\[\text{OV.ask 1st Q 3rd seem to self bad very} \]
\[\text{‘I asked (him) whether he seemed to himself to be very ugly.} \]

Under the assumption that only A-movement creates new antecedents for binding, (22) is troublesome, because it appears to indicate that Spec-TP is a mixed position. However, as we have seen above, the A/A’-status of Spec-TP is not necessary to determine the binding relationship between the anaphor and antecedent. The relationship is determined in Spec-vP. The same is true for raising constructions.

Unlike anaphor DPs that are generated in Compl-V, an anaphor contained within a PP does not c-command its antecedent. R&W note that even if the entire PP, as in the English example (23), were to undergo movement to Spec-vP above the external argument, the anaphor would be too far embedded to value its \( \varphi \)-features.

\[(36) \text{Tim looked at himself in the mirror.} \]

R&W propose that in such cases, the anaphor covertly moves outside of the PP. The anaphor raises out of the PP and adjoins to Spec-vP, where it c-commands the subject, and can value its \( \varphi \)-features. The same tactic can be employed in examples like (22). The anaphor \( awakne \) is valued for Case within the PP. However, its unvalued \( \varphi \)-features permit it to raise covertly to Spec-vP. The pronoun \( ia \) raises to Spec-TP of the medial clause for standard Case/EPP reasons. Just as in simplex clause, the binding relationship between a raised antecedent and a matrix anaphor is determined, before either element moves to Spec-TP.

### 5. Conclusion

As we have seen, the Balinese Bind is illusory. Adopting R&W’s approach to Binding Theory allows us to account for the Balinese facts without invoking a mixed position analysis. However, the proposal has consequences for diagnosing A- and A’-positions that merit some discussion.

Under R&W’s proposal, for a binding relationship to be formed the antecedent and the anaphor must enter a \( \varphi \)-feature-sharing relationship within a phase. This account turns the nature of binding on its head. While the antecedent is still responsible for determining the reference of the anaphor, it is now the anaphor, acting as a probe, which “binds” the antecedent. With the anaphor responsible for binding, we can no longer use anaphoric binding as a test for the A/A’ status of Spec-TP. Movement of a nominal above an anaphor will never create new antecedents for binding, because the possibility of the moved element being understood as an antecedent will have been determined before movement takes place. If we can no longer use the creation of new antecedents for binding as a diagnostic for the A/A’-status of Spec-TP, we lose the motivating factor in treating Balinese Spec-TP as an A’-position.
in the first place. Given R&W’s proposal, BPA violations in English examples like *himself loves John are deemed ungrammatical independently of BT. Corresponding Balinese examples are deemed grammatical also independently of BT. Although it is not crucial for the analysis presented above, the question of the A/A’-status of Balinese Spec-TP still remains.

Unfortunately, a full discussion of the A/A’-status of Spec-TP cannot take place in this paper, but two pieces of evidence presented above suggest that the pre-verbal position is an A-position. First, we saw that PRO can be host in the pre-verbal position suggesting the position is like English Spec-TP, which also can host PRO. Second, we saw in (13) that there are, in fact, two pre-verbal positions in Balinese. It is the higher of the two (Spec-CP) to which overt wh-movement occurs suggesting it is this position, not the lower of the two that behaves like an A’-position.

References
