ON THE VOICE AGREEMENT IN BUNUN

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Abstract: In this paper we investigate the voice agreement in Bunun, a Formosan language. We argue that the previous analyses proposed by Rackowski (2002) and Rackowski & Richards (2005) and Aldridge (2002, 2008) cannot fully capture the voice agreement in Bunun by presenting two-fold evidence: i) the independence of VoiceP; ii) the syntactic properties of voice constructions. Furthermore, we propose a new analysis that the head of VoiceP probes for thematic feature; more specifically, Voice^0 is in Agree relation with a DP with an interpretable theta-role in order to value the un-value voice feature in Voice, and the Case of the goal NP is also determined (nominative). This theory has the following advantages: i) no argument is sacrificed in the derivation; 2) a straightforward way is provided to capture the link between the nominative DP and voice morphology.

Key words: voice agreement, phase, probe-goal relation, object shift, thematic feature

1. Introduction

This paper aims to explore the voice agreement in *Isbukun Bunun*, one of the Austronesian languages spoken in Taiwan.[1] Bunun, like many other Austronesian languages, exhibits four types of voice constructions[2]:

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[2] Abbreviations used in the glosses: 1PE/I = 1 person exclusive/ inclusive, 1/2/3P = 1/2/3 person plural, 1/2/3S = 1/2/3 person singular, AV = Actor voice, ACC = Accusative, CAUS = Causative, COMP = Complementizer, CV = Circumstantial voice, DEM = Demonstrative, DET = Determiner, FUT = Future tense, GEN = Genitive, IA = Instrumental Applicative, IMP = Imperative, INCH = Inchoative, LA = Locative applicative, LNK= Linker, LOC = Locative, LV= Locative voice, NEG = Negator, NOM = Nominative, OBL = Oblique, P = Preposition, PRF = Perfect, PST = Past tense, PN = Proper name, PV= Patient voice, QP = Question particle, RED = Reduplication, STA = Stative, TOP = Topic marker, VCL = Verbal classifier.

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(1) a. **ma**-ludah a tama mas 'uvaaz.
AV-beat NOM father ACC child
'The father is beating a child.'
(Actor voice, AV)

b. ludah-**un** mas tama-tia 'a 'uvaaz.
beat-PV GEN father-DET.GEN NOM child
'The child is being beaten by that father.'
(Patient voice, PV)

c. ha<in>up-**an** mas tama-tia a 'avia.
hunt<PST>LV GEN father-DET.GEN NOM col
'Ngian hunted at that col.'
(Locative voice, LV)

d. na-**'is**-ludah tama-tia lukis-a mas 'uvaaz.
FUT-IV-beat father-DET.GEN stick-DET-NOM ACC child
'The father will beat a child with the stick.'
(Instrumental voice, IV)

As shown in (1a-d), the AV-marked verbs typically select Agent/Actor as the subject; the PV-marked verbs typically select Patient/Theme as the subjects; the LV-marked verbs tend to select Location as the subjects; the IV-marked verbs preferentially agree with Instrument or Beneficiary.

There have been a long line of works on the voice agreement regarding Austronesian languages in the generative literature. The representative works are briefly stated as follows:

i) **Case Assignment approach**: by investigating Malagasy, Tagalog, Cebuano and Bahasa (Malaysia and Indonesia), Guilfoyle, Hung and Lisa (1992) proposes under GB framework that voice markers are case assigning morphemes in V^0 or I^0 and the trigger DP[3] undergoes case-driven movement to the Spec of IP. For example, in AV (Actor Voice) sentences the voice marker in V^0 assigns Accusative Case to its Theme object while the Actor DP in the Spec of VP which is not case-assigned is forced to move to the Spec of IP and thus receives its subject status; in PV (Patient Voice) sentences, the Actor DP is assigned Case by the voice marker in I^0 while the Theme object which receives no Case in VP is forced to move to the Spec of IP.

ii) **Agreement/INFL approach**: by adopting feature checking theory developed in Chomsky (1992), Mei (1994) proposes that in Mayrinax Atayal voice morphology is a reflex of the Spec-Head agreement relation between the nominative subject and I^0, which he termed as theta-agreement; more specifically, I^0 holds θ-feature – namely, [±AV], and forces a semantically

[3] There has been a long line of works in the literature on the question whether the "trigger", corresponding to the nominative *a*-marked DP in Isbukun Bunun, the *ang*-marked DP in Tagalog and the sentence-final DP in Malagasy, is a subject or a topic (Schachter 1976, Pearson 2005, inter alia). There is usually grammatical agreement relation between the trigger and the verbal voice morphology. The argument for the A-element status of the *a*-marked DP will be presented in detail in section 3.1.

compatible argument to agree with it by attracting the argument to the Spec of IP. See similar analysis in Holmer (1996).

iii) **Case Agreement approach**: by investigating Tagalog, Rackowski (2002) and Rackowski & Richards (2005) proposes that voice morphology is the reflection of the case on the DP that undergoes EPP- and specificity-driven object shift to the edge of *v*P. See similar proposal in Pearson (2005).

iv) **Ergativity/Light verb approach**: by investigating Tagalog, Seediq and Malagasy, Aldridge (2004, 2008) proposes that voice morphology reflects the transitivity of predicates. Under her analysis, the language in question are ergative languages; more specifically, AV sentences are intransitive antipassive[4] with demoted objects and absolutive-marked S, while NAV are transitive sentences with ergative-marked A and absolutive-marked O.

In this paper we focus on Case Agreement approach and Light verb approach because of the following reasons: i) both of them are based on Minimalist framework and phase theory proposed in Chomsky (2000, 2001) and ii) Tagalog and Bunun share a lot of (morpho-)syntactic characteristics in common, such as word order, rich voice morphology, voice-sensitive restriction on A'-extraction and so forth. More details about these two approaches will be presented and discussed in section 3.

On the other hand, as we will argue later in section 3 and 4, these two approaches cannot fully capture the nature of the voice agreement and the clausal properties in Bunun. Therefore, we tentatively propose a new analysis that VoiceP is a phase and the head Voice^0 probes for thematic feature; thus, Voice morphology reflects the Agreement relation between the probe Voice which bears un-value thematic feature and the subject DP which bears interpretable thematic feature.

This paper is organized as follows. Section 2 briefly sketches the syntactic phenomena related to voice agreement in Bunun. Section 3 reviews the previous phase-based account for voice agreement. Section 4 argues for the independent VoiceP by presenting morphological and syntactic evidence. Section 5 argues against R & R's and Aldridge's analyses for the derivation of voice constructions by examining the related syntactic properties of Bunun. Section 6 presents our probe-goal account for voice agreement and the derivation of Bunun voice constructions under phase theory (Chomsky 2000, 2001, 2008). Section 7 is the conclusion.

2. A Grammatical Sketch of Isbukun Bunun

In this section several basic syntactic phenomena concerning voice constructions will be introduced, including voice markers, case markers and word order.

2.1 Voice System and Applicative Constructions

[4] A, O and S are defined in terms of Dixon (1994).

Following Wu (2007), Chen (2007), Chang (2008a), a binary distinction for voice morphology is made: AV versus NAV; moreover, NAV can be further divided into PV, LV and IV:

Table 1. *Voice marking system in Bunun*

Voice	AV	NAV		
Applicative		*-un*	Locative	Instrumental
Markers	*m(a)-*	(PV)	*-an*	*'is-*

(2) a. **ma**-ludah a subali mas dahu. (AV)
AV-beat NOM PN ACC Dahu
'Subali beat Dahu.'
b. ludah-**un** mas subali a dahu. (PV)
beat-PV GEN PN NOM Dahu
'Subali beat Dahu.'

NAV sentences, especially LV and IV, involve applicative constructions, headed by –an and '-is, respectively, as shown in (3-4):

(3) a. ha<in>up-**an** mas ngian a 'avia. (transitive)
hunt<PST>LV GEN PN NOM col
'Ngian hunted at that col.'
b. tangis-**an**=ku saia. (unergative)
cry-LV=1S.GEN 3S.NOM
'I cried for him.'

(4) a. **'is-**'anat subali a tahai mas pandian. (transitvie)
IV-cook PN NOM PN ACC dish
'Subali cooks something for Tahai.'
b. **'is-**hudanan a dalah=as hudan. (intransitive)
IV-rain NOM earth=GEN rain
'It rained and the earth got wet.'

Besides, like many Western Austronesian languages, Bunun observes voice-sensitive or "subject-only" restriction on A'-extraction (Chang 1997, Pearson 2005, Cole and Hermon 2008). That is, only the nominative DP can undergo A'-extraction, as in (5-6)

(5) Relativization
a. saia hai, Ø-s<in>adu mas maluspingaz [tu kalat-**un**
3S.NOM TOP AV<PST>see ACC woman COMP bite-PV
mas 'asu].
GEN dog
'He saw a woman who w as bitten by a dog.'
b. *saia hai, Ø-s<in>adu mas 'asu [tu kalat-**un** a
3S.NOM TOP AV<PST>see ACC dog COMP bite-PV NOM

maluspingaz].
woman
'He saw a woman who was bitten by a dog.

(6) Wh-Question
a. maz a [ka-kaun-un=su]-an 'i ?
what NOM RED-eat-PV=2S.GEN-DET.NOM QP
'What are you eating?'
b. * maz a ma-m-aun=as-an 'i ?
what NOM RED-AV-eat=2S.A-DET.NOM Q

2.2 Case Marking

The case-marking system in Bunun is binary and simple: subject versus non-subject or trigger versus non-trigger, as shown below:

Table 2. *Case marking system in Bunun*

	Trigger/Subject	Non-Trigger/Non-Subject	
Case	NOM	GEN	ACC / OBL
___ DP	*a*	*mas*	
DET ___	*-in/ -an/ -a*	*-tin/ -tan/ -tia*	
Theta-roles	Agt/Theme/Loc/Inst/Ben…	Agt in NAV	Non-Agt/Trigger

As shown in (7a-b), the case markers for non-subject DPs may mark arguments or obliques:

(7) a. ma<i>saiv **a** subali tahai-**tia** **mas** 'ahil.
AV<PST>give NOM PN PN-DET.OBL ACC book
'Subali gave Tahai a book.'
b. saiv-an **mas** subali-**tia** **a** tahai-**a** **mas** 'ahil.
give-LA GEN PN-DET.GEN NOM PN-DET.NOM ACC book
'Subali gave Tahai a book.'

Note that non-trigger EA is not demoted as the EA in English passive construction because in the NAV context the EA in Bunun can serve as the controller, as in (8):

(8) 'asa-un **tina-tia** 'uvaaz-a **ma-p-un-sia**
want-PV mother-DET.GEN child-DET.NOM AV-CAUS-toward-P
PRO_i pasnanavaan.
school
'The mother wants to send her child to school.'

2.3 Word Order and Scrambling

Although the word order VAO is frequently employed in AV and NAV clauses, it is not uncommon that the VOA order is acceptable as well employed in AV- and NAV clauses:

(9) AV

a. ma-laupa a subali-a **mas** **babu**.
AV-stab NOM PN-DET.NOM ACC pig
'Subali is stabbing a pig.'

b. ma-laupa **mas** **babu** subali-a.
AV-stab ACC pig PN-DET.NOM
'Subali is stabbing a pig.'

(10) PV

a. damu-u=s tamungan-tia **a** **ma'utung**.
catch-PV=GEN police-DET.GEN NOM thief
'The police caught the thief yesterday.'

b. damu-un**a** **ma'utung** tamungan-tia.
catch-PV NOM thief police-DET.GEN
'The police caught Pizing yesterday.'

(11) LV

a. na-saiv-an subali-tia **tahai-a** mas 'ahil.
FUT-give-LV PN-DET.GEN PN-DET.NOM ACC book
'Subali will give a book to Tahai.'

b. na-saiv-an **a** **tahai-a** subali-tia mas 'ahil.
FUT-give-LV NOM PN-DET.NOM PN-DET.GEN ACC book
'Subali will give a book to Tahai.'

c.* na-saiv-an **mas 'ahil** subali-tia tahai-a.
FUT-give-LV ACC book PN-DET.GEN PN-DET.NOM
'Subali will give a book to Tahai tomorrow.'

(12) IV

a. 'is-pit'ia tina-tia **lukis-an**.
IV-cook mother-DET.GEN wood-DET.NOM
'Mother cooks with the wood.'

b. 'is-pit'ia **lukis-an** tina-tia.
IA-cook wood-DET.NOM mother-DET.GEN
'Mother cooks with the wood.'

Besides, PP is allowed to precede EA, as shown in (13a-b):

(13) a. Ø-'aiza a bintuhan **sia** **dihanin-tan**.
AV-exist NOM star P sky-DET.OBL
'There are stars in the sky.'

b. Ø-'aiza **sia dihanin-tan** a bintuhan.

AV-exist P sky-DET.OBL NOM star
'There are stars in the sky.'

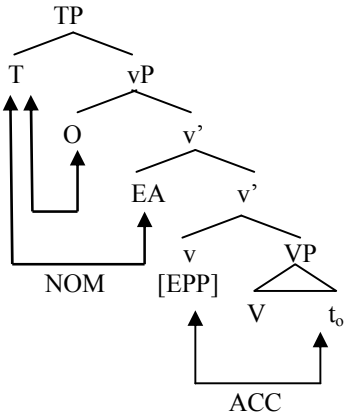
3. Literature Review

In this section we review and compare Case Agreement approach and Light Verb Approach, and further pose our research questions.

3.1 Case Agreement Analysis

According to Rackowski (2002) and Rackowski & Richards (2005), the PV construction is derived as follows: i) the internal argument agrees with *v* and is shifted to the edge of vP via [EPP] to receive semantic interpretation (specificity); ii) T probes the closest DP, the shifted object, and the features of the object is copied into T and spelled out as voice morphology; iii) T enters into a second Agree relation with EA to value its case feature as NOM. The derivation is shown in (14):

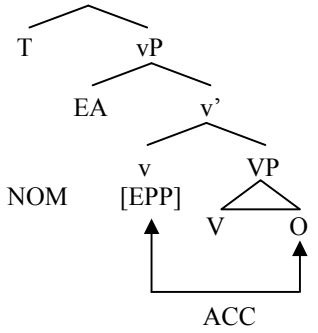
(14) PV



The AV construction is derived as follows: i) the internal argument agrees with *v* without [EPP] and remains within VP, receiving non-specific interpretation; ii) T probes the closest DP, the EA, and the features of the EA is copied into T and spelled out as voice morphology. The derivation is shown in (15):

(15) AV

TP

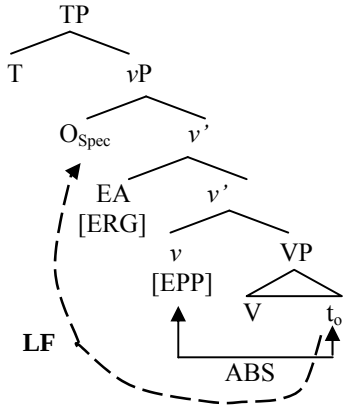


However, both in Tagalog and Bunun, the EA bears different case markers in AV and NAV constructions; for example, *ang/a* is employed in the AV context, while *ng/mas* in the NAV context. It is unclear how this analysis captures such mismatch.

3.2 Ergative/ v Analysis

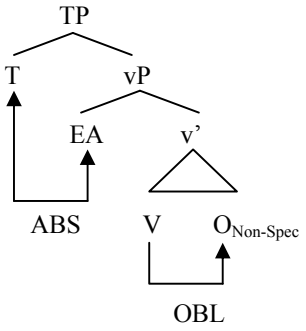
According to Aldridge (2004, 2008), the PV construction is derived as follows: i) transitive v values Absolutive Case on the internal argument and assigns inherent Ergative Case to EA in its Spec; iii) the Absolutive object raises to vP phase edge to check [EPP] on v and receives a presuppositional interpretation at LF. The derivation is shown below:

(16) PV



The AV contruction is derived as follows: i) intransitive v lacks [EPP] and cannot assign and value cases on the EA and the object; ii) T enters into Agree relation with EA and values Absolutive Case on the EA; iii) the O receives inherent Oblique Case from the lexical verb and remains within VP until LF, receiving non-specific reading. The derivation is illustrated below:

(17) AV/Antipassive



However, Richards (2001) argues that the AV clauses in Tagalog can be transitive by showing that the object dP can control the PRO of an adjunct clause. Thus, it is doubtful that AV is intransitive antipassive and the object is demoted as an oblique.

3.3 Discussion

First, with respect to voice agreement, both R & R and Aldridge deny the independent status of Voice projection and treat it as a reflex of case or transitivity. They argue against the agreement relation between voice morphology and thematic roles on "trigger" by providing data where voice marking and theta-roles diverge.

Second, with respect to language typology, R & R treat Tagalog as an accusative language, with special reference to Germanic languages which employ object shift, while Aldridge treats Tagalog as an ergative language. Under the former analysis AV clauses can be transitive or intransitive, while under the latter analysis AV clauses are uniformly intransitive.

Third, with respect to the objecthood, both R & R and Aldridge assume specificity-driven object shift; however, under the former analysis the object shift is overt, while under the latter the object shift is covert.

Lastly, as for the triggerhood/Subjecthood, Rackowski (2002), R & R (2005), and Aldridge (2004, 2008) propose that "triggers" are A-elements and stays below T; T is assumed to be without [EPP]. On the other hand, Richards (2001) argues that triggers are topics or A'-elements.

Therefore, our research questions are as follows:

i) Is VoiceP required for Bunun?
ii) Are Bunun triggers topics?
iii) Do Bunun triggers undergo object shift in Syntax or LF?
iv) Is TP required to be filled?

4. Arguments for VoiceP

In this section we argue for the existence of VoiceP and argues against the proposals that regard voice morphology as neither the reflex of the case of the highest argument on the phase edge nor the reflection of the transitivity of predicates.

4.1 Voice is not *v*

Voice markers and little verb are morphosyntactically distinctly realized, as shown in (18-19):

(18) a. **m-is-**busuk
AV-INCH-drunk
'get drunk'
b. **ma-p-is-**busuk
AV-CAUS-INCH-drunk
'to cause (someone) to be drunk'
c. **p-is-**busuk-**un**
CAUS-INCH-drunk-PV
'to cause (someone) to be drunk'

(19) a. **m-a-**naskal
AV-STA-happy
'to be happy'
b. **s**<in>**p-i-**naskal
IV<PST>CAUS-INCH-happy
'to have caused someone to be happy'
c. **'is-ka-**naskal
IV-STA-happy
'to be happy for (someone/something)'

4.2 Voice and transitivity

In Bunun AV clauses can be transitive because the internal theme can serve as the controller, as shown in (20):

(20) Object control test (Richards 2001, Chang 2008b)
a. masnanava hai, Ø-tupa **subali-tia$_i$** [tu **ma-**sipul-a **PRO$_i$].**
teacher TOP AV-say PN-DET.ACC COMP AV-read-IMP.AV
'The teacher asked Subali to read it out.'
b. ma<i>saiv saikin ma=saitia mas **sui$_i$** **['is-**baliv
AV<PST>give 1S.NOM OBL=3S.OBL ACC money IV-buy

PRO$_i$ mas ‘ahil].
ACC book
‘I gave him money to buy a book.’

Besides, in Bunun quantifier floating is licit within arguments rather than oblique adjuncts, as in (21):

(21) Q-floating test (Sadakane and Koizumi 1995, Miyagawa 1998)
a. ma<i>baliv a tahai [**tu tau mas ‘ahil]/ [mas tau tu ‘ahil]**.
AV<PST>buy NOM PN TU three ACC book ACC three LNK book
‘Tahai bought three books.’
b. ma<i>baliv a tahai mas ‘ahil [**sia *tu dusa mas babalivan]/ [dusa tu babalivan]**.
AV<PST>buy NOM Tahai ACC book P TU two OBL store two LNK store
‘Tahai bought books at two stores.’

4.3 Voice and thematic roles

At first glance, voice marking and theta-roles appear to diverge as well in Bunun:

Table 3. *Voice marking and theta-roles in Bunun*

Voice markers	Theta-roles of Nominative Subject NP								
	Agt	**Pat**	**Them**	**Exp**	Loc	**Time**	Ben	Inst	**Rec**
AV	+		+	+					
PV		+							
LV			+		+	(+)			+
IV			+				+	+	

(22) AV
a. **m**-a-zima a dahu mas tina. (Experiencer)
AV-STAT-like NOM Dahu ACC mother
‘Dahu loves his mother.’
b. **m**-a-davus a bunbun-in. (Theme)
AV-STA-sweet NOM banana-DET.NOM
‘This banana is sweet.’

(23) LA
a. sadu-**an**=ku a dahu-a . (Theme)
see-LV=1S.GEN NOM Dahu-DET.NOM

'I saw Dahu .'

b. 'is-hanimulmul-**an=**ik tu m-a-laspus nas-tina.
INCH-sad-LV=1S.NOM COMP AV-STA-miss late-mother
'I feel sad whenever I think of my late mother.'
(Experiencer)

(24) IV
na-**'is**-saiv=ku subali-tia a 'ahil-a. (Theme)
FUT-IV-give=1S.GEN PN-DET.OBL NOM book.DET.NOM
'I will give Subali the book.'

However, if we take closer look at Table 3, the divergence is not unpredictable and, in fact, several analyses from syntactic, cognitive or semantic perspective can be adopted to account for such thematic mismatch. For example, Newman (1996) points out that a transferred theme and an instrument have something in common in their interpretation – both are the entity which the agent handles in carrying out an act; Huang (2005) proposes that the nominative NP of LV clauses actually encodes an abstract location, whereas that of IV encodes a transported theme in Formosan languages. See also Chang (2008c); Landau (2010) argues that experiencers are "mental locatives" by showing that experiencers and locatives share many similarities: semantically both the experiencer and the locative denote a location (in the mental space or in the physical world), morphologically they both take oblique case, and syntactically they all undergo locative inversion. Similar phenomenon is also observed in Mandarin Chinese by Lin (2009).

5. Clausal properties in Bunun

In this section we will examine the syntactic properties concerning voice constructions in Bunun, including the syntactic status of the triggers/subjects and their structural positions.

5.1 Non-topic Trigger

We argue that the *a*-marked DP or the trigger in Bunun is a subject rather than a topic. Our argument is as follows. First, in Bunun the triggers can be non-specific although they are often specific, as in (25a-b):

(25) a. m-a-ti-skun kaimin mais 'aiza **a** **kuakuzaun**.
AV-STA-VCL-together 1PE.NOM when exist NOM work
'We do it together when there's work/a job.'

b. ma-tiptiah **a** **batakan** mais p-is-taba-un.
AV-explode NOM bamboo when CAUS-INCH-burn-PV
'Bamboos explode when you burn them.'

Second, Pearson (2005) and Potsdam (2009) argues that the triggers in Malagasy is a Topic by paralleling Trigger-only restriction on pronominal deletion with Topic drop. However, Bunun is a Radical Drop language, which allows the deletion of either subjects or non-subjects, as in (26a-c):

(26) a. Ø-ta<in>tungu subali-a (nai-an-tia).
AV-visit<PST> PN-DET.NOM 3P-LOC-DET.OBL
'Subali paid a visit to them.'
b. sa<i>du-an=ku (subali-a).
see<PST>LV=1S.GEN PN-DET.NOM
' I saw Subali.'
c. Ø-s<in>adu=ik (subali-tia).
AV-see<PST>=1S.NOM PN-DET.ACC
'I saw Subali.'

Third, the Trigger and Topic in Bunun exhibit the following syntactic and pragmatic asymmetry. The triggers are required to agree with the verbal voice morphology, yet the topic phrases are not because either the triggers or the adverbials can serve as the topic phrase:

(27) a. *tama* hai **ma-**ludah zaku. (Huang 1997: 364)
father TOP AV-beat 1S.ACC
'Father beat me.'
b. *takna* hai **ma-**ludah**=ik** dahu. (Huang 1997: 362)
yesterday TOP AV-beat=1S.NOM PN
'Yesterday, I beat Dahu.'

Besides, with respect to long-distance A'-extraction, the A'-extraction is permissible out of a *hai*-marked topic phrase instead of an a-marked subject:

(28) a. **sima$_i$** m-a-mantuk latuza-un=su [tu ni **e$_i$** tu
who AV-STA-real believe-PV=2S.GEN COMP NEG LNK
Ø-tanghaiu sui]?
AV-steal money
'Who do you (really) believe didn't steal the money?'
b. **[sima tu 'uvaaz]$_i$** a m-a-mantuk latuza-un=su
who LNK child NOM AV-STA-real believe-PV=2S.GEN
[tu ni **e$_i$** tu Ø-tanghaiu sui]?
COMP NEG LNK AV-steal money
'Which child do you believe didn't steal the money?'
c. **sima$_i$** m-a-mantuk latuza-un=su [tu **[e$_i$ 'uvaaz] hai**,
who AV-STA-real believe-PV=2S.GEN COMP child TOP
ni tu Ø-tanghaiu sui]?
NEG LNK AV-steal money

'Which child do you believe didn't steal the money?'

d. ***sima**$_i$ m-a-mantuk latuza-un=su [tu ni **a**
who AV-STA-real believe-PV=2S.GEN COMP NEG NOM
[e$_i$ 'uvaaz] tu Ø-tanghaiu sui]?
child LNK AV-steal money

(29) a. **sima** haiap-un=su [tu m-a-stan **e$_i$** m-a-sial]?
who know-PV=2S.GEN COMP AV-STA-most AV-STA-good
'Who do you know is the best (student)?'

b. **[sima tu 'uvaaz]$_i$** haiap-un=su [tu m-a-stan **e$_i$**
who LNK child know-PV=2S.GEN COMP AV-STA-most
m-a-sial]?
AV-STA-good
'Which child do you know is the best?'

c. **sima**$_i$ haiap-un=su [tu **[e$_i$ 'uvaaz] hai**, m-a-stan
who know-PV=2S.GEN COMP child TOP AV-STA-most
m-a-sial?]
AV-STA-good
'Which child do you know is the best?'

d. ***sima**$_i$ haiap-un=su [tu m-a-stan **a** **[e$_i$ 'uvaaz]**
who know-PV=2S.GEN COMP AV-STA-most NOM child
m-a-sial] ?
AV-STA-good

Pragmatically, the topic phrases instead of the subjects are preferentially employed to refer to the participants in the preceding sentence and create "cohesion" in Halliday and Hasan's (1976) term, as shown in (30-30') and (31-31'):

(30) tunsila hai, s<in>adu=ik tu tasa babu.
the.day.before.yesterday TOP see<PST>=1S.NOM LNK one pig
'I saw a pig yesterday.'

(30') a. **babu hai**, kis-laupa-an=ku sangan.
pig TOP VCL-stab-LV=1S.GEN just
'I just stabbed the pig (I had seen yesterday).'

b. # kislaup-an=ku **saia/babu-a** sangan.
VCL-stab-LV=1S.GEN 3S.A/pig-DET.NOM just
'I just stabbed it/the pig.'

(31) ma-baliv a masituhas tu tasa 'ahil.
AV-buy NOM elder.sibling LNK one book
'The elder sister bought a book.'

(31') a. **'ahil-a** **hai**, 'is-ludah masinauba-tan mas
book-DET.NOM TOP IV-beat younger.sibling-DET.GEN ACC
luhi.
doggie

‘The younder sister beat a doggie with the book.’

b. #‘Is-ludah masinauba **‘ahil-a** mas luhi.
IV-beat younger.sibling book-DET.NOM ACC doggie
‘The sister beat a doggie with the book.’

5.2 Anchoring EA and Trigger

Based on the relative positions of the temporal adjuncts, the subject and EA, it is reasonable to assume that in Bunun, just like in many other languages, T has [EPP] and attracts either the highest O or EA in the vP edge to the Spec of T^0, as shown in (32-33):

(32) a. ma-laupa (takna) **a** **subali-a** (takna) mas babu.
AV-stab yesterday NOM PN-DET.NOM yesterday ACC pig
‘Subali is stabbing a pig.’ (AV)

b. damu-un **a** **ma’utung** takna=s tamungan.
catch-PV NOM thief yesterday=GEN police
‘The police caught the thief yesterday.’ (PV)

c. na-saiv-an **tahai-a** kutun subali-tia mas ‘ahil.
FUT-give-LV PN-DET.NOM tomorrow PN-DET.GEN ACC book
‘Subali will give a book to Tahai tomorrow.’ (LV)

(33) a. damu-u**=s** **tamungan** takna a ma’utung.
catch-PV=GEN police yesterday NOM thief
‘The police caught Pizing yesterday.’ (PV)

b. na-saiv-an **subali-tia** kutun tahai-a mas ‘ahil.
FUT-give-LA PN-DET.GEN tomorrow PN-DET.NOM ACC book
‘Subali will give a book to Tahai tomorrow.’ (LV)

5.3 Overt object shift

Aldridge (2008) argues for covert object shift by providing the examples in which the sentential negator scopes over the subject in the NAV context. However, in Bunun this is not the case, as the contrast shows in (34a-b) and (35):

(34) a. **ni**=bis saia ma-m-aun mas **’iskakaupa/kaupakaupa**
NEG=PRT 3S.NOM RED-AV-eat ACC all/any
tu ’iskaan i ?
LNK fish QP
’He does not eat any fish, does he?’

b. * **ni**=bis saitia ka-zima-un **’iskakaupa/kaupakaupa**

NEG=PRT 3S.GEN STA-like-PV all/any
tu ’iskaan i ?
LNK fish QP

(35) **ni [’amin a bunun]** m-a-zima=s m-a-pidiah
NEG all NOM person AV-STA-like=ACC AV-STA-flat
tu ngutus.
COMP nose
a. ‘All (the) people do not like flat noses.’
b. #‘Not all the people like flat noses.’

As shown below in (36b), in the PV sentence the indefinite *wh*-words cannot be licensed by being c-commanded by the negator:

(36) a. **ni** saia m-a-zima **sima-sima** tu bunun**.**
NEG 3S.NOM AV-STA-like RED-who LNK person
‘He does not like anyone.’
b. ***ni** tu ka-zima-un sai-tia **sima-sima** tu bunun**.**
NEG LNK STA-like-PV3S.GEN RED-who LNK person

In addition, remember that the objects in English are also argued to be promoted to the light verb edge to check the [ACC] feature: (Lasnik 2008)

(37) a. ? The DA proved [the defendants$_i$ to be guilty] during each other’s$_i$ trials.
b. ? The DA accused the defendantsi during each other’si trials.
c. ?* The DA proved [that the defendants$_i$ were guilty] during each other’s$_i$ trials.

With respect to A’-extraction a subject phrase is known to be an island for extraction, while an object phrase is not The subject is known to constitute an island for extraction and differs from an object (Ross 1967, Kayne 1984, Chomsky 1986): Beck and Johnson (2004)

(38) a. Who$_i$ did you visit **[a friend of t_i]** yesterday?
b. * Who$_i$ did you believe [**[a friend of t_i]** satisfied]?

Along this line of the thought, suppose that the NAV subject in Bunun undergoes LF movement then it will stay *in situ* in Syntax and pattern with the *wh*-extraction out of an object as shown in (38a), and thus a *wh*-word will be expected to be permissible to be A’-extracted out of a subject DP, which is obviously contrary to the fact, as in (39c), (40b) and (41b):

(39) a. **[sima tu 'uvaaz]$_i$** haiap-un=su [tu m-a-stan e_i
who LNK child know-PV=2S.GEN COMP AV-STA-most
m-a-sial]?
AV-STA-good
'Which child do you know is the best?'

b. ***sima$_i$** haiap-un=su [tu m-a-stan **a [e_i 'uvaaz]**
who know-PV=2S.GEN COMP AV-STA-most NOM child
m-a-sial] ?
AV-STA-good

(40) a. **maz$_i$** a **'is-**saiv=su subali-tia **[e_i 'ahil-a]**?
what NOM IV-give=2S.GEN PN-DET.OBL book-DET.NOM
'What/Which book did you give to Subali?'

b. ***maz$_i$** a 'is-saiv=su **[e_i 'ahil-a]** subali-tia ?
what NOM IV-give=2S.GEN book-DET.NOM PN-DET.OBL

(41) a. **[simatu/a kaviaz]** a saiv-a=su mas 'ahil-tia?
who LNK friend NOM give-LA=2S.GEN ACC book-DET.ACC
'Which friend did you give the book to?'

b. ***sima$_i$** saiv-a=su **[e_i kaviaz-a]** 'ahil-tia ?
who give-LA=2S.GEN friend-DET.NOM book-DET.ACC

(40a-b) are dative construction, while (41a-b) are double object construction. Besides, with respect to anaphor binding, the recipient asymmetrically c-commands the theme in (40a), while the theme asymmetrically c-commands the recipient in (40b).

The contrast with respect to the A'-extraction here may be accounted for by assuming that the theme DP in (40a) stay in situ rather than moved to a higher position while the theme DP in (40b) and the recipient DP in (41b) are moved constituents and thus are islands to further movement (Cole and Hermon 2008, Chung 2008, Chomsky 2008).

5.4 Summary

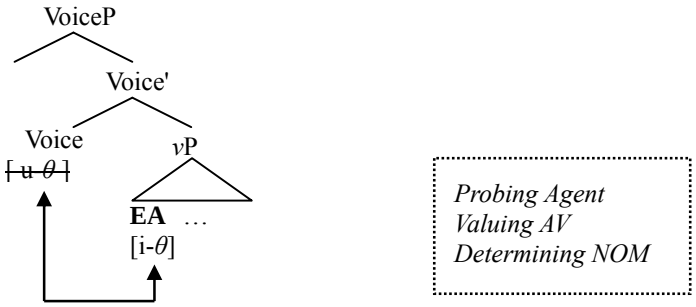
Our findings with respect to the clausal properties of Bunun can be summarized as follows:

i) The nominals which agree with voice morphology are not topics but subjects.
ii) The Spec, TP may be filled either by EA or nominative subject;
iii) The subjects do undergo overt movement.

6. The proposed analysis: A probe-based account of voice agreement

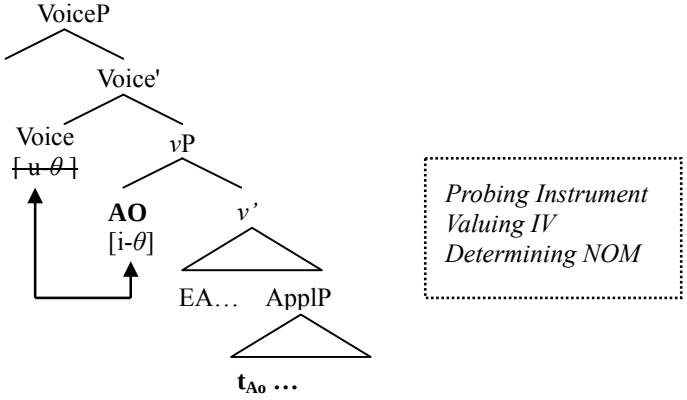
Under our analysis, voice morphology reflects the Agreement relation between the probe Voice^0 bearing un-value thematic feature and the closest goal DP bearing interpretable thematic feature. For example, in the AV context Voice^0 probes the closest active goal, the external argument (EA) with Actor role and un-value generated in the Spec of vP in order to value [u-*θ]* on Voice^0, as shown in (42):

(42) AV



In the NAV context, Voice^0 probes the relevant thematic features (Theme, Instrument, Beneficiary, etc.) on the highest DP, and has its own feature valued. Again the Case is determined along the way, so nominative case is assigned to the direct object (O) or applied object (AO), which has been raised by [EPP] on v, as illustrated below in (42-43):

(43) NAV



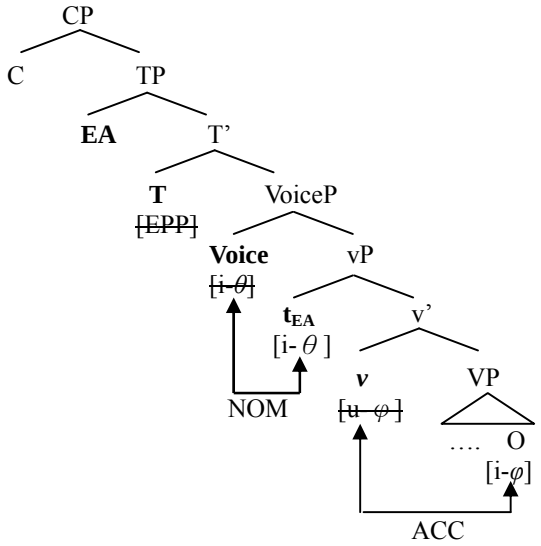
In addition, it is the need for probing and feature valuation of the Voice head that triggers the merger of an applicative head into the structure, which introduces the relevant oblique argument.

Based on Chomsky's phase theory (2000, 2001, 2008), we make the

following assumption on the phrase structure in Bunun:
i) T has [EPP] and [u-φ]:
   a. A-scrambling:[EPP] on T attracts the closest DP to its specifier.
   b. T agrees with A.
ii) Transitive *v* has [EPP] and [u-φ]:
   a. ACC: *v* agrees with O
   b. Object shift: O raises to the edge, driven by specificity interpretation.
iii) Voice bears semantic [u-Voice/θ]
   a. The postion of VoiceP: T > Voice > *v*P > HAppl > VP > LAppl
   b. Voice agreement: Voice probes the closest DP with [i-*θ*].

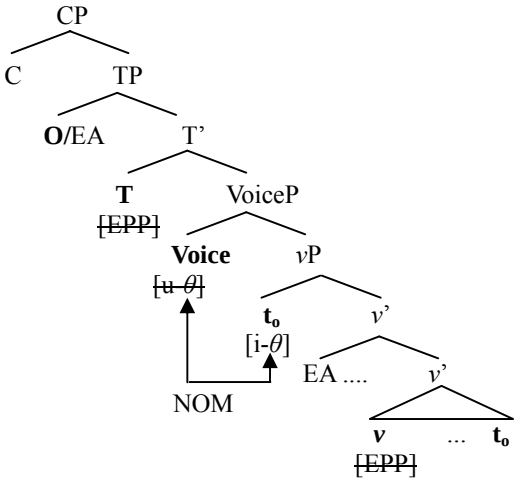
The transitive AV construction is derived as follows: a) *v* bearing [u-*φ*] probes the internal argument O and values the Case feature on the O; b) the O stays in situ until LF and receives non-specific interpretation; iii) Voice^0 probes the closest active goal, the EA bearing interpretable Agent role and base-generated in the Spec of *v*P in order to value [u-*θ]* on Voice^0, and determine the Case value on the EA (Nom); iv) [EPP] on T^0 probes the closest goal, EA, to its Spec; v) V undergoes successive head movement to C. The derivation is shown below:

(44) AV



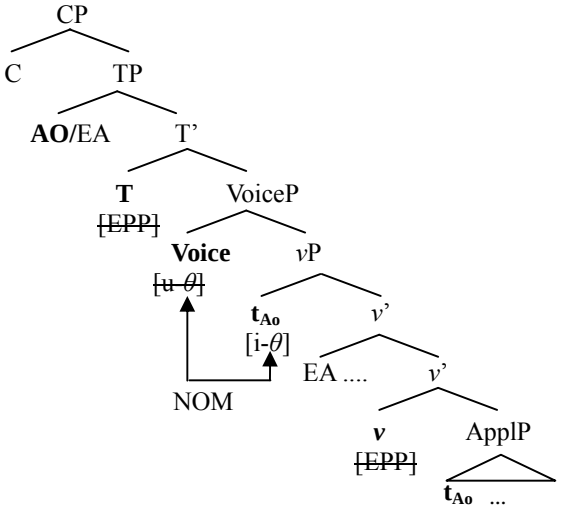
The transitive PV construction is derived as follows: a) *v* bearing [u-*φ*] probes the internal argument O and values the Case feature on the O; b) the O is overtly attracted by [EPP] on *v* to its Spec and receives specific interpretation at LF; iii) Voice^0 probes the closest active goal, the shifted O bearing interpretable Patient role in order to value [u-*θ*] on Voice^0; iv) [EPP] on T^0 probes either the EA or O, to its Spec; v) V undergoes successive head movement to C. The derivation is illustrated below:

(45) PV



The transitive NAV construction involving Applicative construction is derived as follows: a) *v* bearing [u-φ] probes the highest object, the applied object selected by Appl^0, and values the Case feature on the AO; b) the AO is overtly attracted by [EPP] on v to its Spec and receives specific interpretation at LF; iii) Voice^0 probes the closest active goal, the shifted AO bearing interpretable Patient role in order to value [u-θ] on Voice^0; iv) [EPP] on T^0 probes either the EA or the AO, to its Spec; v) V undergoes successive head movement to C. The derivation is as below:

(47) LV/IV(Applicative Constructions)



6. Conclusion

Our probe-goal analysis for the voice agreement is superior to other proposals in the following respects:

i) It doesn't sacrifice any argument (esp. the object) in the derivation, unlike Aldridge's (2004, 2008) ergative approach. All the core arguments (subject and object) are preserved in AV, and in NAV an additional oblique argument is provided.

ii) It provides a straightforward way to the semantic and syntactic link between the nominative argument and voice morphology. In Rackowski's (2002) approach, for example, the nominative case is invariably assigned to the actor/agent, in spite of the different AV and NAV values on Voice. This approach, however, is at odds with what is observed in Formosan languages, where the nominative case is closely tied to the voice agreement.

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