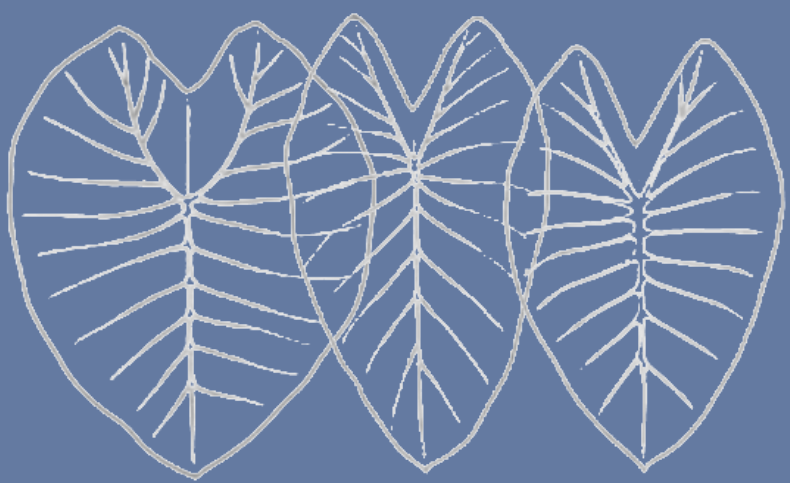
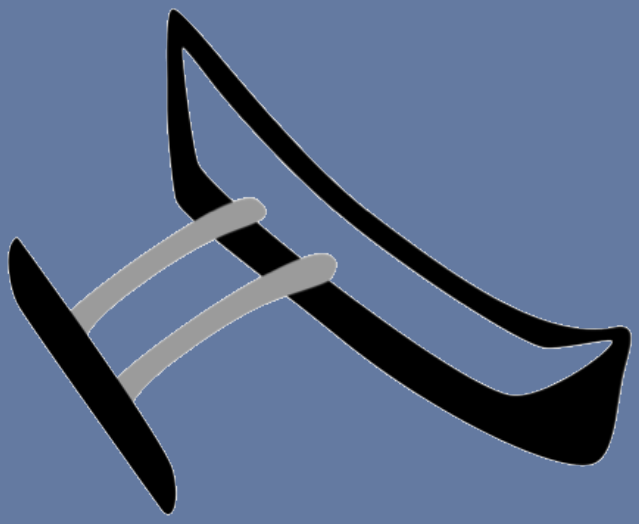
Proceedings of TripleAFLA

9th TripleA workshop for semantic fieldworkers
29th annual meeting of the Austronesian Formal Linguistics Association





Edited by Vera Hohaus, Jens Hopperdietzel & Siena Weingartz

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Edited by Vera Hohaus, Jens Hopperdietzel & Siena Weingartz
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"Taro Varieties in Hawaii", *Hawaii Agricultural Experiment Station Bulletin* 84, Fig. 2, p. 15.
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Preface

The TripleAFLA conference was hosted by the Department of Linguistics and English Language at the University of Manchester between the 28th June and the 1st July 2022. The conference was a joint event combining the 9th TripleA workshop for semantic fieldworkers and the 29th annual meeting of the Austronesian Formal Linguistics Association (AFLA).

The programme included 22 talks selected by reviewed abstract, of which eight are featured as papers in this volume. Invited talks at the conference were from Sasha Calhoun (Victoria University of Wellington), Tingchun Chen, (National Tsing Hua University, Hsinchu), Joash Gambarage (University of British Columbia, Vancouver), Paloma Jeretič (Leibniz-Zentrum für Allgemeine Sprach-wissenschaft, Berlin), Manfred Krifka (Leibniz-Zentrum für Allgemeine Sprachwissenschaft, Humboldt-Universität zu Berlin), and Luisa Martí (Queen Mary University of London).

We are grateful to the reviewers listed below for their time and feedback.

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The Organisers

Margit Bowler, Emily Hanink, Vera Hohaus,
Jens Hopperdietzel, and Siena Weingartz

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SYNTACTIC VS. MORPHOLOGICAL VERBAL CONCORD ACROSS AUSTRONESIAN LANGUAGES*

Yvette Yi-Chi Wu
Harvard University
yichiwu@g.harvard.edu

Tamisha L. Tan
Harvard Univ., Nanyang Tech. Univ.
tamishaltan@g.harvard.edu

Giovanni Roversi
Mass. Inst. of Technology
groversi@mit.edu

We investigate voice and ϕ-morphology spreading in Serial Verb Constructions (SVCs) across languages from three different Austronesian subgroups, in order to i) develop preliminary diagnostics for distinguishing between two mechanisms of verbal concord, syntactic vs. morphological; ii) propose an account of syntactic concord under an interaction/satisfaction (INT/SAT) approach to AGREE (Deal 2015); and iii) present a typology of verbal concord patterns attested cross-linguistically.

1. Introduction

Although the phenomenon of nominal concord has been investigated across a diverse range of languages (Baker 2008; Norris 2014; Bayırlı 2017; a.o.), similar constructions in the verbal domain remain largely understudied. In particular, issues such as what elements can participate in verbal concord, what controls verbal concord, and what features are possible in verbal concord are still poorly described and understood.

Austronesian languages, which are home to phenomena such as the Philippine-type voice system and Serial Verb Constructions (SVCs), provide a rich testing ground for hypotheses about verbal concord and its implications for morphosyntactic theory. As will be shown, these phenomena give rise to complex interactions between voice marking and agreement on one hand, and on the other, concordant and/or default morphology on verbs and verb-adjacent elements (such as auxiliaries, adverbs, and prepositions). These constructions bear on theoretical notions such as locality and the nature of AGREE.

We compare several patterns of voice and ϕ-concord in SVCs across languages from the Oceanic, Formosan, and Timoric subgroups and propose a typology of verbal concord that can potentially be extended to other language families. We argue that verbal concord in Austronesian is not homogenous. Instead, two distinct mechanisms—both of which are independently motivated in morphosyntactic theory—are necessary to capture the attested patterns: one is an interaction/satisfaction model of AGREE (INT/SAT; Deal 2015, 2022), and the other is a post-syntactic approach to morphological feature spreading (Norris 2014). Together, these allow us to identify three broad classes of verbal concord, each of which is attested in multiple Austronesian languages: i) *satiable* syntactic concord, ii) *insatiable* syntactic concord, and iii) morphological concord.

The paper is organized as follows: the rest of this section establishes our assumptions

*We thank our language consultants who were gracious enough to share their languages with us. The Seediq data was collected by the first author in collaboration with Habo Watun, Lubi Mahung, Pawan Nawi, and Pihu Takun of the Alang Gluban community, under the Harvard University IRB protocol no. 22-0566. The Amarasi data was collected by the second author in collaboration with Sarlince Bana, Arnoldus Neparasi, and numerous other members of the Teunbaun and Soba community, with funding support from NSF grant no. BCS-2141097 and the NTU HIPS. The Äiwoo data was generously shared with the third author by Åshild Næss, who collected it funded by the Research Council of Norway, grant no. 148717, and the Endangered Languages Documentation Programme, grant no. SG0308.

about the Philippine-type voice system and SVCs; section 2 previews the three patterns of verbal concord; section 3 discusses two cases of syntactic concord—default voice in Kavalan and voice concord in Äiwoo—under an AGREE approach; section 4 discusses a case of morphological concord in Amarasi under a post-syntactic approach; section 5 compares alternative analyses of verbal concord from existing theories; section 6 sketches a typology of verbal concord and considers the empirical predictions of such a typology before concluding.

1.1. The Philippine-type voice system

Philippine-type voice (also referred to as "Austronesian voice", "focus", and "topic") describes a morphosyntactic alignment system found in the Austronesian languages of Taiwan, the Philippines, Madagascar, and certain other parts of Southeast Asia (Blust 2013).

In this system, verbs exhibit voice alternations such as actor voice (AV), patient voice (PV), locative voice (LV), and more that designate which argument is the "pivot" of the clause, a role that holds privileged status with respect to case marking, definiteness, extraction, and more. An example of the alternation between AV and PV in Seediq (Taiwan; Atayalic) is shown below:

(1) a. *q⟨m⟩ita huling ka Bakan.*
⟨AV⟩see dog NOM Bakan
'Bakan sees a dog.'

b. *qita-un na Bakan ka huling.*
see-PV GEN Bakan NOM dog
'Bakan saw the dog.'

While we do not commit to a specific analysis of Philippine-type voice, for the purposes of exposition we adopt a model wherein different voices are represented as distinct Voice heads. Thus, voice marking on verbs is the result of agreement between Voice and *v* (Harley 2013), and non-AV Voice heads have an EPP feature that attracts the relevant DP to its specifier (Aldridge 2004). There has been much debate as to whether Philippine-type voice reflects argument structural operations (Guilfoyle et al. 1992; Mithun 1994; Aldridge 2004) or information structural operations (Pearson 2005; Rackowski and Richards 2005; Chen 2017). That said, the account we propose should hold as long as verbs are located within the domain of what is responsible for voice, and is thus intended to be applicable to a wide range of theories of Philippine-type voice.

1.2. Serial Verb Constructions (SVCs)

Serial Verb Constructions (SVC) refer to a broad range of constructions that typically exhibit the following empirical properties:

(2) Properties of SVCs (adapted from Aikhenvald 2018, p. 3-4):
- Comprise two or more contiguous verbs (each capable of standing alone as a main verb)
- Exhibit no overt coordination or subordination
- Constitute a single prosodic domain
- Share tense, aspect, mood (TAM) and polarity marking
- Instantiate a single predicate or "event"

These constructions are widespread in the languages of West Africa, Southeast Asia, Amazonia, Oceania, and New Guinea, and have been argued to be derived via a wide range of mechanisms, such as compounding, coordination, subordination, adjunction, or a combination thereof (Baker and Stewart 2002; Aikhenvald 2006; Cleary-Kemp 2015).

We do not commit to a specific syntactic analysis of SVCs, but once again assume that serialized verbs are located within the domain of what is responsible for voice and ϕ-agreement. Furthermore, the term SVC is extended here to include not only constructions comprising verbs in the strict sense, but also verb-like adverbs and prepositions which inflect for voice and ϕ-features (cf. Adverbial Verb Constructions; Chang 2009; Holmer 2010). This is compatible with analyses where low predicational adverbs can occur within the domain of Voice or equivalent event-related functional projections (Ernst 2001); similarly, inflecting prepositions have been argued to parallel traditional verbs in their mechanism of agreement (McCloskey and Hale 1984).

2. Three patterns of verbal concord in Austronesian

The following two sections illustrate that there are three broad patterns of verbal concord attested in Austronesian languages. There are two types of syntactic concord, which we have named TYPE IA "default voice" constructions (3a) and TYPE IB "voice concord" constructions (3b). There is only one type of morphological concord, which we call TYPE II constructions (3c).

(3) Three patterns of verbal concord in Austronesian:
   a. TYPE IA: the *first* element of an SVC has "true" voice marking, the rest have default voice
   b. TYPE IB: all elements in an SVC match for voice marking
   c. TYPE II: all elements in the extended verbal projection match for ϕ-agreement

From these three verbal concord patterns, a "highest-or-all" generalization emerges that constrains where voice and ϕ-morphology are allowed to occur in a serial construction:

(4) The "Highest-or-All" Generalization: voice and ϕ-morphology either go on the highest element of a construction, or on every single element; there are no other possibilities.

As far as we know, no other combinations are attested. Where existing analyses of verbal concord fail to capture this generalization, we argue that a distinction between satiable and insatiable probes straightforwardly accounts for the constrained patterning in (3).

3. Syntactic Concord

We propose that the patterns of default voice and voice concord in Austronesian languages can be captured by an interaction/satisfaction (INT/SAT) approach to AGREE with goal-flagging.[1]

Under an INT/SAT framework, there are no unvalued or uninterpretable features, and all probes are specified for i) what features they may *interact* with to establish feature copying, and ii) what features may *satisfy* them to end further probing (Deal 2015, 2022). These are called the interaction and satisfaction conditions of a probe. Furthermore, probes can assign *flags* to their goals to indicate that the goal has either interacted with or satisfied the probe, in a process called *goal-flagging* (Deal 2022). These flags are invariant based on the properties of the probe at first merge, and preserve the intuition that probes can change their goals via some morphosyntactic effect without resorting to downwards valuation (Chomsky 2001, cf. nominative case as a reflex of agreement with T and similar analyses).

[1] The INT/SAT framework has been applied to a wide range of empirical domains, including ϕ-agreement, PCC effects, negative concord, A'-agreement, and more (Baier 2018; Oxford 2022; Clem 2021; see references in Deal 2022).

To illustrate the phenomenon of syntactic concord, we present two case studies, one with the default voice pattern (5a) in Kavalan (Taiwan; East Formosan), and the other with the voice concord pattern (5b) in Äiwoo (Solomon Islands; Oceanic). We model these patterns as the distinction between a Voice probe with vs. without the feature *v* as a satisfaction condition, respectively.

(5) Two types of syntactic concord:
   a. TYPE IA: default voice as a *satiable* Voice probe [INT: *v*; SAT: *v*]
   b. TYPE IB: voice concord as an *insatiable* Voice probe [INT: *v*; SAT: –]

3.1. Case study, TYPE IA: Default voice in Kavalan

In Kavalan (Taiwan; East Formosan), there is a two-way voice alternation between actor voice (AV) and undergoer voice (UV) (Hsieh 2018). When standing alone, intransitive verbs always occur in AV form, while transitive verbs participate in this voice alternation. In addition, the AV marker typically surfaces as the prefix *m-* with intransitive stems and the infix ⟨*m*⟩ with transitive stems.

In an SVC that behaves syntactically as AV, all verbs occur with the prefix *m-* or infix ⟨*m*⟩ (6a). In an SVC that behaves syntactically as UV, the first verb takes the UV suffix *-an*, while the following verbs perhaps surprisingly take the AV affixes *m-* or ⟨*m*⟩ (6b).

(6) Kavalan: (Yeh and Huang 2009, p. 91, ex. 21-3)
   a. *m-li~lizaq-ti-qaniawu m-atiw t⟨m⟩aqis.* Actor Voice (AV)
      AV-RED~happy-PFV-3SG.NOM AV-go ⟨AV⟩study
      'He is going to study happily.'
   b. *ngid-an-na m-lizaq q⟨m⟩an ya baut.* Undergoer Voice (UV)
      want-UV-3SG.GEN AV-happy ⟨AV⟩eat NOM fish
      'He wanted to eat the fish happily.'

These constructions exhibit properties typical of canonical SVCs, such as shared TAM marking, pronominal clitics, and reduplication that all occur on only the initial predicate of an SVC.

Similar voice patterns can also be found in languages with four-way voice distinctions. In Seediq (Taiwan; Atayalic), in addition to AV and PV constructions there is also LV and IV (7), both which require AV markers on the non-initial verbs of an SVC.

(7) Tgdaya Seediq:
   a. *kela-an=mu r⟨m⟩engo kari seediq.* Locative Voice (LV)
      know-LV=1SG.GEN ⟨AV⟩talk language seediq
      'I know how to speak Seediq.'
   b. *su-usa=daha m-angal qhuni mdengu.* Instrumental Voice (IV)
      IV-go=3PL.GEN AV-take wood dry
      'They went to fetch dry wood for it.' (Holmer 2010, p. 168, ex. 8)

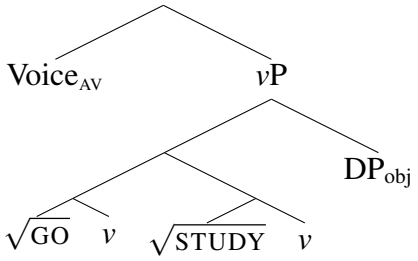
3.1.1. Analysis: Satiable probing

This voice marking pattern is named "default voice" (cf. Wurmbrand 2016; Chang 2017), as all non-initial verbs must surface with AV morphology even if the first verb has non-AV morphology.

The notion that AV is the default and/or unmarked spell-out of voice, that is, the *absence* of Voice features rather than a feature in and of itself (cf. Preminger 2009 on 3SG as the absence of person and number features), has been proposed by a number of scholars (Chen 2010; Levin 2015).

We model default voice constructions as involving a satiable probe on Voice_{UV} with the specification [INT: *v*; SAT: *v*].[2] Voice_{UV} looks down and agrees with the first *v* head in its domain and goal-flags it with a diacritic (9); this flag does not itself bear featural content and is here represented as ♡ to emphasize arbitrariness. The probe is then satisfied and stops probing. Adopting a Distributed Morphology framework (DM; Halle and Marantz 1993), ♡ conditions the spell-out of *v* as the UV suffix *-an* on the first verb, while all other verbs receive an elsewhere form (10).

(8)



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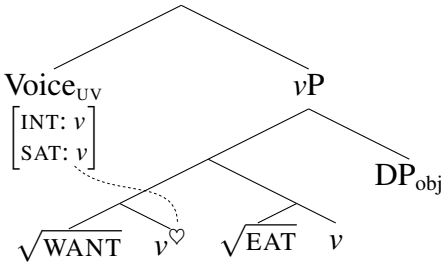


(10) Vocabulary insertion (VI) rules in Kavalan:
v ⇔ *-an* / __ ♡ (UV form)
v ⇔ *m-* or ⟨*m*⟩ (elsewhere form)[3]

In contrast, we assume that there is no such probe on Voice_{AV}, which means that no agreement relations are established and goal-flagging does not take place (8).[4] Thus, in the absence of the ♡ diacritic, all verbs in an SVC receive the default elsewhere form of the voice marker. The crucial observation here is that an identity arises between "true" and "default" AV forms in Kavalan, due to the underspecified nature of AV in the grammar. This receives indirect support from the fact that idiosyncratic stems exist in Kavalan whose AV forms lack voice markers.

In languages with multiple non-default AV voices—i.e. PV, LV, IV—the diacritic assigned by goal-flagging would co-vary with the identity of the Voice head. For instance, Voice_{UV} assigns the diacritic ♡, Voice_{LV} assigns the diacritic ♠, Voice_{IV} assigns the diacritic ♣, and so on. It should be noted that this kind of co-variant morphology that is sensitive to Voice is distinct from morphological concord, which will be discussed in section 4. This is because the diacritics here are tied to features inherent to the probe, rather than those acquired during the AGREE process.

3.2. Case study, TYPE IB: Full voice concord in Äiwoo

Äiwoo (Solomon Islands; Oceanic) also has a symmetrical voice alternation between AV and UV (Næss 2015). Intransitive verbs do not participate in this alternation at all, while transitive verbs do and often have separate verb forms for each voice; because this morphology is often idiosyncratic

[2] Note that there is no empirical distinction here as to whether goal-flagging is the result of successful interaction or satisfaction. If we assume the latter, a probe with the features [INT: –; SAT: *v*] is also possible.

[3] The distinction between the *m-* and ⟨*m*⟩ can additionally be captured with reference to transitivity features on *v*.

[4] One could instead posit that there is probe on Voice_{AV} that either does not flag the goals it agrees with, or whose flag is nevertheless spelled-out as the elsewhere form. On the grounds of economy, such analyses would be dispreferable.

or suppletive, we gloss it here as fused to the stem.[5]

The general structure of SVCs in Äiwoo is [MAIN.STEM-modifier1-modifier2-...]. If the first stem is in AV no overt voice suffix occurs on the modifiers (11a). If the first stem is in UV, however, all modifier stems take the suffix *-i* (11b). This is true even in SVCs that contain more than one modifier (12).

(11) Äiwoo:

a. *mu-ki-âwââ-mana-(∅)=kâ.* Actor Voice (AV)
2MIN-IPFV-pull.AV-very-(AV)=DIST
'You catch a lot (of fish).'

b. *ki-ââ-mana-i-mu=wâ.* Undergoer Voice (UV)
IPFV-pull.UV-very-UV-2MIN=DIST
'You catch a lot (of fish).'

(12)a. *i-kää-päko-i-mana-i-no.*
ASP-know.UV-good-UV-very-UV-1MIN
'I know this very well.'

b. *ki-eâmole-wâtu-i-päko-i-mana-i-i* *ijii=le.*
IPFV-look.UV-COMP-UV-good-UV-very-UV-3AUG 3AUG=PROX
'They have to look after them more properly.'

Comparable voice patterns can also be found in Tsou (Taiwan; Tsouic). In Tsou, all verbs are in AV form for AV constructions, which variously involves the AV prefix *m-*, no overt voice markers, or suppletive forms (13a); all verbs bear the PV suffix *-a* for PV constructions (13b).

(13) Tsou: (Chang 2009, p. 445, ex. 15a-b)

a. *mi-cu osni bonʉ 'o feʉ'ʉ.* Actor Voice (AV)
AV-COS immediately.AV eat.AV NOM pig
'The pigs ate (the food) immediately.' (COS = change of state)

b. *i-he osni-a an-a 'o 'oanʉ.* Patient Voice (PV)
NAV-3PL immediately-PV eat-PV NOM food
'They ate the food immediately.'

3.2.1. Analysis: Insatiable probing

This pattern is named "voice concord" because all verbs in an SVC must bear the same voice marking. We model this concord pattern much like the previous one, with one crucial difference.

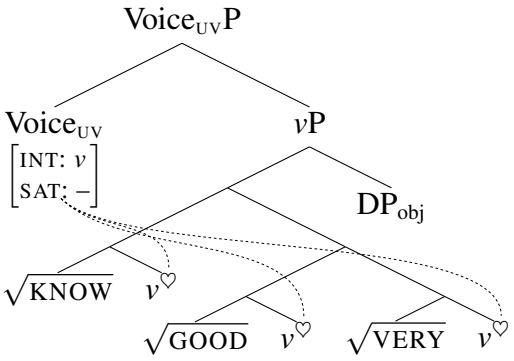
As before, the probe on Voice_{UV} looks down and agrees with *v* heads in its domain and flags them with the diacritic ♡. This ♡ diacritic conditions the *v* head to be spelled-out as the undergoer voice suffix *-i*. However, unlike in Kavalan, we posit that in Äiwoo the Voice_{UV} probe is insatiable, with the specification [INT: *v*; SAT: –]. Since the probe has no satisfaction condition, after it probes the first target it continues to find and goal-flag all *v* heads in its domain (14).

Since voice morphology in Äiwoo is highly idiosyncratic, with a large number of unpredictable stem alternations and portmanteau forms, numerous transitive stems require specific VI

[5] See Roversi (2019, 2022); Næss (2021) for more detailed discussion of the voice concord pattern described here.

rules both in the presence and absence of the $^{\heartsuit}$ diacritic (15).[6] For transitive stems that do not require suppletive rules, $^{\heartsuit}$ conditions the spell-out of *v* as the independent suffix *-i* (16).[7]

(14)



(15) Vocabulary insertion (VI) rules for suppletive stems in Äiwoo:

a. UV: $\langle\sqrt{\text{PULL}}, v^{\heartsuit}\rangle \Leftrightarrow$ *ââ*
   AV: $\sqrt{\text{PULL}} \Leftrightarrow$ *âwââ*

b. UV: $\langle\sqrt{\text{EAT}}, v^{\heartsuit}\rangle \Leftrightarrow$ *ngä*
   AV: $\sqrt{\text{EAT}} \Leftrightarrow$ *vängä*

c. UV: $\langle\sqrt{\text{HIT}}, v^{\heartsuit}\rangle \Leftrightarrow$ *togulo*
   AV: $\sqrt{\text{HIT}} \Leftrightarrow$ *togo*

d. UV: $\langle\sqrt{\text{WEAVE}}, v^{\heartsuit}\rangle \Leftrightarrow$ *vili*
   AV: $\sqrt{\text{WEAVE}} \Leftrightarrow$ *vei*

(16) Morphological default VI rules in Äiwoo:
$v \Leftrightarrow$ *-i* / _ $^{\heartsuit}$ (UV form)
$v \Leftrightarrow \varnothing$ (elsewhere form)

Evidence that *-i* is the default spell-out of UV comes from morphophonology. The largest class of alternating stems has a UV form in *-i* (Næss 2015, 2021; Roversi 2019), e.g. *epave, epavi* 'cook.AV, cook.UV'. Although the final /i/ is not obviously segmentable, it behaves phonologically like a suffix and not a stem-final vowel. In Äiwoo, unstressed high vowels /i, u/ are normally devoiced or dropped, e.g. *bolevi* 'shore' = [^{m}bo$^{\text{ˈ}}$leʊ]. However, mono-segmental suffixes like *-i* '3AUG' are always fully pronounced. Crucially, the final /i/ of this class of UV verbs is also always pronounced and never devoiced or dropped, thus instantiating the most fequent exponent of UV.

More evidence that *-i* is the default spell-out of $v^{\heartsuit}$ comes from its occurrence with intransitive verbs. Recall that standalone intransitive verbs do not participate in voice alternations, and therefore are not typically found in the syntactic context of $^{\heartsuit}$. As such, we do not expect them to have idiosyncratic portmanteau forms conditioned by $^{\heartsuit}$ (as such low-frequency idiosyncrasies would be difficult to acquire). However, SVCs constitute precisely the sort of rare context where an intransitive verb might pick up this $^{\heartsuit}$ diacritic, due to the presence of a transitive verb in the SVC that *does* participate in voice alternations. These intransitive verbs are suddenly in need of a novel $v^{\heartsuit}$ form, which is achieved by appending the default UV suffix *-i*.

4. Morphological Concord

While we have shown that cross-linguistic patterns of default voice and voice concord can be ac-

[6] One way of formalizing these portmanteau forms is with spans (Svenonius 2012), although alternative analyses exist.
[7] Note that the VI rules in (15) are independently needed under any account of Äiwoo voice morphology; our analysis unifies the conditioning of these rules with the voice concord found on both suppletive and non-suppletive stems.

counted for by an INT/SAT approach to AGREE with goal-flagging, a question arises as to whether *all* cases of verbal concord are amenable to such an analysis.

We argue that concordant morphology that co-varies with features that a given probe copies from its goals cannot be captured by purely syntactic AGREE. Recall the key constraint on goal-flagging: a flag is *invariant* based on the features that originate on the probe, and does not itself bear featural content. Therefore, if concordant morphology tracks a feature gained by a probe during the agreement process, this must involve a mechanism distinct from goal-flagging. We distinguish these as instances of morphological rather than syntactic concord.

To illustrate the phenomenon of morphological concord, we present a case study from Amarasi (West Timor; Central Malayo-Polynesian), which exhibits full ϕ-concord in SVCs.

4.1. Case study: Full ϕ-concord in Amarasi

In Amarasi (West Timor; Central Malayo-Polynesian), all verbs in an SVC obligatorily show concordant subject agreement and inflect for person and number:

(17) Amarasi:

a. *Hit* *ta-reko* *t-fain* *t-ok* *ne.*
1PL.IN.NOM 1PL.IN-good 1PL.IN-return 1PL.IN-with 3SG.DAT
'We are reconciled with him.'

b. *Arel, uma* *m-sae* *m-seu* *m-aan* *kit* *puah.*
Arel 2SG.come 2SG-rise 2SG-pick 2SG-get 1PL.IN.OBL betel.nut
'Arel, go up and pick us some betel nut.'

These constructions demonstrate numerous of the canonical SVC properties: they constitute a single prosodic domain for metathesis and stress assignment (Mooney 2021), as well as a single syntactic-semantic domain for negation, aspect, and mood marking (Tan 2021b). They also do not allow for intervening nominal arguments, shared (18a) or otherwise (18b).

(18)a. *Hai* *m-heek* **{fafi}* *m-aan* *{fafi}.*
1PL.EX.NOM 1PL.EX-catch pig 1PL.EX-get pig
'We catch and get a pig.'

b. *Ho* *m-rees* **{surut}* *m-iit* *{surut}.*
2SG.NOM 2SG-read book 2SG-see book
'You've read the book before.'

Similar patterns of multiple ϕ-agreement are widespread cross-linguistically, including in Hindi-Urdu (Bhatt 2005) and numerous Bantu languages such as Swahili (Carstens 2001), though these constructions usually involve auxiliaries and restructuring contexts rather than SVCs.

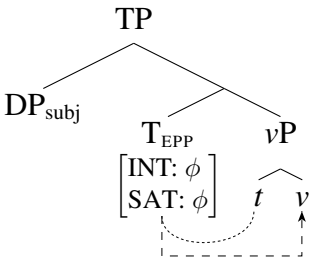
4.1.1. Full ϕ-concord is not goal-flagging

Although surface-similar to the patterns of full voice concord discussed above, the ϕ-concord found in Amarasi (and throughout Timor; cf. Tan 2021a) cannot be accounted for with goal-flagging.

Our preliminary assumptions about ϕ-AGREE are as follows. We assume that a probe in T searches its c-command domain for the highest visible DP—typically the subject—and copies its

ϕ-features. Verbal ϕ-morphology then comes about via subsequent feature sharing between T and *v*, which are themselves in a separate syntactic dependency.[8] This is schematised below:

(19)



An INT/SAT analysis of ϕ-concord would require that the T head goal-flags *v* upon agreeing with it. Since verbal concord in Amarasi is "full" like in Äiwoo rather than "default" as in Kavalan, we would posit this T probe to be insatiable and specified as [INT: *v*; SAT: –]. This derivation would look akin to that in (14) for Äiwoo, with the exception that it is T that interacts with and flags all visible *v* heads in its c-command domain, rather than Voice.

The problem lies in how $v^{\heartsuit}$ would be spelled-out in this context. Let us recall the various exponences that $^{\heartsuit}$ has been proposed to condition. In Kavalan, $v^{\heartsuit}$ is spelled-out invariantly as the UV suffix *-an*. In Äiwoo, $v^{\heartsuit}$ is either spelled-out as the UV suffix *-i*, or conditions a portmanteau form with the verb root. Crucially, this flag should not be altered in any way by features gained by its probe during AGREE, because the identity of a flag is predetermined by the first-merge properties and features borne by the probing head—i.e. flags like $^{\heartsuit 1\text{PL.EX}}$ or $^{\heartsuit 2\text{SG}}$ cannot exist. Indeed, this constraint on goal-flagging is what distinguishes it empirically from downwards valuation (Deal 2022); allowing flags to be modified or updated in the process of AGREE would undermine the restrictiveness of the INT/SAT model.

However, this does not mean that T cannot be involved in syntactic concord at all; in fact, we predict that concord involving features that *originate* on T should exist, and exhibit precisely the "highest-or-all" pattern as found in voice concord. This prediction appears to be borne out and is in fact rather widespread (Aikhenvald 2018). The "default" pattern arises in Siane (Papua New Guinea; Trans-New Guinea), where TAM marking occurs only on the main verb of an SVC, with all other verbs taking bare or unmarked forms (20). In addition, a "full" concord pattern arises in Barayin (Chad; Chadic), where all verbs in an SVC bear concordant TAM marking (21).[9]

(20) Siane: (James 1983, p. 33)
$^{\text{HLH}}$*koli* $^{\text{HL}}$*mino-an-e.*
hear/know remain-2SG-IND
'You understand, are listening.'

(21) Barayin: (Lovestrand 2018, p. 99, ex. 67, 73)
a. *Alaw na ni kol-eyi jel-eyi Wore.* Imperfective (IPFV)
Alaw BG SUB.3PL go-IPFV put-IPFV Wore
'From Alaw, they went [and] put [people] at Wore.' (BG = background)

[8] This dependency may be based on tense or category features; "feature-sharing" may involve T-lowering, V-to-T head movement, Agr node 'sprouting' or dissociated node insertion (Embick and Noyer 2001), or some other mechanism.
[9] Full TAM concord also appears to be attested in languages like Konda and Lango (Aikhenvald 2018, §4.4.2).

b. *nilla na juk-e kol-e siidi.* Perfect (PRF)
3PL BG stand.up-PRF go-PRF home
'They went home.'

The indicative marker in Siane can be captured by positing a Mood_{IND} head that bears a satiable probe and flags only the highest verb. The concordant aspectual markers in Barayin can be accounted for with Asp_{IPFV} and Asp_{PRF} heads that bear insatiable probes and flag all the verbs in their domain; crucially, the concordant morphology here is invariant based on the identity of the Asp heads.

4.1.2. Analysis: ϕ-concord as morphological

To account for full ϕ-concord as found in Amarasi, we adopt a view of post-syntactic morphological concord that is fundamentally distinct from AGREE (Norris 2014, 2018; Polinsky 2016).

We can distinguish morphological concord from syntactic concord on two main grounds, drawing from Norris' (2014) insights on concord within the nominal domain. First, concordant morphology should appear on elements across a range of syntactic positions (i.e. specifiers, heads, and adjuncts). Second, concordant morphology should appear on elements across a range of categories (e.g. D, Quant, Adj, Num, etc.). The set of relevant categories in the verbal domain here includes adverbs, prepositions, and potentially quantifiers.

Indeed, ϕ-concord in Amarasi exhibits both of these properties. Almost all prepositional elements in Amarasi show concordant ϕ-inflection in SVCs (22) and can be independently demonstrated to instantiate adjuncts based on syntactic and prosodic diagnostics (Tan 2021b).

(22)

3SG form	Function	Gloss
n-bi	realis locative	'at'
na-'ko	ablative	'from'
n-oka	comitative	'with'
n-eu	dative	'to, for'

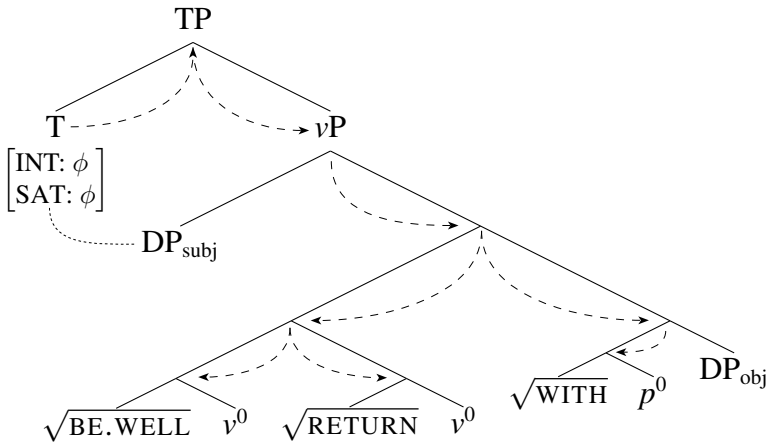
Amarasi also allows adverbs and quantifiers to inflect concordantly in SVCs; these elements are not only adjuncts but also categorially distinct from verbs (Edwards 2020). Examples of such adverbs and quantifiers with 3SG inflection include *(na-)rek~reko?* 'well, carefully', *(n-)neis* 'more, greater than', *(n-)mes~mese?* 'one, alone, completely', and *(na-)mfau* 'many'. It is evident that concord in Amarasi spreads to elements in multiple syntactic positions and of multiple different categories, similar to concord within the nominal domain.

We model morphological concord as follows. T probes for and copies the ϕ features from the highest visible DP (i.e. the subject), and projects these features up to TP. Agr^0 nodes are post-syntactically inserted onto each agreement-bearing categorising head—i.e. v^0, a^0, p^0—following Kramer (2010).[10] The mechanism of feature copying (Norris 2014) then copies ϕ-feature values from the closest *dominating* XP with a matching value. This is schematized in (23) below, where the closest dominating XP with ϕ-features is TP, resulting in concordant ϕ-morphology on all v^0

[10] It should be noted that one potential method of unifying syntactic and morphological concord would be to argue that T's goal-flag on *v* is essentially a diacritic identifying a given head for post-syntactic Agr^0 node insertion. However, this would still struggle to account for concord surfacing on putative non-verbal heads like adverbs and prepositions.

and p^0 heads regardless of whether or not they occur in an adjunct. Crucially, by defining feature copying as sensitive to domination and inclusion rather than c-command, other ϕ-feature bearing arguments—such as internal argument DPs—do not intervene.

(23)



5. Alternatives

Having detailed our analysis of verbal concord patterns in Austronesian, we now compare it briefly to existing proposals. There are two main types of alternative approaches.

Firstly, phenomena such as multiple ϕ-agreement, negative concord, multiple nominative constructions, and parasitic participles have been analysed as involving Upward Agree (Zeijlstra 2012; Bjorkman and Zeijlstra 2014, 2019), which crucially allows for downwards valuation and for multiple probes to acquire features from a single c-commanding goal. Secondly, concordant voice matching in restructuring contexts has been analysed as involving multiple Voice projections (Wurmbrand 2016; Wurmbrand and Shimamura 2017), where every concordant voice marker realizes its own Voice head, as projected by each verb in the construction.

Recall the key empirical observation we wish to capture, the "highest-or-all" generalization, which states that morphological marking either goes on the highest element or every single element of an SVC (4). Crucially, we argue that the alternate accounts above are unable to capture this generalization without additional mechanisms.

In the absence of rules constraining the distribution of probes, the accounts with multiple probes are unable to rule out unattested combinations of voice and ϕ-agreement marking. Let us assume that verbs can probe upwards for voice or ϕ-features. Why would this probe be restricted to occurring on the highest verb only, or on every verb, but not (for example) the lowest verb only or the highest and lowest verbs? Furthermore, why would such a probe be found on non-verbal elements such as prepositions and quantifiers? These accounts which situate probes on the concordant elements themselves are both too restrictive, in failing to account for non-verbal probes, and not restrictive enough, in failing to constrain probe insertion in accordance with the highest-or-all generalization.

As for accounts with multiple Voice projections, this would require the existence of the morphologically deficient Voice heads to derive the default voice pattern, as well as a morphological dependency between Voice projections to derive the voice concord pattern. Furthermore, while a multiple Voice projection account remains plausible for clear cases of restructuring or comple-

mentation, it less clear whether we want to posit that inflected adverbs in SVCs also project their own Voice heads. Lastly, this account is also incompatible with theories where voice is an A' phenomenon, given that SVCs are definitionally monoclausal.

One key advantage of an INT/SAT account is that it easily allows for languages to exhibit more than one type of verbal concord pattern. This is because there is no incompatibility in having both insatiable and satiable probes, or in having both probes and morphological feature spreading within a single language. Indeed, in certain languages, SVCs are fully concordant for one specification but show a default pattern in others. For example, in Paamese (Paama; Oceanic) all serialized verbs must match for realis or distant mood, whereas prohibitive mood can only be marked on the first verb while subsequent verbs are marked with a less-specific potential mood (Crowley 1987). We can simply posit insatiable $\text{Mood}_{\text{REAL/DIST}}$ probes and satiable $\text{Mood}_{\text{PROH}}$ probes, with potential mood morphology as an elsewhere form. Many languages, including Paamese, also attest both voice and ϕ-concord, employing both syntactic and morphological concord mechanisms.

On the whole, an INT/SAT model within a Downward Agree framework is ultimately more restrictive than Upward Agree accounts and multiple probes, given that there is no need to stipulate additional rules on probe insertion or dependency. At the same time, it straightforwardly captures all attested patterns of variation both cross-linguistically and within a given language.

6. Conclusion: a potential typology

In this final section, we sketch a preliminary typology of verbal concord based on the patterns discussed in this paper. This is summarized in (24) and (25).

(24) Cross-linguistic typology of verbal concord:

	Type of concord	What elements are marked?	Where do concord features originate?	What features are involved?
TYPE IA	SYNTACTIC, *satiable*	highest	probe	TAM, Voice
TYPE IB	SYNTACTIC, *insatiable*	all (w/ shared feature)	probe	TAM, Voice
TYPE II	MORPHOLOGICAL	all	probe (or copied features)	ϕ

(25) Languages in which each pattern of verbal concord is attested:[11]

- TYPE IA: Kavalan, Seediq, Squliq Atayal [Formosan]; Siane [Trans-New Guinea]
- TYPE IB: Äiwoo [Oceanic]; Tsou [Formosan]; Barayin [Chadic]; Chamorro
- TYPE II: Amarasi, Helong, Tetun, Uab Meto [Timoric]; Bemba, Swahili [Bantu]

The crucial distinctions between syntactic and morphological concord are as follows. First, in terms of what elements exhibit concord, syntactic concord can only target elements which at

[11] Sources of language data include: Äiwoo (fieldwork by Åshild Næss, shared with 3rd author), Amarasi and Uab Meto (fieldwork by 2nd author; Edwards 2020; Benu 2014), Barayin (Lovestrand 2018), Bemba (elicitation by 1st author), Chamorro (Wurmbrand and Shimamura 2017), Kavalan and Squliq Atayal (Yeh and Huang 2009), Seediq (fieldwork by 1st author; Holmer 2010), Siane (James 1983), Swahili (Carstens 2001), and Tsou (Chang 2009).

minimum share some feature that is specified in the INT/SAT conditions of the probe; morphological concord can target elements spanning a range of categories and features. Second, in terms of where concord features originate, syntactic concord only involves features a probe is inherently valued for, since its flag cannot be altered during the course of the derivation; morphological concord may involve features that a probe acquires via some unrelated agreement relation. In addition, as syntactic concord involves AGREE, it relies on the domain of c-command, while morphological concord is post-syntactic and instead sensitive to notions of domination and inclusion.

Given an INT/SAT mechanism, the "highest-or-all" generalization is predicted to exist in other morphosyntactic domains, and indeed has already been found to recur across a wide range of empirical phenomena (see footnote 1). Our model also predicts that these patterns of verbal concord may be found in constructions beyond SVCs that are strictly contiguous, such as those with intervening elements like linkers and DPs, so long as the relevant verbs are sufficiently local to the goal-flagging probe or feature-spreading head.

Future research should not only survey non-SVC concord patterns within Austronesian, but also investigate whether our model extends fully to non-Austronesian languages.

Furthermore, future work should also explore the inventory of features attested with both syntactic and morphological concord. For instance, does syntactic concord with ϕ-features exist (e.g. possessor agreement spreading onto unexpected elements due to D goal-flagging multiple heads)? Does morphological concord with voice or TAM features exist (e.g. tense features spreading onto adjuncts, quantifiers, and prepositions)? In addition, instances of mismatching "default" concord, such as Kavalan UV/AV and Paamese prohibitive/potential mood, are a promising avenue of inquiry into the patterns of elsewhere forms and unmarked features attested cross-linguistically. Particularly interesting would be investigating potential tendencies in the types of probes which are insatiable vs. satiable, or which do or do not participate in goal-flagging.

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