Voice restructuring and control

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LOP

- A range of languages and constructions display an operation of long object A-promotion [LOP].
- LOP: Promotion of an embedded argument to matrix subject (diagnosed by Case, agreement, language specific A-movement properties).

(1) DP.NOM/SUBJECT V.MATRIX [V.EMBEDDED ~~DP.OBJ~~]

(2) She seems [to have been chosen/arrived ~~she~~]

The plan

- Raising vs. control LOP
- Two types of control LOP:
  - Long passive or patient Voice [LP]
  - Crossed control [CC]
- Cross-linguistic types of LOP
- Diverse morphosyntactic distributions, but also many parallels

Sneak peak

- LP and CC can be unified via Voice restructuring [VR]
  - Voice dependency [VD]: syntactic Agree and feature sharing
  - Argument sharing [AS]: semantic binding of the associated Agents
  - VD is a necessary condition for AS (AS interprets VD)
- VR is bi-directional

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject	non-thematic	thematic	thematic
Co-reference	N/A	yes	yes
LOP	embedded passive or unaccusative	LP	CC

Extension?

- Model: shared subject interpretation without movement or PRO.
- Possible extension to non-LOP exhaustive forward [FC] and backward [BC] control.

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject	non-thematic	thematic	thematic
Co-reference	N/A	yes	yes
LOP	embedded passive/ unaccusative	LP	CC
No LOP	embedded external argument	FC	BC

Three types of LOP

Raising

- Matrix predicate is non-thematic, i.e., unaccusative.
- Subject promotion of embedded Agent or LOP when embedded passive.
- Matrix predicate cannot be passivized (1AEX: Perlmutter and Postal, 1984).
- Embedded passive is possible.

(3) a. *Nova seems that Danny left.
b. The cat seems to be out of the bag.
c. *The cake was seemed to eat/have been eaten.
d. The cake seems to have been eaten.

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject theta-role	no		
Obligatory co-reference	no		
Origin of Agent	low		
Matrix passive	*		
Embedded passive	LOP		

Some "odd" cases of control

Other than Forward control, not possible in English.

(4) Nova tried [to steal the salad]. Forward control

(5) *The salad was tried [to steal/be stolen]. LP
Meaning: Someone tried to steal the salad.

(6) *The salad tried [Nova to steal]. CC
Meaning: Nova tried to steal the salad.

*The salad was tried [to steal/be stolen]. Long Passive/PV

(7) a. *As casas foram abacadas de construir em 1950.*
the houses were finished to build in 1950
'They finished to build the houses in 1950.'
European Portuguese; [Cinque, 2002: 5, (7a)]

b. *'asa'-u =ku a 'iskán=di$_i$* [*ma-baliv* t_i].
want-PV =1SG.OBL ABS fish=this$_i$ [AV-buy t_i]
'I want to buy this fish.'
Takibakha Bunun; [Shih, 2014: 19, (43b)]

- The matrix predicate involves passive or patient Voice [PV].
- The embedded object is promoted to matrix subject.
- PV: The Agent must occur in the matrix predicate (Agents are arguments in PV, vs. passive; see Appendix).
- The (understood) matrix and embedded external arguments are obligatorily co-referent.

Embedded morphology

- Default:
  - AV-only languages: Atayal varieties, Seediq, Amis, Kavalan, Paiwan, Puyuma, Saaroa, Bunun varieties (except Isbukun)
  - Infinitives or bare forms: Acehnese, Croatian, Czech, European Portuguese, German, Italian, Japanese, Kannada, Serbian, Slovenian, Spanish...
- Voice matching: Tsou, Saisiyat, Isbukun Bunun (see also Wurmbrand and Shimamura, 2017 for double passives)

(8) *Iliskinun-ku* *bunbun-a* *tu* *baliv-un.*
want.[PV]-1.SG.ACC banana-that.NOM TU buy-[PV]
Lit. 'The bananas are wanted to be bought by me.'
'I wanted to buy the bananas.'
Isbukun Bunun [Wu, 2013: 40, (10b)]

Summary

↪ In all of the above constructions we get an obligatory control-like interpretation (see the paraphrases).

↪ The Voice properties (Agent, morphology, case) originate in the higher clause and affect the arguments, and in some languages also the verb morphology, of the lower clause.

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject theta-role	no	yes	
Obligatory co-reference	no	yes	
Origin of Agent	low	high	
Matrix passive/PV	*	obligatory	
Embedded passive/PV	LOP	no/yes	

*The salad tried [Nova to steal]. Crossed control

(9) *Anak*$_i$ *mau* [*kamu ø-peluk* t_i].
child$_i$ want [2.SG PV-hug t_i]
'You want to hug the child.'
Indonesian; [Berger, 2019: 62, (9)]

- Embedded predicate is passive or PV (the Voice of the matrix predicate varies).
- The embedded object is promoted to matrix subject.
- PV: The Agent originates in the embedded predicate.
- It is obligatorily co-referent with the understood matrix external argument.

Embedded PV or passive

Crossed Control = CC | Regular control = RC

(10) *Kucing-nya coba* [*di-cium oleh Esti.*]
cat-3.SG try [PASS-kiss by Esti]
RC: 'Her cat tried to be kissed by Esti.'
CC: 'Esti tried to kiss her cat.' [Sato and Kitada, 2012: (27)]

(11) *Kucing-nya coba* [*men-cium Esti.*]
cat-3.SG try [AV-kiss Esti]
RC: 'Her cat tried to be kissed by Esti.'
CC: *'Esti tried to kiss her cat.'
[Sato and Kitada, 2012: (28)]

- Also found in: Balinese, Chamorro, Indonesian, Javanese, Madurese, Malagasy, Samoan, Sundanese, Tagalog, Tongan, Tukang Besi

Obligatory co-reference

(12) *kota ini di-hancurkan oleh api.*
town this PASS-destroy by fire
'This town was destroyed by fire.'
[Polinsky and Potsdam, 2008: 1625, (29a)]

(13) #*kota ini mau/ingin di-hancurkan oleh api.*
town this want PASS-destroy by fire
#'Fire wants to destroy this town.'
[Polinsky and Potsdam, 2008: 1625, (29b)]

(14) *rumah itu mau/ingin di-hancurkan oleh mereka.*
house that want PASS-destroy by 3.PL
'They want to destroy that house.'
[Polinsky and Potsdam, 2008: 1630, (52a)]

Summary

↪ In Crossed control, we also get an obligatory control-like interpretation.

↪ The Voice properties (Agent, morphology, case) originate in the lower clause and affect the interpretation of the matrix Agent/Experiencer of the higher clause (for verb morphology see below).

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject theta-role	no	yes	yes
Obligatory co-reference	no	yes	yes
Origin of Agent	low	high	low
Matrix passive/PV	*	obligatory	see below
Embedded passive/PV	LOP	no/yes	obligatory

Towards a unified account of LOP

- LP has been treated as a clause union/restructuring phenomenon.
- CC accounts differ in frameworks and details, but the common property is also that it involves a form of restructuring and LOP; all accounts involve some mechanism to unify the argument structures:
  - ↪ semantic argument sharing (Polinsky and Potsdam, 2008)
  - ↪ (covert) incorporation (Sato and Kitada, 2012)
  - ↪ reverse Voice restructuring (Berger, 2019, following Wurmbrand and Shimamura, 2017)
  - ↪ complex predicate formation (Kroeger and Frazier, 2020).

VP-complementation?

- To derive LOP: often a bare VP, without the functional domain to license objective case, is assumed (Wurmbrand, 2001, Polinsky and Potsdam, 2008).
- Note the common misconception: this is just *one* form of restructuring; not all restructuring involve bare VPs (see Wurmbrand, 2001, 2014, 2015; Wurmbrand and Lohninger, 2019 for different degrees of restructuring).

(15) V.PASS/PV *try*, *manage*, *want* [$_{VP}$ V DP.OBJ]

But...

- Simple VP complementation approaches are insufficient.
  - ↪ Embedded morphology: The differences between default Voice, Voice matching, and Crossed control are difficult to model.
  - ↪ Subject interpretation: How is the obligatory co-reference ("control") interpretation derived?
  - ↪ Unaccusativity puzzle: In LP, the embedded predicate cannot be an unaccusative—why?
- Revised approach: Voice restructuring (Wurmbrand and Shimamura, 2017)

Core observations

- Voice and Agent properties can originate either in the matrix or embedded predicate.
- The (understood) subjects are shared (co-referent).

Voice restructuring

- Voice dependency [VD]
- Argument sharing [AS]

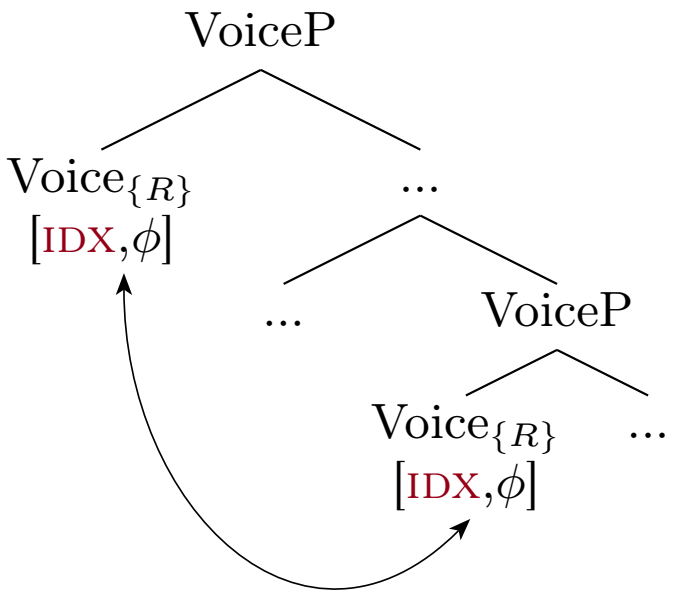
(16) Down-VR
Voice: IDX, PASS/PV, ϕ $[_{embedded}$ Voice$_R$.____]

(17) Up-VR
Voice$_R$.____ $[_{embedded}$ (DP) Voice: IDX, PASS/PV, ϕ]

- IDX: similar to the index feature in Kratzer, 2009.
  - ↪ Individual variable, interpreted by the assignment function, and existentially closed or bound.

VD: basics

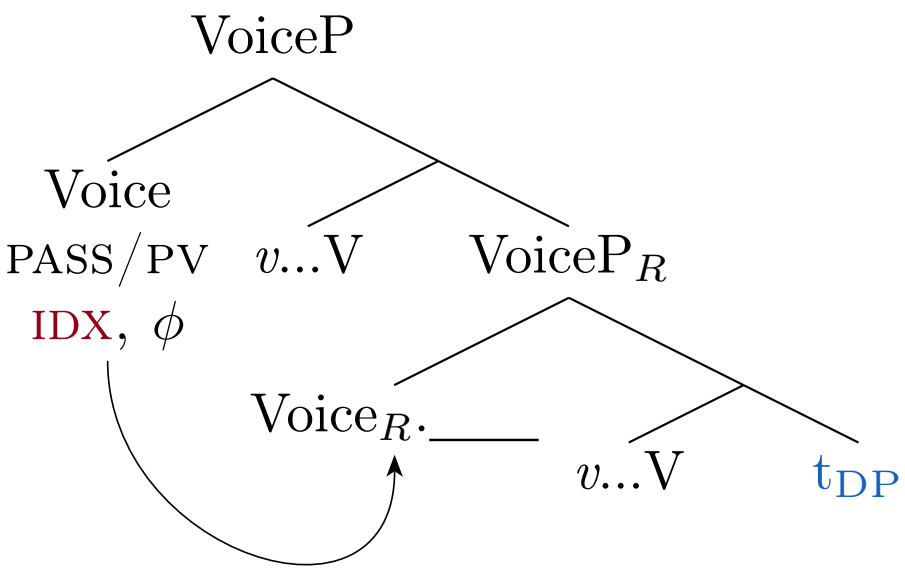
- Bi-directional Voice dependency:
  - ↪ VD is triggered by an underspecified Voice head, Voice_R.____.
  - ↪ Established locally via syntactic Agree (see Baker, 2008 for bi-directional Agree).
  - ↪ Agree: unification of the feature sets of the two Voice heads, including a numerical index feature IDX (Ershova, 2019, Pietraszko, 2021).
  - ↪ VD (in either direction) is constrained by locality (phases, PIC).

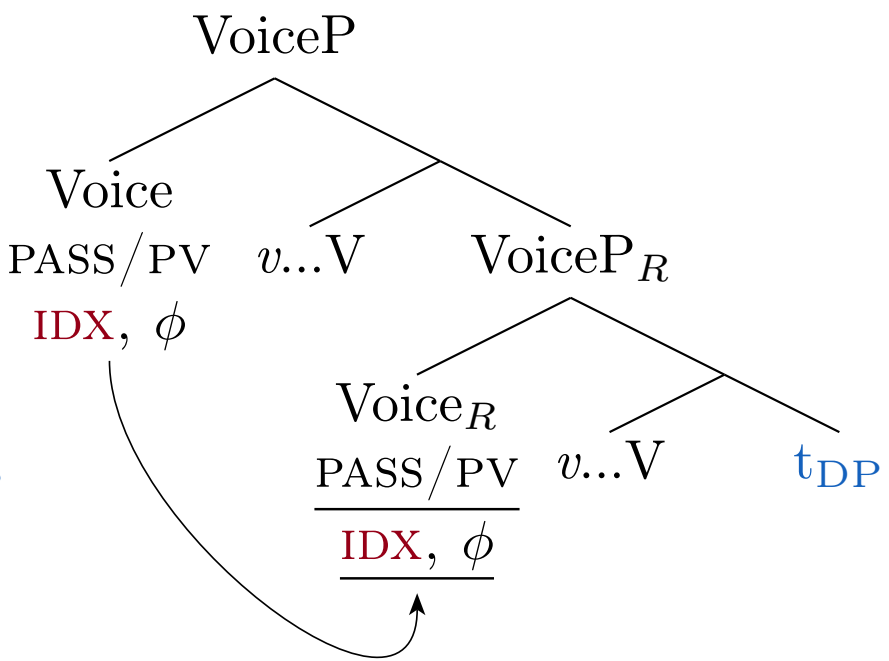


Voice matching

(18) *Iliskinun-ku* *bunbun-a* *tu* *baliv-un.*
want.PV-1.SG.ACC banana-that.NOM TU buy-PV
Lit. 'The bananas are wanted to be bought by me.'
'I wanted to buy the bananas.'

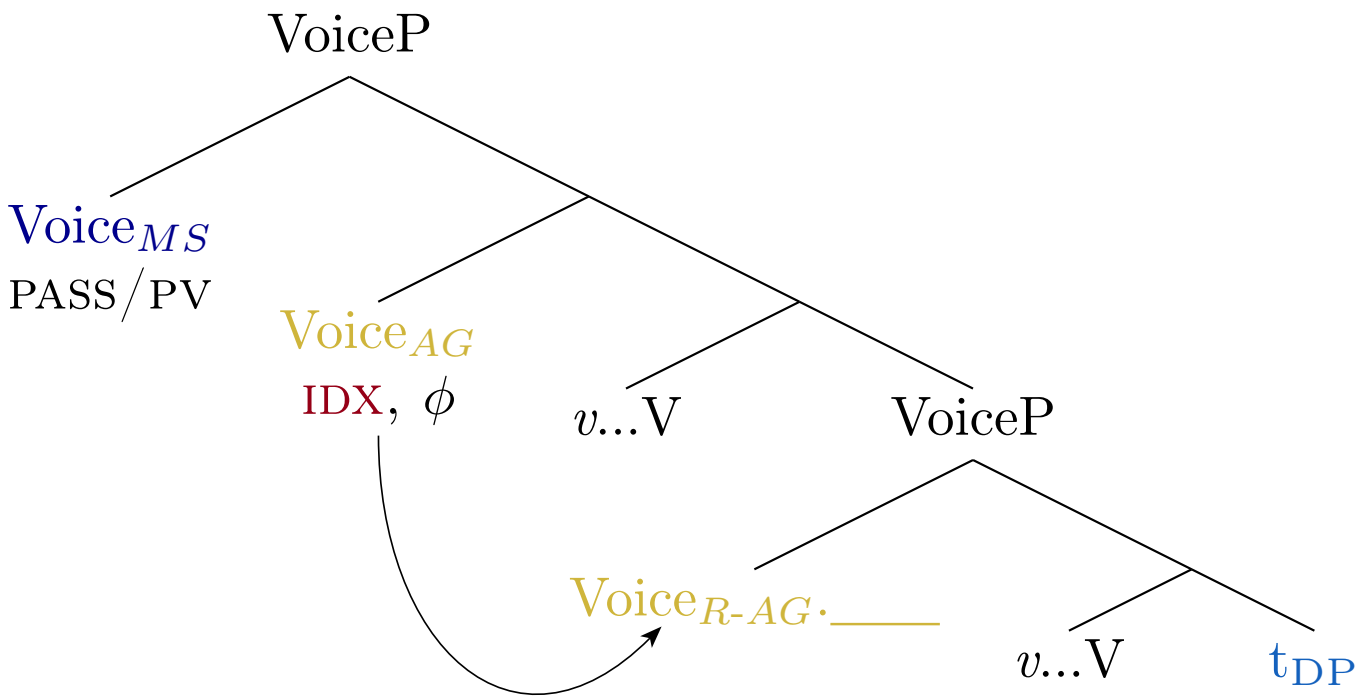
Isbukun Bunun [Wu, 2013: 40, (10b)]



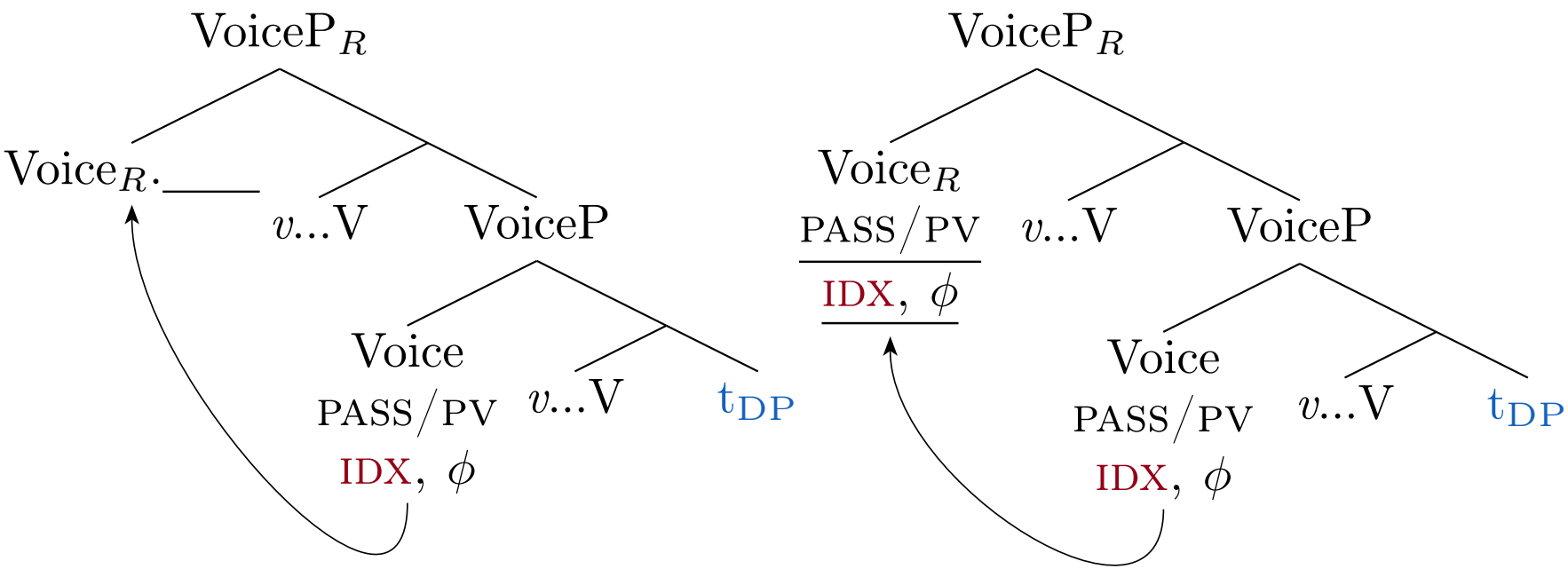


Default Voice (a sketch; see Appendix for details)

(19) *'asa'-u* *=ku* *a* *'iskán=di*$_i$ [*ma-baliv* t_i].
want-[PV] =1SG.OBL ABS fish=this$_i$ [AV-buy t_i]
'I want to buy this fish.' [Shih, 2014: 19, (43b)]



Up-VR: CC


VoiceP$_R$
Voice$_R$
PASS/PV
IDX, ϕ
v...V
VoiceP
Voice
PASS/PV
IDX, ϕ
v...V
t_{DP}
VoiceP$_R$
Voice$_R$
PASS/PV
IDX, ϕ
v...V
VoiceP
Voice
PASS/PV
IDX, ϕ
v...V
t_{DP}

From syntax to semantics

Voice restructuring (repeated)

- Voice dependency (Syntax) [VD]
- Argument sharing (Semantics) [AS]
- VD is a necessary condition for AS; AS builds on and interprets VD.

(20) Down-VR
Voice: IDX, PASS/PV, ϕ $[_{embedded}$ $\text{Voice}_R.$____]

(21) Up-VR
$\text{Voice}_R.$____ $[_{embedded}$ (DP) Voice: IDX, PASS/PV, $\phi]$

AS builds on VD

- Motivation for an underlying syntactic VD mechanism, as opposed to a solely semantic implementation of AS:
  - ↪ morphosyntactic distribution of Voice (see above)
  - ↪ locality: Voice restructuring is restricted to complements that do not contain distinct semantic TMA specifications (typically semantic *Events*, type <v,t>; see Wurmbrand and Lohninger, 2019)
  - ↪ syntactic restriction to embedded predicates that require a VoiceP (the unaccusativity puzzle).

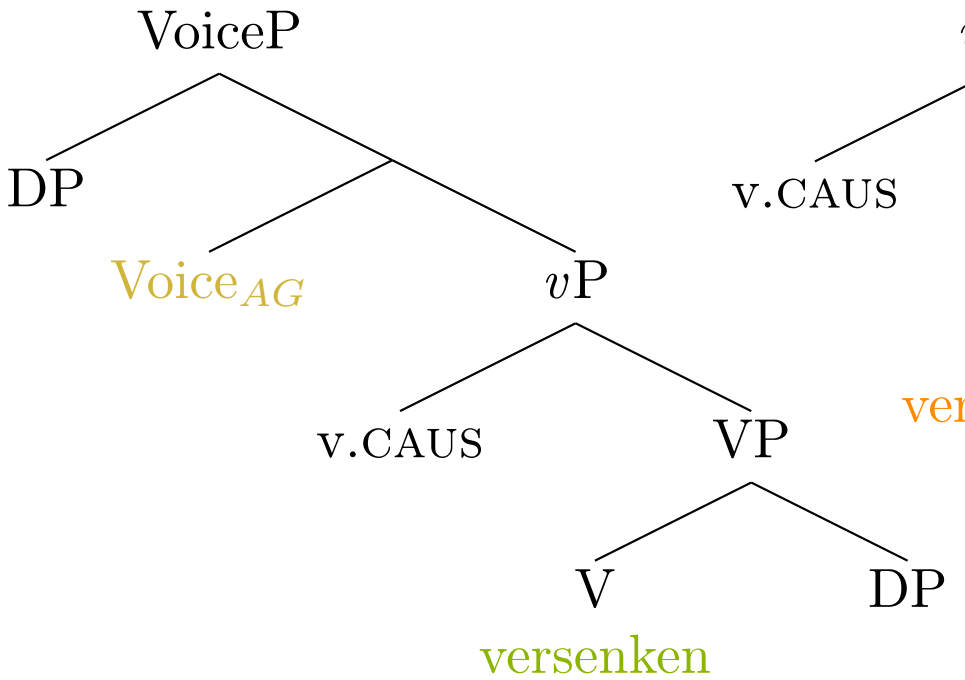
Causative–inchoative alternation

(22) a. *Nova versenkt den Frachter.*
Nova sinks the.ACC freighter.
'Nova is sinking the freighter.' Causative

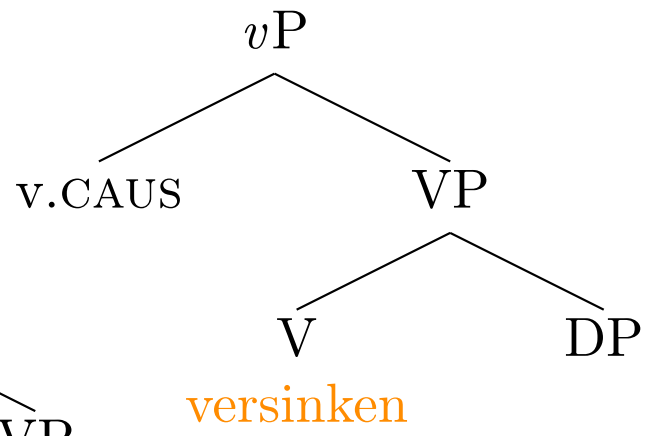
b. *Der Frachter versinkt.*
The.NOM freighter sinks.
'The freighter is sinking.' Inchoative

c. *Der Frachter wurde versenkt /*versunken.*
The.NOM freighter was sunk.CAUS /*sunk.INCH.
'The freighter was sunk.'
Passive causative | *Passive inchoative

(23) Causative



Inchoative



- See among others: Bowers, 2002; Pylkkänen, 2002, 2008; Folli and Harley, 2005; Alexiadou et al., 2006; Marantz, 2008; Schäfer, 2008; Harley, 2009, 2017; Pitteroff and Alexiadou, 2012; Pitteroff, 2014.

Voice restructuring

(24) *Der Frachter wurde zu versenken / *versinken versucht.*
The.NOM freighter was to sink.CAUS / *sink.INCH tried.
'People tried to sink the freighter.' [Pitteroff, 2014: 235, (31a)]

(25) *Mado-ga* {*sim-e* / **sim-ar-i*}
window-NOM {close-CAUS / *close-INCH-EV}
-tuzuke-rare-tei-ta.
-continue-PASS-PROG-PAST
'They kept the window closed.'
[Wurmbrand and Shimamura, 2017: 185, (11b)]

Raising

(26) *Der Frachter scheint zu *versenken / versinken.*
The.NOM freighter seems to *sink.CAUS / sunk.INCH
'The freighter seems to be sinking.'
Possible (irrelevant) non-LOP interpretation for CAUS versenken:
'The freighter seems to be sinking something.'

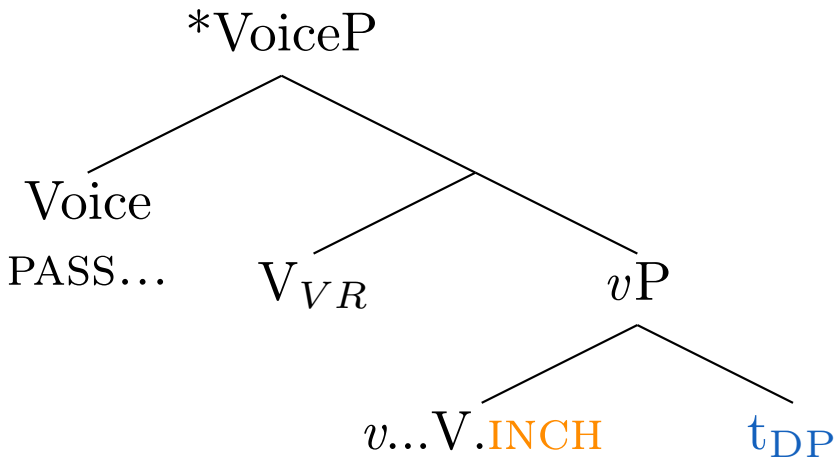
(27) *Der Frachter scheint versenkt / *versunken zu werden.*
The.NOM freighter seems sink.CAUS / sunk.INCH to become
'The freighter seems to be sinking/to be sunk.'

Summary of distribution

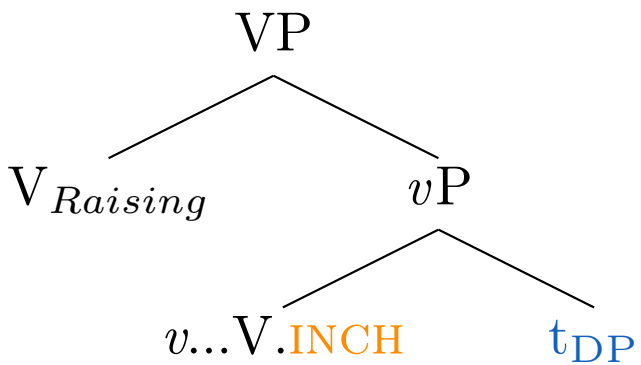
German	**Raising**	**Voice restructuring**
LOP	INCH	CAUS
Embedded passive	CAUS	*
Matrix passive	*	CAUS

The puzzle

(28) Voice restructuring



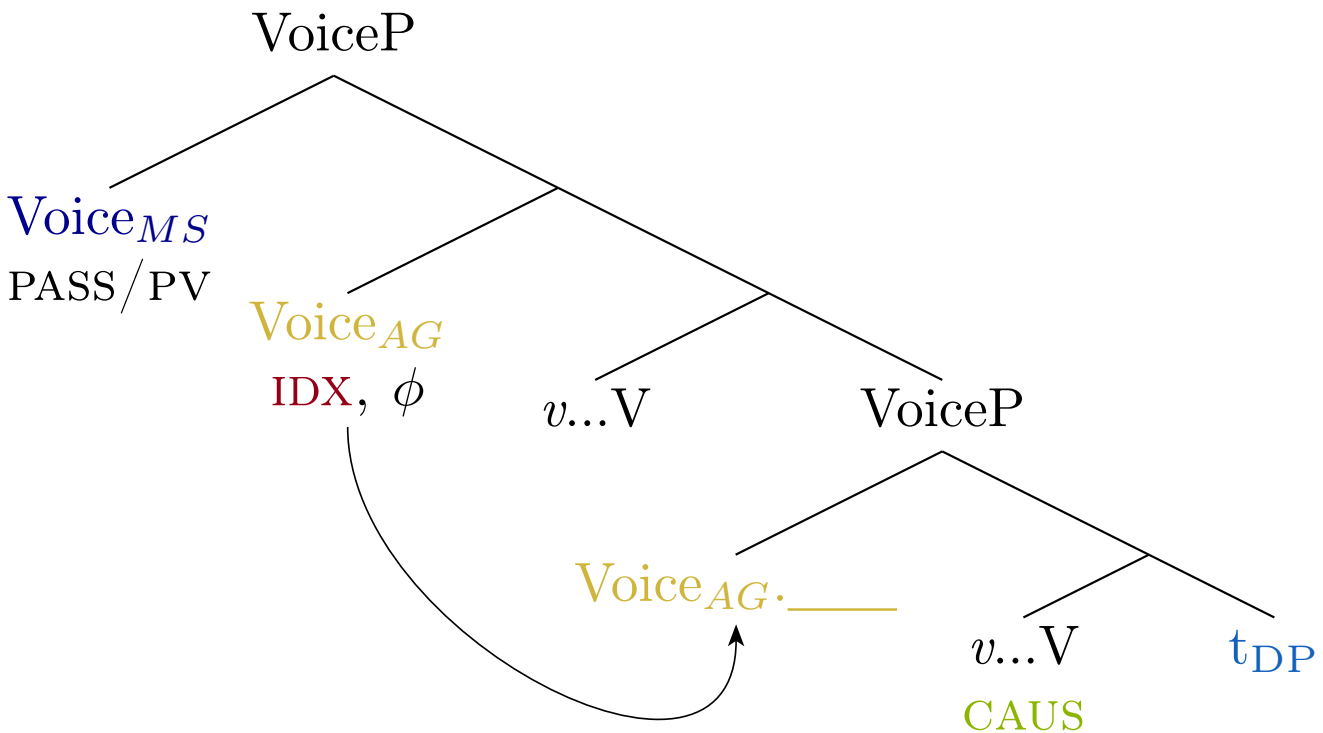
Raising



↪ This is not (just) a selectional problem, since the same contrast can be shown for verbs like *begin* which allow Raising or VR construals. These verbs can combine with an INCH vP, but only when they are used in their Raising variant.

Successful VR

(29)

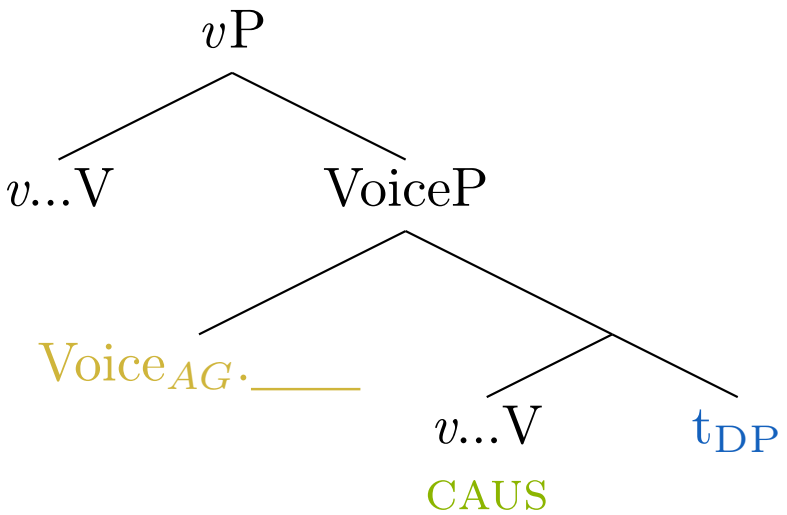


Unsuccessful VR #1

* CAUS Raising complement and LOP (subject raising would be OK).

↪ Voice_{AG}·____ must be valued, and matrix predicates do not have a VoiceP (since unaccusative).

(30) *



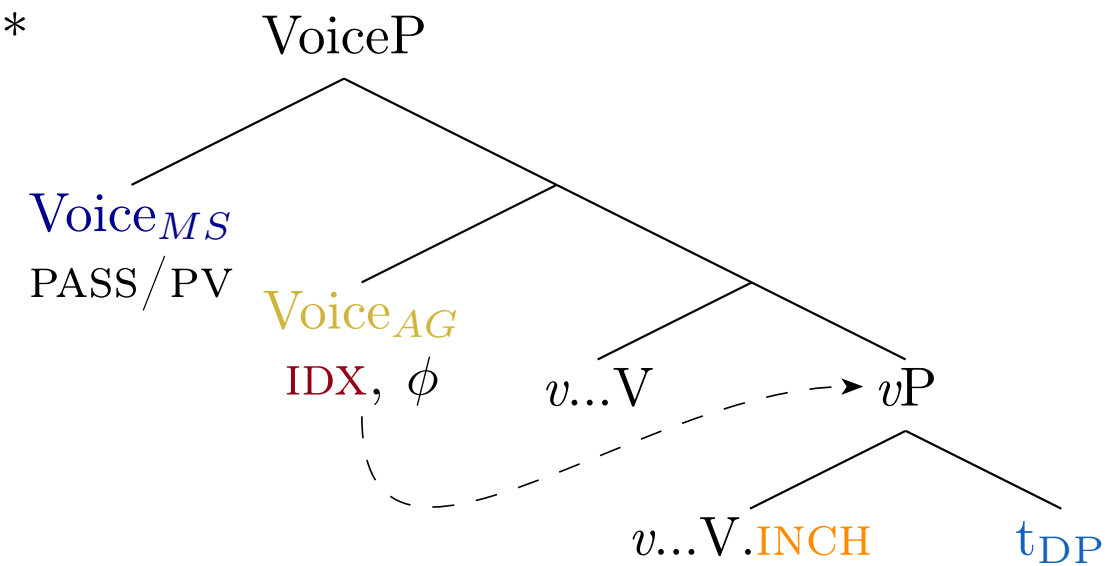
Unsuccessful VR #2

* INCH VR complement

↪ AS is not solely a semantic property of the verb—it must be triggered by a syntactic dependency.

↪ There must be a syntactic argument position, which can be unified with an argument position in the matrix clause.

(31) *



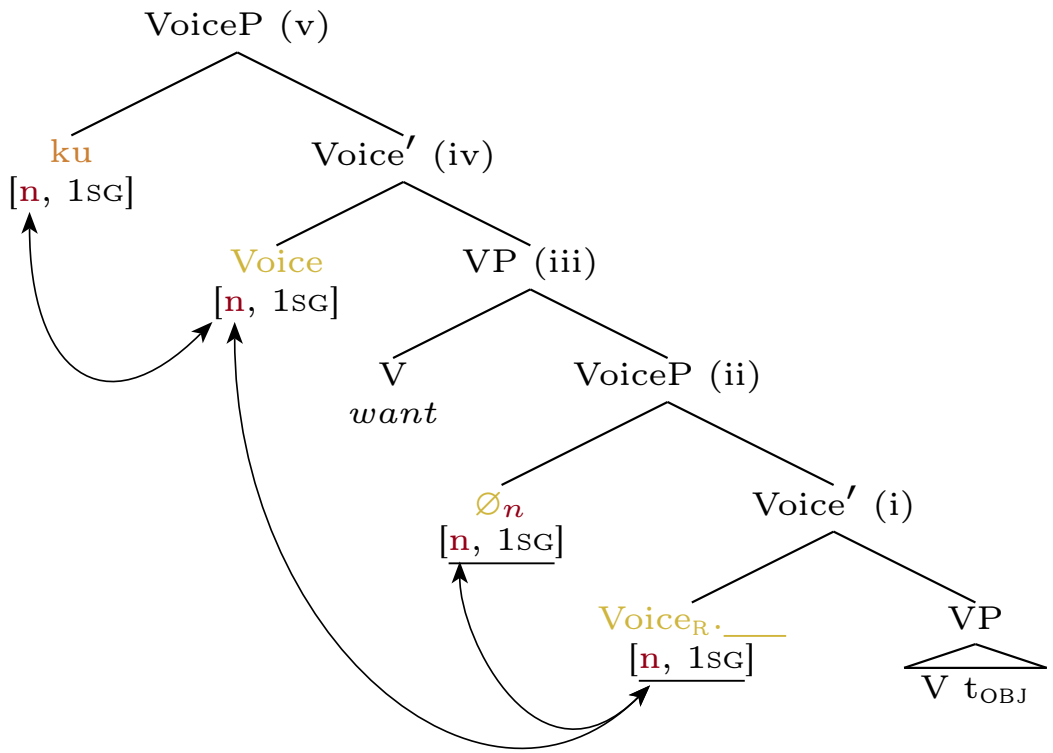
Argument sharing (with Shannon Bryant)

- Voice$_{AG}$ always introduces an Agent argument slot.
  - ↪ Constructions differ in how the argument is syntactically realized.
  - ↪ Voice$_{R}$.____: the Agent is realized by a *minimal pronoun* $\varnothing_n$ in the sense of Kratzer 2009, initially comprising only of an IDX feature.
  - ↪ cf. PRO as a minimal pronoun in Landau (2015).
- Feature unification between Voice and its Agent via Agree.
- Feature unification between matrix and embedded Voices.

↪ Result: the same IDX feature, ϕ-features (possibly other Voice features) are shared by both Voice heads and the Agents they introduce (whether (minimal) pronouns or full DPs).

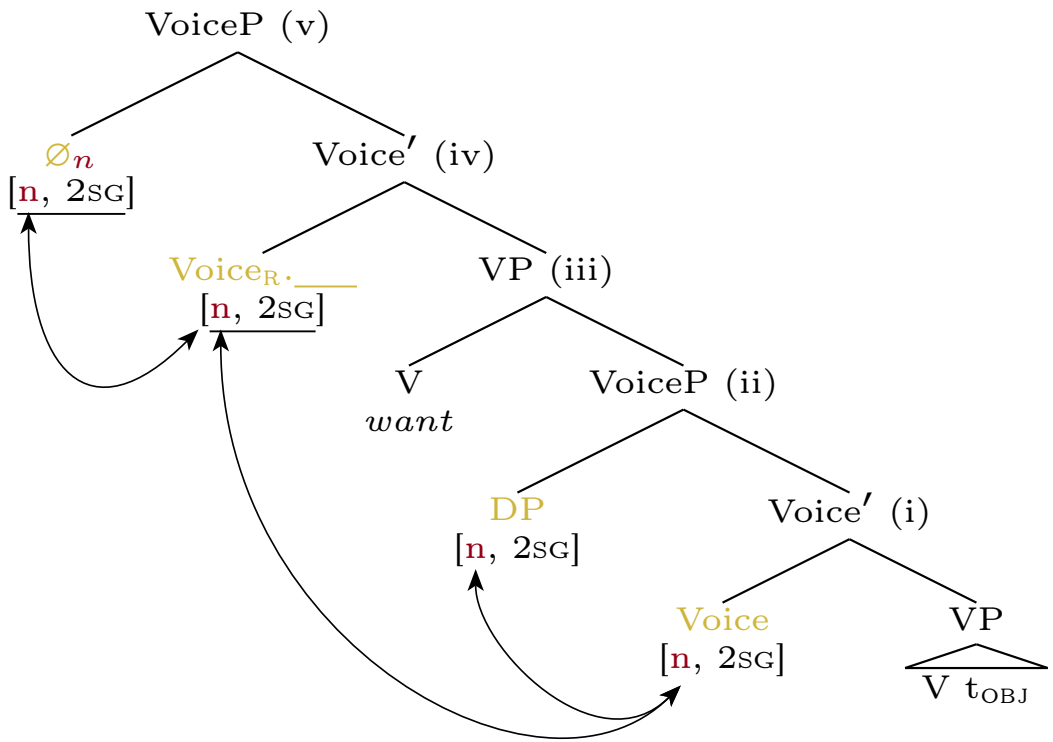
Down-VR

(32) *'asa'-u* *=ku* *a* *'iskán=di*$_i$ [*ma-baliv* t_i].
want-PV =1SG.OBL ABS fish=this$_i$ [AV-buy t_i]
'I want to buy this fish.' [Shih, 2014: 19, (43b)]



Up-VR

(33) *Anak*$_i$ *mau* [*kamu ø-peluk* t_i].
child$_i$ want [2.SG PV-hug t_i]
'You want to hug the child.' [Berger, 2019: 62, (9)]



Upshot argument sharing

- Binding of the embedded Agent entails co-reference with the matrix Agent in both Down- and Up-VR.
- If the lower subject is a DP or QP, it undergoes covert movement, which leads us to the final piece.

Extensions, conclusions, the big picture

Backward control [BC]

(34) *Ku-zam-e* [*uku-pheka* *uZodwa* *isuphu*].
15-try-PST [INF-cook 1Zodwa 9soup]
'Zodwa tried to cook soup.' Ndebele
[based on Pietraszko, 2021: (2)]

- Like in CC, the external argument originates in the embedded clause.
- Difference: there is no LOP—neither predicate is passive.
- Pietraszko (2021): the subject is in the embedded clause in surface syntax, and does not undergo *overt* movement to the matrix clause; similar Agree dependency between IDX features.
- Nevertheless it is obligatorily co-referent with the understood matrix subject.

"Control" via A-movement?

- Movement theory of control: the coreference relation is established via movement (Hornstein, 1999 et sec.).
- BC: covert movement of the "controller", which checks a second theta-role.
- LOP shows that co-reference and A-movement are independent of each other (see also Pietraszko, 2021):
  - ↪ A-movement does not lead to a control interpretation of the A-moved argument.
  - ↪ Control interpretations arise without A-movement of the (semantically) shared argument.

- Crossed control: A-movement of embedded object (LOP), but lower subject is shared (Up-VR).

(35) *Anak mau* [*kamu ø-peluk.*]
child want [2.SG PV-hug]
RC: 'The child wants to be hugged by you.'
CC: 'You want to hug the child.' [Berger, 2019: 62, (9)]

- German *manage* construction: A-movement of embedded object (LOP), but higher dative experiencer is shared (Down-VR).

(36) *Ihm ist es nicht gelungen, den Brief zu entziffern.*
him.DAT is it not managed, the.ACC letter to decipher
'He did not manage to decipher the letter.'

(37) *Der Brief ist ihm nicht zu entziffern gelungen.*
the.NOM letter is him.DAT not to decipher managed
'He did not manage to decipher the letter.'

Summary

- Raising: matrix verb is non-thematic.
- LOP: Embedded object is promoted to matrix subject.
  - ↪ Long Passive/PV [LP]
  - ↪ Crossed control [CC]
  - ↪ Down vs. Up: origin of Voice properties
- Exhaustive control: Embedded subject is obligatorily co-referent with a matrix argument (overt or understood).
- Voice restructuring: theoretical approach to derive LOP and Exhaustive control
  - ↪ Voice dependency: syntactic part
  - ↪ Argument sharing: semantic part

The entire picture

	Raising	Exhaustive control	
		Down-VR	Up-VR
Matrix subject	non-thematic	thematic	thematic
Co-reference	no	yes	yes
LOP	embedded passive/ unaccusative	LP	CC
No LOP	embedded external argument	FC	BC

Implications, connections

- Up vs. Down: morpho-syntactic property of location of valued vs. underspecified Voice (no semantic differences).
- BC and CC: essentially, CC is a BC construction with LOP.
- LP is a forward control [FC] construction with LOP.
- Voice restructuring could derive (at least certain) exhaustive control configurations in general via VD and AS.
- Basic empirical question: evidence for PRO.
- In contrast to purely semantic approaches (Chierchia, 1983, 1984), control also involves a syntactic component—it builds on VD, which is a necessary syntactic operation for AS.

Thank you!

Appendix

Passive

(38) *Der Salat* *wurde* (*von den Vögeln*) *mit* *großer Freude*
the lettuce was (by the birds) with great joy
gefressen.
eaten
'The lettuce was eaten by the birds with great joy.'

- Object promotion to subject
- Understood Agent ("someone"), optionally oblique
- Passive auxiliary, and participle morphology on verb

Austronesian Voice

- The Austronesian Voice system involves marking on the verb and promotion of an argument (including functions such as locative or benefactive).
- The type of verbal marking indicates which argument (actor, patient, goal ...) is promoted.
- Debates:
  - What kind of promotion? Promotion to subject, topic, both?
  - What kind of trigger? Case, ergativity, topichood?
  - Terminology: *Voice*, *Topic*, *Focus*—Actor Voice/Topic/Focus (AV/AT/AF); Patient/Object Voice (OV/PV). We will use PV, for cases where the direct object is promoted.

(39) Acehnese [Legate, 2014: 4, (1a-c)]

a. *Uleue nyan di-kap lôn.*
snake DEM 3FAM-bite 1SG
'The snake bit me.' Active

b. *Lôn di-kap lé uleue nyan.*
1SG 3FAM-bite by snake DEM
'I was bitten by the snake.' Passive

c. *Lôn uleue nyan kap.*
1SG snake DEM bite
'I was bitten by the snake.' Patient Voice

- Passive is comparable to Indo-European-type passive:
  - The Agent is an oblique/PP (see Legate, 2012, 2014 for evidence that the *le* phrase is a PP).
  - The oblique Agent is optional.
  - When no oblique is present, the Agent is interpreted existentially.

(40) *Aneuk nyan di-kap* (*lé uleue nyan*).
child DEM 3FAM-bite (LE snake DEM)
'The child was bitten (by the snake).'

[Legate, 2014: 26, (45)]

- PV shares some properties with active, some with passive:
  - The object is promoted (~ passive).
  - The subject is *not* demoted (~ active) (in some languages, it cliticizes onto Voice, but in Acehnese, it can be a full DP).
  - The Agent DP or clitic is obligatory (~ active).

(41) a. *Lôn uleue nyan kap.*
1SG snake DEM bite
'I was bitten by the snake.' [Legate, 2014: 5, (1c)]

b. *Aneuk nyan *(uleue nyan) kap.*
child DEM *(snake DEM) bite
'The child was bitten (by the snake).'
[Legate, 2014: 69, (124b)]

- The Agent in PV is a true argument (from Travis, 2021):
  - It is obligatory.
  - Its position is fixed.
  - It can be an antecedent for moved Theme (Legate, 2014: 71 (126)).
  - It can be deleted yet bind a Theme in an imperative in Indonesian (Legate, 2014: 71 (127)).
  - It can create Principle C violation for Theme in situ (Legate, 2014: 72 (129)).
  - It can control PRO in adjuncts and in embedded clauses in Indonesian and Balinese (Legate, 2014: 73-74 (130-132)).
  - It can be a resumptive pronoun in Balinese (Legate, 2014: 77 (137)).
  - It can form an imperative in Balinese (Legate, 2014: 78 (140)).

(42) Balinese [cited from Legate, 2014: 74, (132)]

a. *Ci$_i$ nyanjiang ia* [*PRO$_i$ meli montor*].
2 AV.promise 3 [PRO AV.buy motor.bike]
'You promised him to buy a motor bike.'
[Arka and Simpson 2008: 111]

b. *Ia janjiang ci$_i$* [*PRO$_i$ meli montor*].
3 OV.promise 2 [PRO AV.buy motor.bike]
'Him you promised to buy a motor bike.'
[Arka and Simpson 2008: 111]

c. **Tiang janjiang-a teken Made$_i$* [*PRO$_i$ meli*
1 promise-PASS by Made [PRO AV.buy
montor].
motor.bike]
'I was promised by Made to buy a motor bike.'
[I Wayan Arka, p.c. (with Legate)]

- Imperatives:
  - Subject argument is implicit.
  - PV: an implicit Agent can bind an object reflexive.
  - Passive: passive imperatives are impossible in some languages (but not all); implicit Agent cannot bind an object reflexive.

(43) Indonesian

a. *Salah-kan dirimu.*
PV.wrong-CAUS SELF.2
'Blame yourself.' [Arka, 2003: 60, (48a)]

b. **Di-salah-kan diri-mu.*
PASS-wrong-CAUS SELF.2
'Blame yourself.' [Arka, 2003: 60, (48b)]

Summary

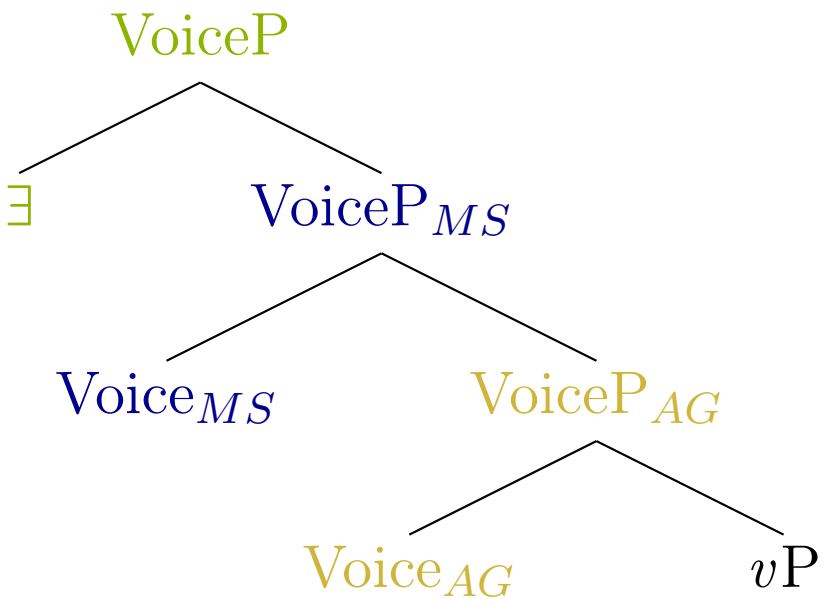
Property	**Passive**	**PV**
Object promotion	promotion to subject	promotion to highest argument, topic
Agent	existentially closed or oblique	argument
Voice morphology	auxiliary common (but not necessary)	agglutinating, possibly zero

What is Voice?

- Components of passive (based on proposals in Embick, 2004, Bruening, 2013):
  - Voice$_{AG}$: introduces an Agent argument position (not necessarily an Agent argument).
  - Voice$_{MS}$: introduces morpho-syntactic Voice properties (such as passive, Voice morphology, Case).
  - Existential closure: after completion of the voice domain, open variables are existentially closed.

Decomposed Voice

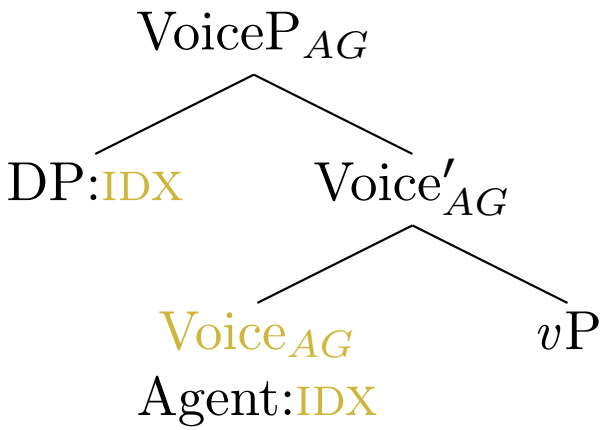
(44)



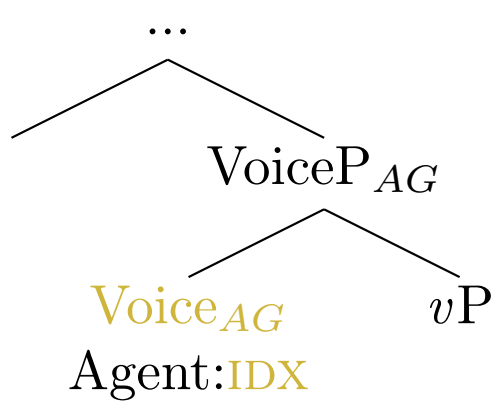
- Languages may bundle Voice$_{AG}$ and Voice$_{MS}$.
- Evidence for a split: German *lassen* passive (Pitteroff, 2014, new: default Voice)

Voice_{AG}: semantic Agent

(45) Active, PV



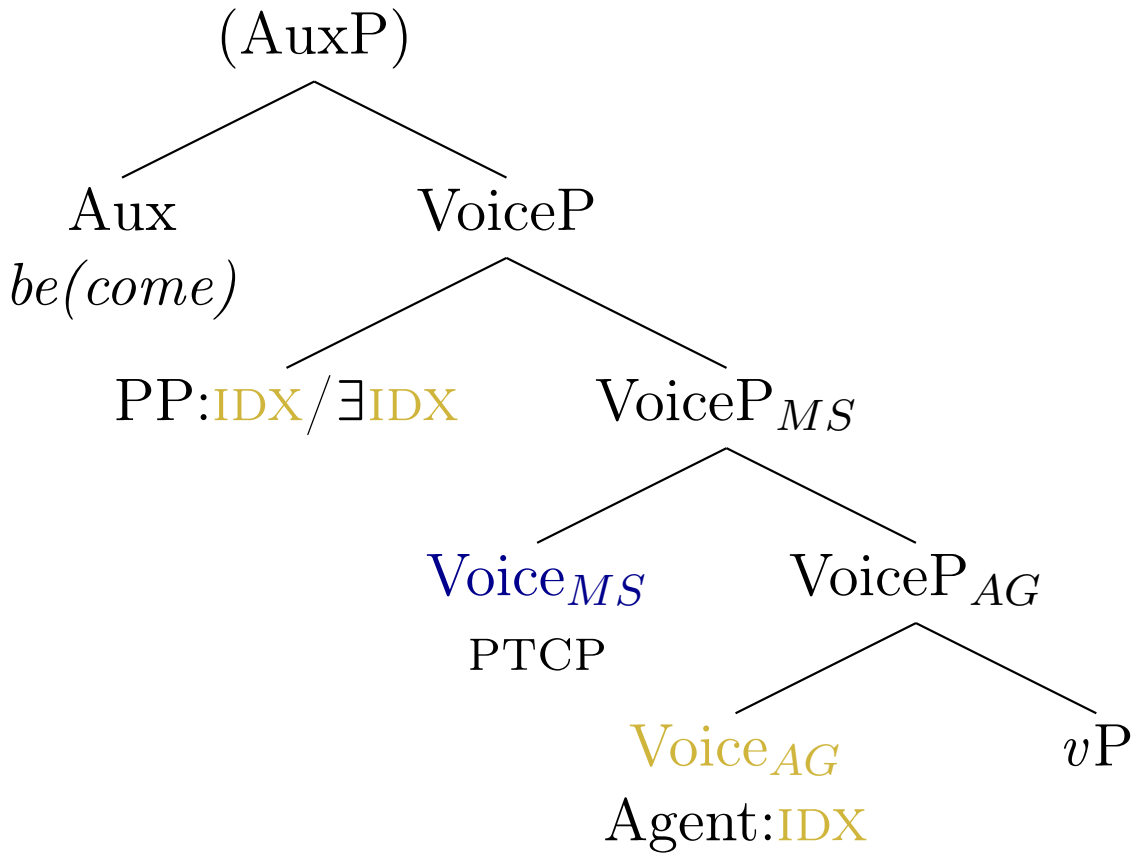
Passive



- Possible way to derive the distribution: selection of saturated vs. unsaturated Voice_{AG} by Voice_{MS} (for object promotion, in particular in PV configurations, see Appendix: **??**)
- Other options: case, D-feature on the Voice_{AG} (e.g., Embick, 2004; Schäfer, 2008).

Voice_{MS}: morphology, case

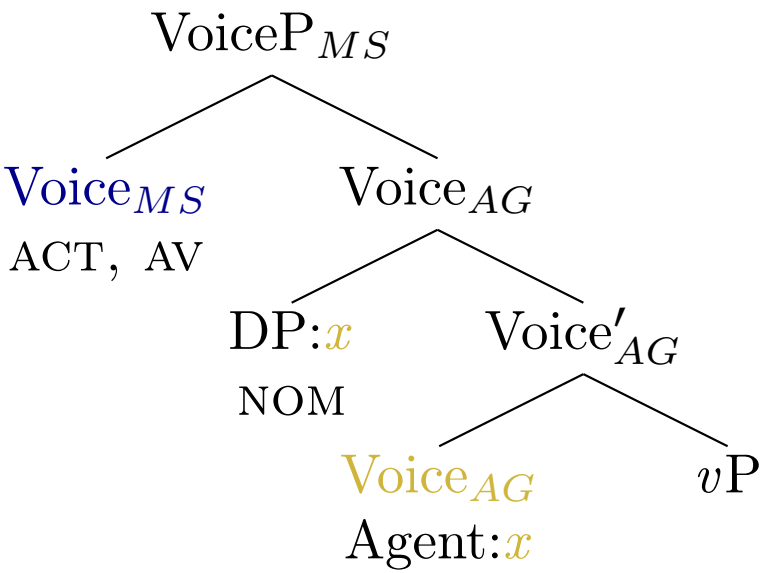
(46) Passive:



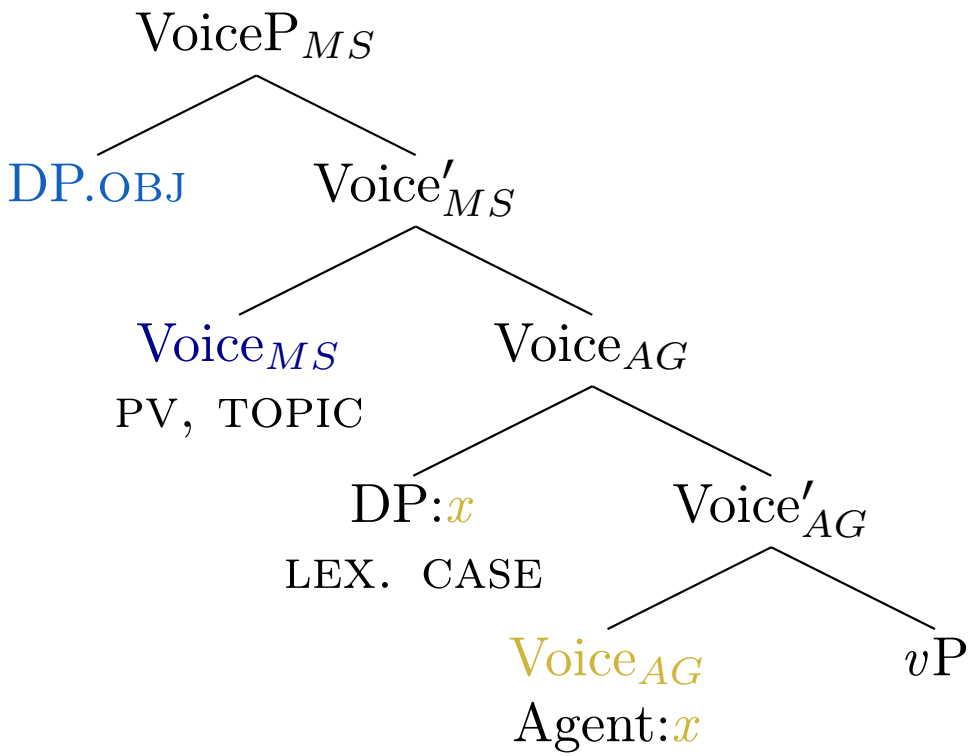
Voice_{MS}

- In both passive and PV, the object is promoted and it is usually assumed that it does not receive structural objective case (ACC).
- The lack of objective case in passive is typically associated with the lack of a DP Agent argument.
- But this does not carry over to PV.
- A unified approach is nevertheless possible if Voice_{MS} is assumed to have the following properties:
  - assigns a special lexical case (e.g., ergative) to the Agent DP in PV (Legate, 2014; Travis, 2021)
  - has a topic feature attracting the prominent argument (Pearson, 2005).

(47) Active, AV



PV



Objective case

- Following a dependent case approach (but this is not essential), the Agent argument does not qualify as a case competitor since it is lexically case-marked. This has two consequences:
  - If the promoted argument is the direct object, it cannot receive objective/dependent case, due to the lack of a case competitor.
  - If the promoted argument is not the direct object, it itself (after moving) qualifies as a case competitor and dependent case can be assigned to the direct object.

Voice restructuring typology

Matu'uwal Atayal

(48) *t<um>aluk cu' cai' ku' 'ulaqi'*
cook<AV>cook ACC taro NOM child
'The child cooks/is cooking taros.' [Chen, 2010a: 6, (8c)]

(49) *naqaru-un nku' 'ulaqi' 'i' t<um>aluk ku' cai'*
finish-PV GEN child LNK cook<AV>cook NOM taro
Lit. 'The taros were finished to cook by the child.'
'The child finished cooking the taros.' [Chen, 2010a: 6, (8b)]

- Regular AV clause: Agent is the promoted argument (notated as NOM) and the object receives objective case (given as ACC).
- Long PV: Matrix predicate is PV, the embedded predicate AV.
- Nevertheless, the embedded object receives NOM and the Agent is demoted (given as GEN).
  ↪ Embedded AV is not a "real" Voice (Chen, 2010b).

Extraction

- Only the argument marked as the privileged argument may extract via A′-movement (general Austronesian property).
- To extract an object, the verb needs to be marked PV.
- In AV constructions, only the Agent could be extracted.
- Changing the marking on the object in (50) would not be possible, unless PV is used.

(50) **nanuwan ku' t<um>aluk ku' 'ulaqi'*
what NOM cook<AV>cook NOM child
Intended: 'What is the child cooking?'

Default AV

- In Long PV, embedded AV is obligatory, but extraction of the object is still possible (in contrast to simple clauses).
  ↪ Embedded AV is not a "real" Voice, but default marking on the verb.

(51) **nanuwan ku' t<um>aluk ku' 'ulaqi'*
what NOM cook<AV>cook NOM child
Intended: 'What is the child cooking?'

(52) *nanuwan ku' naqaru-un nku' 'ulaqi' 'i' t<um>aluk*
what NOM finish-PV GEN child LNK cook<AV>cook
'What did the child finish cooking?'

Back to VD

- In Voice matching languages, the features of both Voice_{AG} and Voice_{MS} get down to the embedded clause.
- In default Voice languages, only the features of Voice_{AG} get down to the embedded clause.

Possible ways to formalize

- Voice matching:
  - ↪ Voice_{AG} and Voice_{MS} probe together.
  - ↪ Options: non-split Voice (shown below); movement of Voice_{AG} to Voice_{MS} (VD by combined Voice head).
- Default Voice:
  - ↪ Only Voice_{AG} probes.
  - ↪ Options: split Voice, and the embedded clause lacks Voice_{MS}; only Voice_{AG} can be underspecified.
  - ↪ Evidence for a partially restructured Voice: Pitteroff (2014) shows that German *lassen* passive involves a passive Voice_{AG}, but no passive morphology (default infinitive).

Up and down distribution

VD	Matrix	Embedded	Languages
→	PV	PV	Isbukun Bunun
→	PASS	PASS	Japanese, Norwegian
→	PV	AV (DEF)	Matu'uwal Atayal
→	PASS	INF (DEF)	German, Japanese
←	PV	PV	Sundanese, Madurese
←	PASS	PASS	Indonesian, ?Chamorro
←	BARE	PV	Indonesian, Balinese, Sundanese, Madurese
←	BARE	PASS	Indonesian, Balinese
←	AV (DEF)	PV	*

With Ileana Paul, Lisa Travis, Jozina vander Klok (Paul et al., 2021); see, among others, Davies, 2014; Kurniawan, 2013; Natarina, 2018

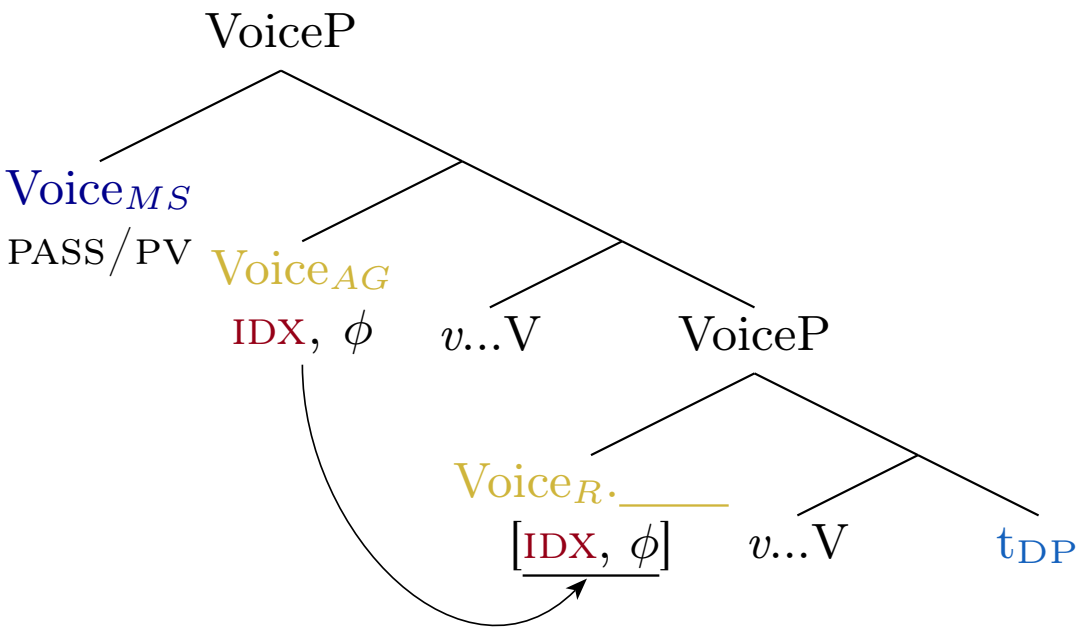
A generalization

- Some specific matrix verbs lack Voice morphology in Crossed control (e.g., *want* in Indonesian), but there does not appear to be a language where the higher predicate occurs consistently (independently of which verb) with default morphology.
- In other words, there is no "reverse" Atayal, where the higher clause is marked AV in Crossed control and the lower clause PV.
- This can be derived in a split Voice system: while Down-VR in split Voice structures yields default, the same effect cannot be generated with Up-VR.

Default Down-VR

- Separate Voice_{AG} and Voice_{MS} heads.
- Embedded clause only contains Voice_{AG}.
- Options:
  - Voice_{MS} is restructured.
  - There is only one Voice_{R} (which could then only correspond to Voice_{AG}, since Voice_{MS} could not establish a dependency yielding argument sharing).
- No "morphology" features → lower verb spelled out as default.

Default Down-VR

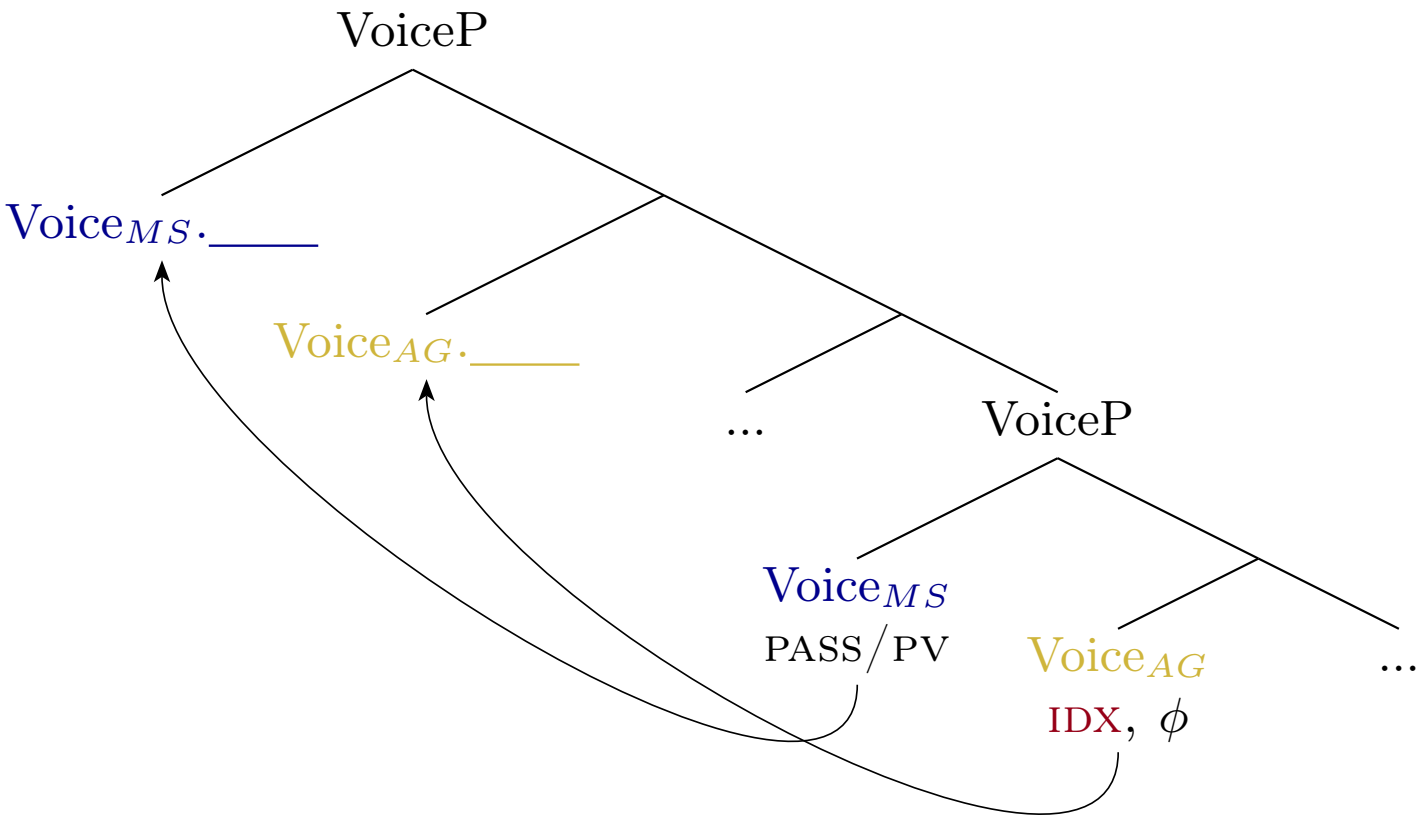


No default Up-VR

- Matrix clauses are not reduced (restructuring is selected).
- Matrix Voice_{MS} would always be present in split Voice systems.
- Both options given above for default Voice will not create matrix defaults.

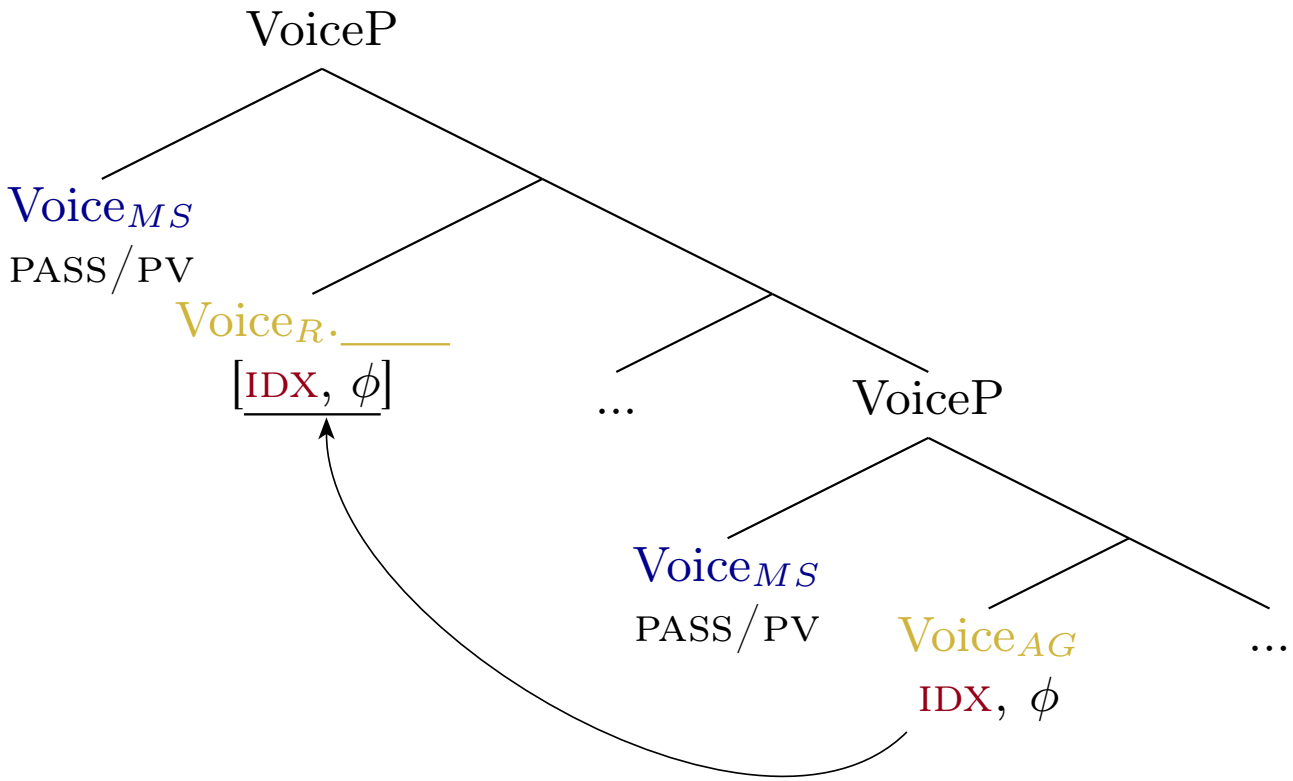
No default Up-VR—Option 1

- If anything (there may also be locality issues in the probing relations below) only matching could be derived.



No default Up-VR—Option 2

- Since only Voice_{AG} can be Voice_{R}, Voice_{MS} would have to be specified.
- The valued Voice_{R} is passive-like: only passive Voice_{MS} possible (other values are filtered out).



Semantic derivations (with Shannon Bryant)

- Agree and feature sharing dependencies give rise to a binding relation in semantics.
- IDX on Voice is parsed as a λ-operator (Kratzer 2009).
- [Voice: n [VP]] is parsed as [Voice [[λn] [VP]]] at LF whenever VP contains another occurrence of [n].
- VD (both Up and Down) after feature valuation: the λ-operator is inserted at **matrix** Voice and binds the embedded subject, resulting in semantic argument sharing.

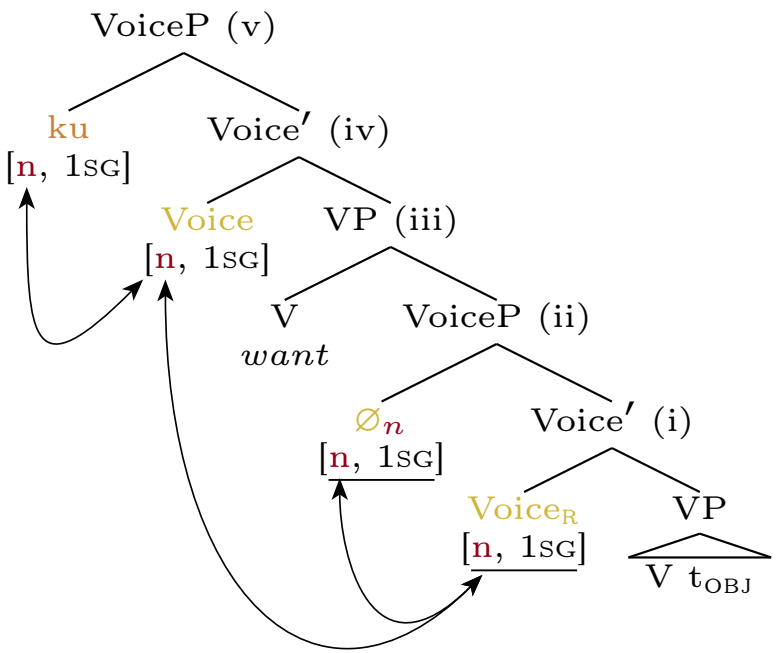
DP$_{n,\phi}$	Voice: n, PASS/PV, ϕ	λ[n]	[	$\varnothing_n$	Voice$_R$: n, PASS/PV, ϕ	]
$\varnothing_{n,\phi}$	Voice$_R$: n, PASS/PV, ϕ	λ[n]	[	(DP)$_n$	Voice: n, PASS/PV, ϕ	]

Denotations

$[\![\text{Voice}]\!]^{g,c} = \lambda x.\lambda e.[\text{Ag}(x)(e)]$
$[\![[\text{1SG}]]\!]^{g,c} = \text{speaker(c)}$ (Kratzer, 2009: 220 (70a))
$[\![[\text{2SG}]]\!]^{g,c} = \text{addressee(c)}$ (Kratzer, 2009: 220 (70b))
$[\![\text{want}]\!]^{g,c} = \lambda P_{vt}.\lambda e.[\text{want}(P)(e)]$

- Feature sharing occurs prior to interpretation.
- Incorporated/clitic subjects can be interpreted as bound variables (following feature checking/deletion; cf. von Stechow, 2003).

Semantic derivation for VR



$$[\![(\text{i})]\!]^{g,c} = \lambda x.\lambda e.[\text{buy}(t_{\text{OBJ}})(e) \wedge \text{Ag}(x)(e)]$$

Event identification

$$[\![(\text{ii})]\!]^{g,c} = \lambda e.[\text{buy}(t_{\text{OBJ}})(e) \wedge \text{Ag}(n)(e)]$$

Functional application

$$[\![(\text{iii})]\!]^{g,c} = \lambda e'.[\text{want}(\lambda e.[\text{buy}(t_{\text{OBJ}})(e) \wedge \text{Ag}(n)(e)])(e')]$$

Functional application

$$[\![(\text{iv})]\!]^{g,c} = [\![\text{Voice}[[\lambda[n]][(\text{iii})]]]\!]^{g,c} = \lambda x.\lambda e'.[\text{want}(\lambda e.[\text{buy}(t_{\text{OBJ}})(e) \wedge \text{Ag}(x)(e)])(e') \wedge \text{Ag}(x)(e')]$$

λ-abstraction + Predicate conjunction

$$[\![(\text{v})]\!]^{g,c} = \lambda e'.[\text{want}(\lambda e.[\text{buy}(t_{\text{OBJ}})(e) \wedge \text{Ag}([1\text{SG}])(e)])(e') \wedge \text{Ag}([1\text{SG}])(e')]$$

Functional Application

Summary argument sharing

- Binding of the embedded Agent entails co-reference with the matrix Agent in both Down- and Up-VR.
- This is the case even if the matrix Agent is not technically bound since Voice (containing the λ) is lower.
- Matrix Agent: if it is a pronoun, it can receive its interpretation from the context or the assignment function (see Kratzer, 2009: 220, (69-70)).
- If the lower subject is a DP or QP, it undergoes covert movement.

Extension to BC

- BC is similar to Up-VR in terms of VD and AS.
- Pietraszko (2021): also suggests a similar Agree dependency between IDX features.
- Our approach: in addition to VR, there is type-driven covert movement of certain embedded subjects to a position above matrix VoiceP.
- In this case, the λ-operator introduced by matrix Voice binds the trace of the embedded subject.
- Movement of the embedded subject in BC does not necessarily feed into overt relations such as agreement (see Pietraszko, 2021 for Ndebele), but BC is possible with quantificational subjects, thus covert movement must be available.

References I

Alexiadou, Artemis, Elena Anagnostopoulou, and Florian Schäfer. 2006. The properties of anticausatives cross-linguistically. In *Phases of interpretation*, ed. Mara Frascarelli, 187–211. Berlin, Germany: Mouton de Gruyter.

Arka, I. Wayan. 2003. *Balinese morphosyntax: a lexical-functional approach*. Research School of Pacific and Asian Studies, The Australian National University.: Pacific Linguistics.

Baker, Mark C. 2008. *The syntax of agreement and concord*, volume 115. Cambridge University Press.

Berger, Mike. 2019. Indonesian Crossed Control: Expanding the Typology of Restructuring. In *Proceedings of the 36th West Coast Conference on Formal Linguistics*, ed. Richard Stockwell, Maura O'Leary, Zhongshi Xu, and Z.L. Zhou, 61–70. Somerville, MA: Cascadilla Proceedings Project.

Bowers, John. 2002. Transitivity. *Linguistic Inquiry* 33:183–224.

Bruening, Benjamin. 2013. By phrases in passives and nominals. *Syntax* 16:1–41.

Chen, Tingchun. 2010a. Restructuring in Mayrinax Atayal. Talk given at *AFLA 19*, Academia Sinica, Taiwan.

Chen, Tingchun. 2010b. Restructuring in Mayrinax Atayal. B. Arts Honours Thesis, McGill University.

References II

Chierchia, Gennaro. 1983. Outline of a semantic theory of obligatory control. In *Proceedings of the 2nd West Coast Conference on Formal Linguistics*, ed. Michael Barlow, David P. Flickinger, and Michael T. Westcoat, 19–31. Stanford Linguistics Association.

Chierchia, Gennaro. 1984. Topics in the syntax and semantics of infinitives and gerunds. Doctoral Dissertation, University of Massachusetts.

Cinque, Guglielmo. 2002. The interaction of Passive, Causative, and 'Restructuring' in Romance. In *The Syntax of Italian Dialects*, ed. Christina M. Tortora, 50–66. Oxford University Press.

Davies, William D. 2014. Describing Madurese crossed control. In *Argument realisations and related constructions in Austronesian languages, Papers from 12-ICAL*, ed. Wayan Arka and N.L.K. Indrawati, volume 2, 369–383. Canberra: Asia-Pacific Linguistics.

Embick, David. 2004. On the structure of resultative participles in English. *Linguistic Inquiry* 35:355–392.

Ershova, Ksenia Alexeyevna. 2019. Syntactic ergativity in West Circassian. Doctoral Dissertation, The University of Chicago.

References III

Folli, Raffaella, and Heidi Harley. 2005. Flavours of v: consuming results in Italian and English. In *Aspectual inquiries*, ed. Paula Kempchinsky and Roumyana Slabakova, 95–120. Dordrecht: Springer.

Harley, Heidi. 2009. The morphology of nominalizations and the syntax of vP. In *Quantification, definiteness and nominalization*, ed. Anastasia Giannakidou and Monika Rathert, 320–342. Oxford: Oxford University Press.

Harley, Heidi. 2017. The "bundling" hypothesis and the disparate functions of little v. In *The verbal domain*, ed. Roberta D'Alessandro, Irene Franco, and Ángel Gallego, 3–28. Oxford: Oxford University Press.

Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30:69–96.

Kratzer, Angelika. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40:187–237.

Kroeger, Paul, and Kristen Frazier. 2020. Crossed-control in Malay/Indonesian as long-distance passivization. In *Proceedings of the Twenty-Sixth Meeting of the Austronesian Formal Linguistics Association (AFLA)*, ed. Ileana Paul, 159–174. University of Western Ontario.

Kurniawan, Eri. 2013. Sundanese complementation. Doctoral Dissertation, University of Iowa.

References IV

Landau, Idan. 2015. *A Two-Tiered Theory of Control*, volume 71. Cambridge, MA: MIT Press.

Legate, Julie Anne. 2012. Subjects in Acehnese and the nature of the passive. *Language* 88:495–525.

Legate, Julie Anne. 2014. *Voice and v: Lessons from Acehnese*, volume 69. Cambridge, MA: MIT Press.

Marantz, Alec. 2008. Phases and words. In *Phases in the theory of grammar*, ed. Sook-Hee Choe, Yang-Soon Kim, Sung-Hun Kim, and Alec Marantz, 191–220. Seoul: Dong In Publisher.

Natarina, Ari. 2018. Complementation in Balinese: Typological, syntactic, and cognitive perspectives. Doctoral Dissertation, University of Iowa.

Paul, Ileana, Lisa Travis, Jozina Vander Klok, and Susi Wurmbrand. 2021. Crossed Control as Voice Restructuring. Talk given at CLA 2021.

Pearson, Matt. 2005. The Malagasy subject/topic as an A'-element. *Natural Language & Linguistic Theory* 23:381–457.

Perlmutter, David, and Paul Postal. 1984. The 1-Advancement Exclusiveness Law. In *Studies in Relational Grammar*, ed. David Perlmutter and Carol Rosen, volume 2, 81–125. The University of Chicago Press.

References V

Pietraszko, Asia. 2021. Backward Control without A-movement or ϕ-agreement. In *Proceedings of NELS 51*, ed. Alessa Farinella Farinella and Angelica Hill. GLSA.

Pitteroff, Marcel. 2014. Non-canonical *lassen* middles. Doctoral Dissertation, University of Stuttgart.

Pitteroff, Marcel, and Artemis Alexiadou. 2012. On the properties of german sich-lassen middles. In *Proceedings of the 29th West Coast Conference on Formal Linguistics (WCCFL 29)*, ed. Jaehoon Choi, Alan E. Hogue, Jeffrey Punske, Deniz Tat, Jessamyn Schertz, and Alex Trueman, 214–222. Tucson: Coyote Working Papers.

Polinsky, Maria, and Eric Potsdam. 2008. The syntax and semantics of wanting in Indonesian. *Lingua* 118:1617–1639.

Pylkkänen, Liina. 2002. Introducing arguments. Thesis, MIT, Cambridge, MA.

Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge, MA: MIT Press.

Sato, Yosuke, and Shin-Ichi Kitada. 2012. Successive Feature Inheritance, θ-Features, and the Crossed-Control Construction in Standard Indonesian.

Schäfer, Florian. 2008. *The syntax of (anti-)causatives: External arguments in change-of-state contexts*, volume 126. Amsterdam: John Benjamins.

References VI

Shih, Chao-Kai. 2014. On restructuring in Takibakha Bunun. Ms. National Tsing Hua University, Taiwan.

von Stechow, Arnim. 2003. Feature deletion under semantic binding. In *Proceedings of North East Linguistic Society (NELS)*, ed. Makoto Kadowaki and Shigeto Kawahara, volume 33, 377–403.

Travis, Lisa. 2021. Austronesian Voice and Passive. Presentation given in a workshop on *Restructuring in Austronesian*.

Wu, Hsiao-hung Iris. 2013. Restructuring and Clause Structure in Isbukun Bunun. *Oceanic Linguistics* 52:36–52.

Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin/ New York: Mouton de Gruyter.

Wurmbrand, Susi. 2014. Restructuring across the world. In *Complex visibles out there. Proceedings of the Olomouc Linguistics Colloquium 2014: Language use and linguistic structure*, ed. Ludmila Veselovská and Markéta Janebová, Olomouc Modern Language Series, 275–294. Palacký University.

Wurmbrand, Susi. 2015. Restructuring cross-linguistically. In *Proceedings of the 45th annual meeting of the North East Linguistic Society*, ed. Thuy Bui and Deniz Özyıldız, 227–240. University of Massachusetts, GLSA.

References VII

Wurmbrand, Susi, and Magdalena Lohninger. 2019. An implicational universal in complementation—Theoretical insights and empirical progress. In *Propositional Arguments in Cross-Linguistic Research: Theoretical and Empirical Issues*, ed. Jutta M. Hartmann and Angelika Wöllstein. Mouton de Gruyter.

Wurmbrand, Susi, and Koji Shimamura. 2017. The features of the voice domain: actives, passives, and restructuring. In *The verbal domain*, ed. Roberta D'Alessandro, Irene Franco, and Ángel Gallego, 179–204. Oxford: Oxford University Press.