

LONG-DISTANCE PIVOT MOVEMENT MEASURES PHASE UNLOCKING: MALAGASY VS. DINKA

Yiannis Katochoritis, MIT

katoch98@mit.edu

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1 IN A NUTSHELL

- **Prior wisdom:** Austronesian Malagasy and Nilotic Dinka Bor share non-trivial parallels: (i) Austronesian *voice/pivot* system (ii) promotion to pivot exhibits core properties of **A-movement**; (iii) promotion to pivot may **span a finite clausal boundary**, so that a matrix pivot is thematically linked to an embedded gap; (iv) long-distance pivot movement proceeds via **Phase Unlocking**.
- **Descriptive finding I:** The Malagasy-Dinka parallelism breaks down in cross-clausal pivot movement: in Dinka, the long-distance moved pivot retains its A-properties, whereas in Malagasy it suddenly only exhibits core A'-properties.
- **Descriptive finding II:** In Malagasy, embedded CP complements that either become the matrix pivot or allow their own pivot to be extracted to the matrix clause, must first undergo (covert) A-movement to the matrix pivot position.
- **Proposal I:** Dinka and Malagasy differ in the structural height of Phase Unlocking: by matrix *v* in Dinka, by matrix C in Malagasy.
- **Proposal II:** Their difference is a conspiracy of three factors (i) head V-movement in Dinka vs. phrasal roll-up VP-movement resulting in smuggling in Malagasy; (ii) different 'alignment', contingent on the order of Agree and Merge at *v*/Voice: ACC-like in Dinka, split-ERG-like in Malagasy; (iii) Dinka's composite pivot probe is *not* sensitive to partial A-intervention, Malagasy's *is*.
- **Implications** (i) Dinka pivot=topic with A-properties; Malagasy pivot=both (or between) topic and subject; (ii) a composite probe splits under partial A-intervention, with its search space then restricted within the intervener or to structure dominating the intervener; (iii) Phase Unlocking may exceptionally undo the scope-island status of CPs for QR, allowing cross-clausal inverse scope.

2 AUSTRONESIAN VOICE SYSTEM

- Austronesian *voice*: one (any) DP argument is designated as the clausal *pivot*, regardless of original thematic or grammatical role:
 - (i) prominent structural and discourse status in a special position, syntactically and discourse-wise privileged;
 - (ii) realized in a particular morphological form and/or (fixed) position;
 - (iii) cross-referenced by affixal *voice* morphology on the verb that co-varies with the thematic role and/or base-generated site of the *pivot*: **AV**=Agent Voice; **TV**=Theme Voice or **OV**=Object Voice; **LV**=Locative Voice; **CV**=Circumstantial Voice.

(1) Tagalog voice system [Rackowski and Richards 2005:566]

- a. *B<um>ili ang bata ng tela sa palengke para sa nanay*
<**AV**>.PFV>buy PIV child GEN cloth DAT market P DAT mother
'The child bought cloth at the market for mother.'
- b. *B<in>ili ng bata ang tela sa palengke para sa nanay*
<**TV**>.PFV>buy GEN child PIV cloth DAT market P DAT mother
'The child bought the cloth at the market for mother.'
- c. *B<in>ilh-an ng bata ng tela ang palengke para sa nanay*
<PFV>buy-<**LV**> GEN child GEN cloth PIV market P DAT mother
'The child bought cloth at the market for mother.'

- d. *I-b<in>ili ng bata ng tela sa palengke ang nanay*
CV-<PFV>buy GEN child GEN cloth DAT market PIV mother
 ‘The child bought cloth at the market for the mother.’

- Debate as to whether Austronesian pivots are surface subjects in an A-position, or topics in an A'-position (Schachter 1976; Mulder and Schwartz 1981; Shibatani 1988; Mithun 1991; Guilfoyle, Hung, and L. Travis 1992; Manaster-Ramer 1992, a.o.).
- Debate as to whether *voice*-marking corresponds to NOM-ACC or ERG-ABS case alignment (Payne 1982; Gerdts 1988; De Guzman 1988; Aldridge 2004; Chen 2017; Erlewine, Levin, and Urk 2019; Chen and Patrianto 2023, a.o.).¹

3 Malagasy background

3.1 Clausal derivation and formal properties of pivots

- Western Malayo-Polynesian branch of Austronesian, spoken by approximately 25 million people in Madagascar and the Comoros.
- **Predicate-initial**, with **pivot in fixed clause-final position** (Pensalfini 1997; Pearson 1997; 1998; 2001 Rackowski 1998, i.a.).
- Three-way *voice*-marking: (i) **Agent Voice** AV for external arguments; (ii) **Theme Voice** TV for internal arguments; (iii) **Circumstantial Voice** CV for obliques/PPs/adjuncts.

(2) **Malagasy voice alternations** [Pearson 2005:389]

- a. *Mamono ny akoho amin' ny antsy ny mpamboly*
AV.kill DET chicken with DET knife DET farmer
 ‘The farmer is killing the chickens with the knife.’
- b. *Vonoin' ny mpamboly amin' ny antsy ny akoho*
TV.kill DET farmer with DET knife DET chicken
 ‘The chickens, the farmer is killing (them) with the knife.’
- c. *Amonoan' ny mpamboly ny akoho ny antsy*
CV.kill DET farmer DET chicken DET knife
 ‘The knife the farmer is killing the chickens (with it).’

- **Positional diagnostic:** yes/no particle *ve* or polarity item *intsony* ‘anymore’ must precede the pivot (Keenan 1976; Dahl 1996).

(3) **Clause-final pivot preceded by question particle *ve*** [Pearson 2005:389]

- a. *Nametraka ny boky teo ambonin' ny latabatra ve ny vehivavy?*
 PST.AV.put DET book PST.there on.top DET table **Q** DET woman
 ‘Did the woman put the books on the table?’
- b. *Nametraka (*ve) ny boky (*ve) teo ambonin' ny latabatra *(ve) ny vehivavy (*ve)?*

- The pivot appears in a **distinct unmarked form**, standardly viewed as **nominative case** (Voskuil 1993); pivot site as NOM-assigning position (Erlewine, Levin, and Urk 2017; 2019; Chen and Patrianto 2023).
- Morphological alternations between ‘nominative’ (for pivots), ‘accusative’ (for in-situ internal arguments) and ‘genitive’ (for in-situ external arguments) are mainly evident in pronouns and proper names.

(4) **Malagasy pivots obligatorily appear in unmarked case form** [Pearson 2005:443]

- a. *Namangy ny ankizy izy / *azy*
 PST.AV.visit DET children 3.NOM /3.ACC
 ‘(S)he/they visited the children.’
- b. *Novangia=ny ny ankizy*
 PST.TV.visit=3SG.GEN DET children
 ‘(S)he/they visited the child.’

¹There is broad consensus that Austronesian *voice* cannot be reduced to an Indo-European-style system of active-passive voice. For instance, non-AV is not morphologically more marked than AV; non-pivot agents are not demoted obliques, but retain their core argument status; frequency of use is often higher for OV; Indonesian-type languages possess a separate dedicated passive construction (see Shibatani 1988; Chen and McDonnell 2019).

- c. *Novangian'* ny ankizy izy / *azy
 PST.TV.visit DET children 3.NOM /3.ACC
 'The children visited him/her/them.'
- d. *Namangy* azy / *izy ny ankizy
 PST.AV.visit 3.ACC /3.NOM DET children
 'The children visited him/her/them.'

4 CLAUSE-INTERNAL PROMOTION TO PIVOT

4.1 A-properties of Malagasy clausebound promotion to pivot

- Clausebound promotion to pivot (PTP) shows **movement properties of A-chains** (L. Travis 1998; Pearson 2001; 2005; Paul 2002):

- (i) Restricted to DP arguments only
- (ii) Ameliorates weak crossover (WCO) effects
- (iii) Fixes underlying Condition C violations;
- (iv) Feeds (unmarked) case

(5) **Malagasy pivots are restricted to DP arguments** [Paul 2000:96]

- a. *Anapaha=ny bozaka (*amin') ny antsi=ny*
CV.cut=3.GEN grass with DET knife=3.GEN
 'The knife he is cutting grass with (it).'
- b. **Nividiana=ny hena omaly*
 PST.CV.buy=3.GEN meat yesterday
 'She bought meat yesterday.'

(6) **Malagasy PTP obviates WCO effects**

- a. **Namangy ny mpianatra tsirairay_i omaly ny rai=ny_i*
 PST.AV.visit DET student each DET yesterday father=3.POSS
 'His_i father visited each student_i yesterday.'
- b. *Novangian' ny rai=ny_i omaly ny mpianatra tsirairay_i*
 PST.TV.visit DET father=3.POSS yesterday DET student each
 'Each student_i, his_i father visited yesterday.'

(7) **Malagasy PTP fixes an underlying Condition C violation²**

- a. **Nanamby ny zana-dRakoto_i ariary folo izy_i*
 PST.AV.hire DET child-Rakoto.GEN ariary ten 3.NOM
 'He_i hired Rakoto_i's child for ten ariary.'
- b. *Notambaza=ny_i ariary folo ny zana-dRakoto_i*
 PST.TV.hire=3.GEN ariary ten DET child-Rakoto.GEN
 'Rakoto_i's child, he_i hired for 10 ariary.'

4.2 A'-properties of Malagasy clausebound PTP

- Clausebound PTP also exhibits **properties typical of A'-movement**:

²PTP of a pronominal theme feeds **Condition C connectivity**; the pivot site must thus be at least **partly an A-position**, as the R-agent ceases to be A-free.

- (i) **Malagasy PTP feeds Condition C connectivity**
 - a. *Nanamby azy_i ny rain-dRakoto_i*
 PST.AV.hire 3.ACC DET father-Rakoto.GEN
 'Rakoto_i's father hired him_i'
 - b. **Notambazan' ny rain-dRakoto_i izy_i*
 PST.TV.hire DET father-Rakoto.GEN 3.NOM
 'Him_i, Rakoto_i's father hired.'

- (i) **Information-structural/discourse effects**, standardly posited in the left-periphery domain (van Urk 2015): pivots must be **formally definite DPs**, introduced by the determiner *ny*, and receive an interpretation of definiteness (Rajemisa-Raolison 1970; Keenan 1976), aboutness topicality (Pearson 2001; 2005), familiarity (Paul 2009) or determined reference (Sabbagh 2009; 2016).
- (ii) **Long-distance pivot movement** skipping clausal boundaries and intervening DPs.

(8) **Pivots must be formally definite**

- a. **Nametraka ny boky teo ambonin' ny latabatra vehivavy*
 PST.AV.put DET book PST.there on.top DET table woman
 Int.: 'A woman put the books on the table.' [Pearson 2005:388]
- b. **Mihira ankizy*
 AV.sing children
 Int.: 'Some children are singing.' or 'A child is singing.' [Paul 2000:9]

- PTP also allows **reconstruction for quantifier-variable binding**, but this need not be a counterargument to A-movement, given that A-chains are known to reconstruct for quantifier-variable relations that licensed lower in the argument structure (see Fox 1999):

(9) **Malagasy PTP preserves quantifier-variable binding relations**

- a. *Namangy ny rai=ny_i ny mpianatra tsirairay_i*
 PST.AV.visit DET father=3.POSS DET student each
 'Each student_i visited his_i father yesterday.'
- b. *Novangian' ny mpianatra tsirairay_i ny rai=ny_i*
 PST.TV.visit DET student each DET father=3.POSS
 'His_i father, each student_i visited yesterday.'

4.3 Clausebound PTP as A-movement to a mixed A/A'-position

- **Proposal**: under a featural view of the A/A'-distinction (Miyagawa 2010; 2017; Obata and Epstein 2011; van Urk 2015), Malagasy pivot DPs carry an **information-structure/discourse A'-feature** and undergo **A-movement** to a **case-assigning mixed A/A'-position**, attracted by a **composite A/A' probe** at the (low) **left periphery**.³
- A-probe = restricted to **elements of type [D] + case alternation**; A'-probe = **catch-all probe**, satisfied by any feature that could drive A'-movement (Rizzi 1997; Rizzi 2004; Abels 2012; van Urk 2015; Aravind 2017).
- The composite probe optimally matches with one and the same goal, but may **split** under conditions if needed (cf. Scott 2021).

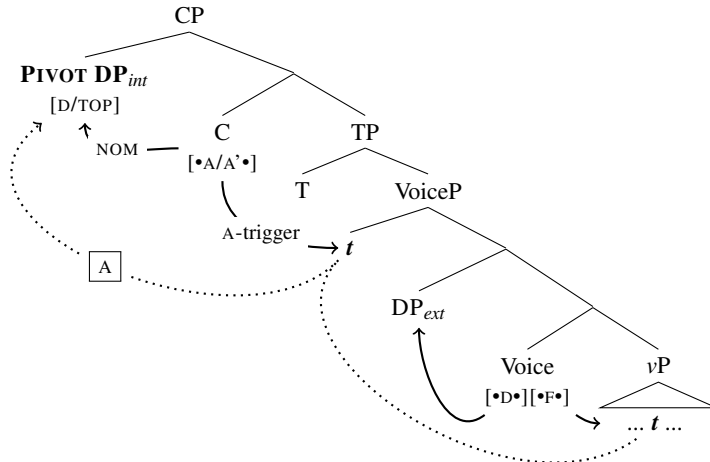
(10) **Multitasking**

At every step in a derivation, if a probe can trigger two operations A and B, and the features checked by A are a superset of those checked by B, the grammar prefers A.
 (van Urk and Richards 2015:132)

- **A-movement** feeds **variable binding** (Sauerland 1998; 2004; Ruys 2000), while the availability of **Case at the landing site** permits Wholesale Late Merge to **bleed Condition C** (Takahashi and Hulsey 2009).
- The **A'-component** of the composite probe manifests in (i) the **information-structural/discourse profile** of the pivot; (ii) its capacity of **long-distance movement**, crossing a finite clausal boundary and other intervening DPs.
- **Voice marking** spells-out "flavors" of (heads around) Voice, and involves, in **non-AV contexts**, an **intermediate rearrangement of argument structure**, which posits a pivot internal argument higher than the thematic agent (cf. Aldridge 2008; Brodtkin 2022).

³Disclaimer I: Malagasy's voice/pivot system has received a range of syntactic analyses to which I cannot do justice here (Keenan 1976; 1995; L. Travis 2001; 2006; Paul 2000; 2002; Pearson 2001; 2005; Koopman 2005; Paul and L. Travis 2006; Erlewine, Levin, and Urk 2017; 2019). The most prominent account comes by Pearson (2001, 2005), who advocates a high base-generation analysis of pivots, co-indexed with a moving null operator, and argues in favor of their A'-status, in parallel with SpecCP topics in V2 Germanic languages (cf. Richards 2000 for Tagalog). Voice marking reflects the (case-)position from which the null operator is extracted, in a generalized version of Chamorro-like *wh*-agreement (cf. Rackowski and Richards 2005 for Tagalog).

(11) Derivation of Malagasy Theme Voice (to be refined)



5 Long-distance promotion to pivot

5.1 Describing the facts of long-distance PTP

- Long-distance PTP occurs with three types of clausal complementation: (i) **verbs of saying/thinking/believing/hoping selecting for declarative CPs introduced by the complementizer *fa* and preferably right-extraposed**; (ii) subject control constructions; (iii) transitive or intransitive verbs of motion selecting for an irrealis purpose clause (Paul and Ranaivoson 1998).
- When these embedded CPs are the matrix pivot: **TV** for declarative and control complements, **CV** for purpose complements.

(12) PTP of declarative clausal complements triggers TV morphology on matrix predicate

- a. *Mihevitra Rabe* [*fa mandidy ny mofo amin' ny antsy ny vehivavy*]
 [AV].think-Rabe C AV.cut DET bread with DET knife DET woman
 'Rabe thinks that the woman is cutting the bread with the knife, Rabe thinks (it)'.
- b. *Heverin-dRabe* [*fa mandidy ny mofo amin' ny antsy ny vehivavy*]
 [TV].think-Rabe C AV.cut DET bread with DET knife DET woman
 lit.: 'That the woman is cutting the bread with the knife, Rabe thinks (it)'.

(Pearson 2005:431)

- A matrix pivot may be interpreted as argument of a declarative CP complement, with a gap in the embedded pivot site.
- This requires: i) the embedded CP to contain a gap in place of the pivot, with matching *voice* morphology on the verb; and ii) matrix *voice* to be conditioned by the entire embedded CP that contains the gap, as if the entire CP itself were the matrix pivot.

(13) Long-distance (sub)extraction of embedded pivot of declarative CP complement triggers TV on matrix verb

- a. *Heverin-dRabe* [*fa mandidy ny mofo amin' ny antsy e_i ny vehivavy_i*]
 [TV].think-Rabe.GEN C [AV].cut DET bread with DET knife EC DET woman
 'The woman, Rabe thinks (she) is cutting the bread with the knife.'
- b. *Heverin-dRabe* [*fa didian' ny vehivavy amin' ny antsy e_i ny mofo_i*]
 [TV].think-Rabe.GEN C [TV].cut DET woman with DET knife EC DET bread
 'The bread, Rabe thinks the woman is cutting (it) with the knife.'
- c. *Heverin-dRabe* [*fa andidian' ny vehivavy ny mofo e_i ny antsy_i*]
 [TV].think-Rabe.GEN C [CV].cut DET woman DET bread EC DET knife
 'The knife, Rabe thinks the woman is cutting the bread (with it).'

- The pivot extractee *is* a matrix constituent external to embedded CP: it follows the Q particle which must precede the matrix pivot.

(14) Derived pivot in long-distance dependencies follows the matrix question particle *ve* [Pearson 2005:436]

- a. *Heverin-dRabe* [*ve*] [*fa mandidy ny mofo amin' ny antsy ny vehivavy*]?
 [TV].think-Rabe Q that [AV].cut DET bread with DET knife DET woman
 'Does Rabe think that the woman is cutting the bread with the knife?'

- b. *Heverin-dRabe* [fa mandidy ny mofo amin'ny antsy e;_i] [ve] ny vehivavy;_i?
 [TV].think-Rabe.GEN C [AV].cut DET bread with.DET knife EC Q DET woman
 'The woman, does Rabe think (she) is cutting the bread with the knife?'

5.2 Long-distance promotion to pivot is overt movement

- Long-distance dependencies involve **overt movement** of the embedded pivot to the matrix clause: **reconstruction** of the derived matrix pivot into the embedded clause **for variable binding** is **possible, but island-sensitive**.⁴

(15) **Reconstruction of derived matrix pivot within the embedded CP for variable binding is possible but island-sensitive**

- a. *Nantenain-dRabe* [fa hovangian' ny mpianatra tsirairay_i] [ve] ny rainy;_i?
 PST.[TV].hope C FUT.[TV].visit DET student each Q DET father.3POSS
 'Did Rabe hope that every student will visit his father?'
- b. *Nalahelovan-dRabe_j* [satria tsy novangian' ny mpianatra tsirairay_i] [ve] ny rai=ny_{*i/j}?
 PST.[TV].sad-Rabe.GEN because NEG PST.[TV].visit DET student each Q DET father=3.POSS
 'His father, was Rabe sad because each student did not visit?'

5.3 Long-distance promotion to pivot is A'-movement

- Recall: clausebound PTP involves A-movement to a mixed A/A'-position.
- In contrast, **long-distance PTP features a fully A'-profile**: once a CP boundary is crossed, it **induces WCO** and **obligatorily reconstructs for Condition C** relative to arguments in the embedding clause.

(16) **Long-distance pivot movement triggers WCO in matrix clause**

- a. **Manantena ny rai=ny_i* [fa handalo Ambositra rahampitso ny mpianatra tsirairay_i]
 [AV].hope DET father=3.POSS C FUT.AV.visit Ambositra tomorrow DET student each
 'His father_i hopes that each student_i will visit Ambositra tomorrow'
- b. **Nantenain' ny rai=ny_i* [fa handalo Ambositra rahampitso t_i] [ve] ny mpianatra tsirairay_i?
 [TV].hope DET father=3.POSS C FUT.[AV].hope Ambositra tomorrow EC Q DET student each
 'Did his_i father hope that each student_i will visit Ambositra tomorrow?'

(17) **Long-distance pivot movement obligatorily reconstructs to embedded clause for Condition C**

- a. **Mihevitra azy_i* [fa tonga ny rain-dRakoto_i omaly]
 [AV].think 3.NOM C PST.arrive DET father-Rakoto.GEN yesterday
 'He_i thinks that Rakoto_i's father arrived yesterday.'
- b. **Heveri=ny_i* [fa tonga t_i omaly] [ve] ny rain-dRakoto_i?
 [TV].think=3.GEN C PST.arrive EC yesterday Q DET father-Rakoto.GEN
 'Rakoto_i's father, does he_i think that (he) arrived yesterday?'

- Indirect evidence for overt cross-clausal movement: given the A-properties of clausebound pivot movement, if the thematic embedded pivot was base-generated at and only moved within the matrix clause, it should obviate WCO and Condition C there too.

6 A (not so trivial) digression to Dinka

6.1 Language background: V2, voice and successive-cyclicity

- Nilotic language of South Sudan** with 3 million speakers; focus on Dinka Nyarweng, part of southeastern Bor dialect group.
- Dinka exhibits a **Germanic-style V2 structure** in both matrix and embedded finite clauses (Andersen 1991; 2002).

⁴Pearson (2001, 2005) extends his high base-generation account to long-distance PTP, but doesn't test movement diagnostics. For him, the matrix pivot is base-generated into the matrix pivot position, and is co-indexed with a moving null operator that becomes the pivot inside the embedded clause. The assumed need of the null operator to be clause-bound but also sufficiently local to the overt pivot with which it is co-indexed, triggers pied-piping of the embedded clause to matrix SpecWhP (i.e., the landing site of the null operator in simple clauses), where it is now close enough to the overt DP pivot in (the immediately dominating) matrix SpecTopP (in a manner similar to Basque or Imbabura Quechua. Davies 2005 treats similar constructions in Indonesian Madurese as prolepsis).

- **Austronesian-style voice**, where *voice* morphology spells-out C: Malagasy-style **three-way voice distinction**, reflecting the grammatical function of the pivot DP in SpecCP: (i) **Subject Voice** [SV]; (ii) **Object Voice** [OV]; (iii) **Oblique Voice** [OBLV].

(18) **Dinka Austronesian-style voice system**

- Áyén à-càm** *cu̯in̩ n̩ p̩al*
Ayen 3S-eat.SV food P knife
 'Ayen is eating food with a knife.'
- Cu̯in̩ à-c̩ém** *Áyèn n̩ p̩al*
food 3S-eat.OV Ayen.GEN P knife
 'Food, Ayen is eating with a knife.'
- P̩al à-c̩ém̩** *Áyèn cu̯in̩*
knife 3S-eat.OBLV Ayen food
 'With a knife, Ayen is eating food.'

(van Urk 2015:61)

- **V2 effect on vP** too: one (and only one) object DP *must* immediately precede the verb cluster (if not the highest verb or auxiliary).
- The external argument is invisible to the V2 requirement; it EPP-moves by default to SpecTP, and further to SpecCP under AV; if at SpecTP = genitive-marked, if at SpecCP = absolutive/unmarked (van Urk 2015: 86-92).

(19) **Position before verb cluster must be occupied**

- Y̩én c̩é** [m̩ir t̩ng]
I PRF. [SV] giraffe see.NF
 'I saw a giraffe.'
- ***Y̩én c̩é** [___ t̩ng m̩ir]
I PRF. [SV] ___ see.NF giraffe
 'I saw a giraffe.'

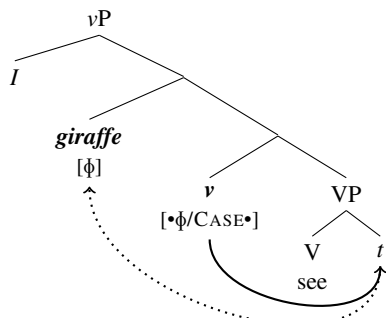
(van Urk and Richards 2015:122)

(20) **One object is preverbal and one object is postverbal with ditransitives**

- Y̩én c̩é** [Ayén y̩èn k̩itáp] / * [___ y̩èn Ayén k̩itáp]
I PRF. [SV] Ayen give book / ___ give book Ayen
 'I gave Ayen a book.'
- Y̩én c̩é** [k̩itáp y̩èn Ayén] / [___ y̩èn k̩itáp Ayén]
I PRF. [SV] book give Ayen / ___ give book Ayen
 'I gave a book to Ayen.'⁵

(van Urk and Richards 2015:122)

(21) **v agrees in [ϕ / Case] with (highest) object and attracts it to SpecvP for V2 satisfaction**



- Clausebound object extraction, whether promotion to pivot or *wh*-movement, requires empty SpecvP.
- Similarly, cross-clausal object extraction blocks (overt) occupation of SpecCP and affects all intermediate SpecvPs and SpecCPs.
- "[I]n addition to being EPP positions, Spec,CP and Spec,vP are on the edge of a locality domain (e.g., a phase), so that extraction must proceed through them. [...] Spec,CP and Spec,vP in Dinka are always occupied. Apparent exceptions only appear because the XP that fulfils this function may subsequently undergo movement." (van Urk and Richards 2015:126-127)

⁵van Urk 2015:150-154 argues, based on binding and resumption, that the optionality of which object satisfies *v*'s V2 is only apparent, and A-Minimality is not violated. The two orders rather reflect two distinct base-structures: one where the goal merges in the Spec of an applicative phrase, c-commanding the theme, and so being closer to *v*'s [ϕ]-probe, and one where the goal is introduced in a covert PP structure, c-commanded by the theme, which now qualifies as closer to *v*'s [ϕ]-probe.

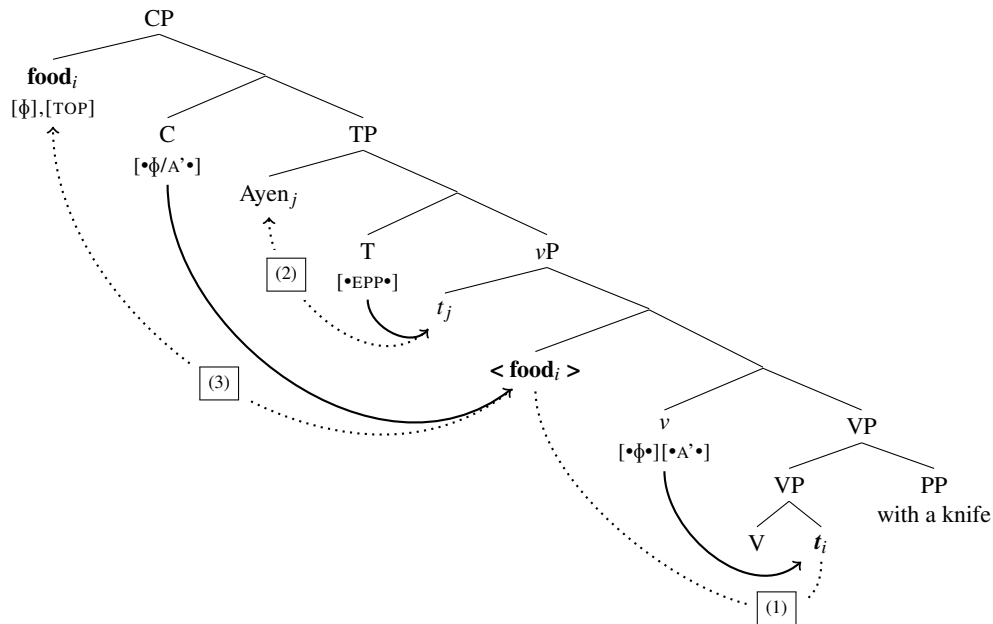
(22) Object pivot extraction requires empty Spec_vP

- a. *Cuïn à-cíi Áyèn [___ cáam nè pǎal]*
food 3S-PRF. [OV] Ayen.GEN ___ eat.NF P knife
 'Food, Ayen is eating with a knife.'
- b. *Ákól à-cùukù [___ jǎany Dèng]*
sun 3S-PRF. 1PL ___ warn.NF Deng
 'The sun, we have warned Deng about.'

(van Urk 2015:162-163)

- van Urk 2015; van Urk and Richards 2015: *v* is endowed with a composite EPP probe: one flat A'-probe which drives intermediate movement, and one ϕ -probe, associated with case assignment to DP objects and satisfaction of V2.
- These two probes on *v* optimally match with the same DP, but split if the (pivot or [wh]) A'-feature is on an adjunct or PP argument.

(23) Derivation of Object Voice clause with theme pivot



- Extracted plural DPs obligatorily strand a plural morpheme *ké* at the edge of every *v*P they pass through (van Urk 2018).⁶

(24) Extraction of plural XPs strands plural morpheme in every (intermediate) Spec_vP

- a. *Yè kôoc-kò yíi Bòl [(*ké) luêeel [è cíi Áyèn [(*ké) tîñ]]]?*
 be people-which HAB.OV Bol.GEN PL say.NF C PRF.OV Ayen.GEN PL see.NF
 'Which people does Bol say Ayen has seen?'
- b. *Wôok yíi Bòl [(*ké) luêeel [è ___ é-kè-lét Áyèn [(*ké)]]]*
 we HAB.OV Bol.GEN PL say.NF C ___ PST-PL-insult.OV Ayen.GEN PL
 'Us, Bol says Ayen was insulting.'

(van Urk 2015:214)

(van Urk 2015:135)

- Adjuncts and PP arguments cannot satisfy V2 requirement on *v*P, but can still strand a *ké* morpheme at the edge of *v*P if extracted.

(25) Adjuncts and PP arguments cannot occupy Spec_vP to satisfy the V2 requirement

- a. **Wôok cé [dòm-íc kêt]*
 we PRF garden-in sing
 'We sang in the garden.'

⁶van Urk 2018 analyzes *ké* as an elsewhere plural morpheme that spells-out the intermediate copy at the *v*P phase edge under partial copy deletion. As the spell-out of a movement copy, *ké*-copying is shown to be island sensitive and allow reconstruction for anaphor binding (2018:951-953).

- b. **Bòl à-cé* [*wuut*] *tuòɔc Dèng*
 Bol 3SG.PRF.SV cattle.camp.LOC send Deng
 'Bol sent Deng to the cattle camp.'

(van Urk and Richards 2015:129)

(26) **Adjunct/PP extraction does not block V2 object movement**

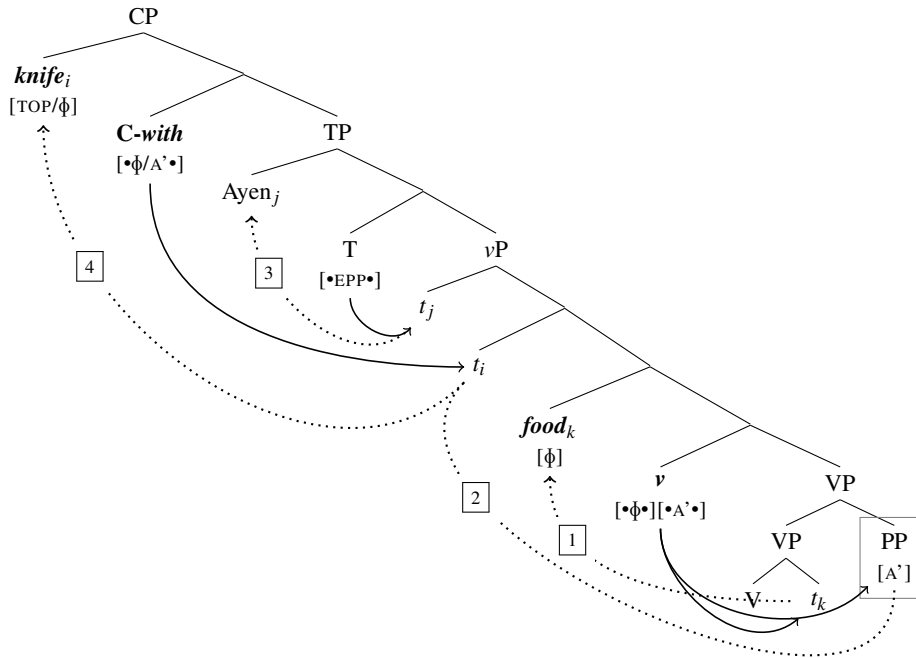
- a. *Pǎal à-cénè* *Áyèn* [*cuïin câam*]
 knife 3S-PRF.OBLV Ayen.GEN food eat.NF
 'With a knife, Ayen has eaten food.'

(van Urk 2015:169)

- b. *Yétenô cénne* *Bòl* [*Dèng tuòɔc*?]
 where PRF.OBLV Bol.GEN Deng send.NF
 'Where did Bol send Deng?'

(van Urk and Richards 2015:139)

(27) **Derivation of Oblique Voice clause with instrumental pivot**



(28) **Plural adjunct/PP extraction still triggers ké-copying at the edge of vP:**

- a. *Yè tóony kê* *dú cî* *Bòl* [*ké cuïin tháal*?]
 be pots QUANT.PL how PRF.OV Bol.GEN PL food cook.NF
 'How many pots has Bol cooked food with?'

(van Urk 2015:169)

- b. *Wòɔk bínnè* [*ké Yécù*] *dhièt*
 we FUT.OBLV PL Jesus be.born
 'For us, Jesus will be born.'

(van Urk and Richards 2015:130)

6.2 Dinka clausebound promotion to pivot is A-movement to a case-assigning A/A' position

- Clausebound pivot movement to SpecCP exhibits **core properties of A-movement, like Malagasy** (see Appendix 11.1):

- (i) Restricted to DPs
- (ii) Feeds unmarked case
- (iii) Triggers phi-agreement on C
- (iv) Feeds variable binding
- (v) Feeds anaphor binding
- (vi) Bleeds Condition C

- Movement to SpecCP exhibits the **same A'-properties as Malagasy**: (i) information-structure effects; (ii) long-distance.
- "Movement to Spec-CP is long-distance, island-sensitive, and allows reconstruction. [...] [L]ike ordinary A'-movement, [it] ha[s] familiar information-structural consequences and may skip intervening noun phrases and clause boundaries. (van Urk 2015:95)

(29) Promotion to pivot to SpecCP can be long-distance

a. *Cuñin* à-yàa [___ *tàak* [*kè* ___ *cém* *Áyèn* [___]]]
food 3S-HAB.1SG ___ think.NF C ___ eat.OV *Ayèn*
 'The food, I think Ayen is eating.' (van Urk 2015:95)

b. *Kock-kè* áa-cñi *Bòl* [*ké* ___ *yòok* [*kè* ___ *nhiàr* ___ [*Áyèn*]]]
people-these 3P-PRF.OV *Bol*.GEN 3PL ___ find.out.NF C ___ love.SV ___ *Ayèn*
 'These people, Bol has found out love Ayen.' (van Urk 2015:134)

(30) Promotion to pivot to SpecCP is island-sensitive

a. **Tòony* à-cñi *Ádit* *jàal* [*wuñ cñi* *Máyèn* ___ *kuèem*]
pot 3S-PRF.OV *Adit*.GEN *leave*.NF when PRF.OV *Mayen*.GEN ___ *break*.NF
 Int.: '(lit.) The pot, Adit left because Mayen broke (it).'

b. **Tòony* à-cñi *Áyèn* [*ràan* [*mèr* ___]] *tñing*
pot 3S-PRF.OV *Ayèn*.GEN *person*.CS *decorate*.SV ___ *see*.NF
 Int.: '(lit.) A pot, Ayen has seen someone who is decorating.' (van Urk 2015:99)

(31) Promotion to pivot to SpecCP can reconstruct (for Condition A)

a. *Ròt-dé*_i à-yùukù [___ *tàak* [*è* ___ *cè*_i [___ *nhiàar*]]]
self-SG.3SG 3S-HAB.1PL ___ think.NF C ___ PRF.3SG ___ love.NF
 'Herself/himself_i, we say that she/he_i has loved.'

b. *Thùrà*_i *è* *ròth-kén*_i áa-yá [*ké* ___ *luèeel* [*è* ___ *cñi* *kòc*_i [*ké* *tñing*]]]
 pictures P **self.PL-PL.3PL** 3P-HAB.2SG 3PL ___ say.NF C ___ PRF.OV **people**.GEN 3PL *see*.NF
 'Pictures of themselves_i, you think that the people_i have seen.' (van Urk 2015:101)

6.3 WHERE Malagasy and Dinka differ: Dinka long-distance pivot movement is still A-movement

- And this is where the parallelism between Malagasy and Dinka breaks down!
- While Malagasy long-distance pivot movement suddenly exhibits only core A'-properties (i.e., it induces WCO effects and obligatorily reconstructs for Condition C), **Dinka long-distance pivot movement retains its core A-properties**:
 - Still feeds anaphor and variable binding obviating WCO effects
 - Still bleeds Condition C by not obligatorily reconstructing
 - Still feeds ϕ -agreement on matrix C

(32) No WCO with long-distance promotion to pivot to SpecCP (van Urk 2015:110)

a. *Mòc* *ében*_i à-yñi *tiéeng-dè*_i *luèeel* [*è* ___ *thèt*]
man every 3S-HAB.OV *woman-SG.3SG* say.NF C ___ cook.SV
 'Every man_i, his_i wife says is cooking.'

(33) Long-distance promotion to pivot feeds anaphor binding (van Urk 2015:111)

a. *Bòl*_i [*à-cñi* *thùrà* *è* *ròt-dè*_i] *nyoòth* [*kè* *cùukù* ___ *tñing*]
Bol 3S-PRF.OV *picture* P **self-SG.3SG** show.NF C PRF.1PL ___ see.NF
 'Bol_i, a picture of himself_i has shown that we have EC seen.'

(34) Long-distance promotion to pivot bleeds Condition C (van Urk 2015:114)

a. [*Mánh* *è* *Máyèn* *kù* *Áyèn*_i] à-yùukù *tàak* [*cùikè*_i ___ *tñing*]
 brother P **Mayen**.GEN and **Ayèn** 3S-HAB.1PL think.NF PRF.3PL ___ see.NF
 'The brother of Mayen and Ayen_i, we think they_i have seen.'

- Well..... WHY?

7 Phase Unlocking

7.1 Phase heads as defective interveners: the Tagalog case

- **Phase Unlocking** (Rackowski and Richards 2005): phases can be made transparent for subextraction if they enter into an independent agreement relation with the head that attracts the extracted element.
- **All phases are potential goals and intervene for Agree** due to dominating the feature(s) searched by the probe (Abels 2003).
- Based on the definition of *closest* in (35), only the phase itself and the phase edge are accessible for Agree and Internal Merge:

(35) A goal α is the **closest** one to a given probe if there is no **distinct goal** β such that for some (distinct) X (X a head or maximal projection), X **c-commands or dominates** α but does not **c-command or dominate** β .
(Ershova 2024:21; adapted from Rackowski and Richards 2005:579)

- **Prior Agree with the (containing) phase can void its phasehood**, allowing a probe to attract an element from within its domain (Rackowski and Richards 2005; Branan 2018; Halpert 2019; Ershova 2024), possibly with no successive-cyclic movement needed (cf. van Urk and Richards 2015; Branan and Davis 2019; Hedding and Yuan to appear).
- In Tagalog, for extraction out of CP objects, matrix v must agree in *voice* with the embedded CP rather than the subextracted pivot.

(36) Tagalog cross-clausal pivot extraction requires matrix v to agree with the CP object

- a. *ang kalabaw_i* [*na s<in>abi ng guro [na bi-bigy-**an** ng lalaki ng bulaklak e_i]*]
PIV water.buffalo C say<PFV.<TV>say GEN teacher C IRR-give-**LV** GEN man GEN flower
'the water buffalo that the teacher said that the man would give a flower to'
- b. *ang kalabaw_i* [*na i-p-inangako ng guro [na bi-bigy-**an** ng lalaki ng bulaklak e_i]*]
PIV water.buffalo C **DV**-ASP-promise GEN teacher C IRR-give-**LV** GEN man GEN flower
'the water buffalo that the teacher promised that the man would give a flower to'
- c. *ang kalabaw_i* [*na p<an>aniwala-**an** ng guro [na bi-bigy-**an** ng lalaki ng bulaklak e_i]*]
PIV water.buffalo C **DV**-ASP-believe GEN teacher C IRR-give-**LV** GEN man GEN flower
'the water buffalo that the teacher believed that the man would give a flower to' (Rackowski & Richards 2005:586-587)

7.2 Phase Unlocking in Dinka happens by matrix v

- van Urk and Richards 2015 for Dinka: **Phase Unlocking at matrix v probing cycle**: CP object is agreed with and attracted to the edge of matrix v , which then additionally extracts the embedded pivot to a higher Spec v P, making it accessible to C's probe.
- **How to know that the embedded CP complement moves to the edge of v P?** Evidence from **V2 requirement**: when a transitive verb takes a CP complement, SpecCP *can* and Spec v P *must* be empty.
- CP objects check Case at Spec v P and may move to SpecCP to become pivots, like DPs, but obligatorily extrapose sentence-finally.

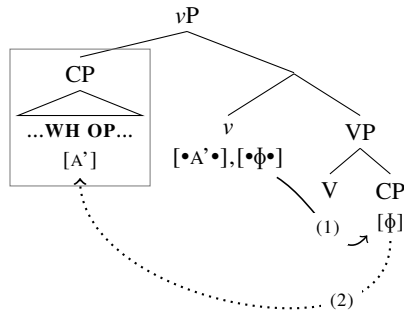
(37) Spec v P can be empty if there is a CP complement

- a. *Bòl à-cé* [*Dèng* *lék* [*Ayé n à-cé kítáp yòòc*]]
Bol 3SG-PRF.SV Deng tell Ayen 3SG-PRF book buy.NF
'Bol told Deng [that Ayen bought a book].'
- b. *Bòl à-cé* [*lék Dèng* [*Ayé n à-cé kítáp yòòc*]]
Bol 3SG-PRF.SV ___ tell Deng Ayen 3SG-PRF book buy.NF
'Bol told Deng [that Ayen bought a book].'
(van Urk and Richards 2015:137)

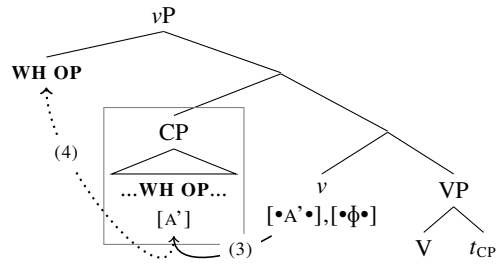
(38) Matrix Spec v P must be empty in long-distance dependency

- a. *Yengà cîi* *Yâar* [*lék Dèng*, [*yè ___ cîi Bòl* [*tuòòc wúút*]]]?
who PRF.<OV> Yaar.GEN ___ tell.NF Deng C ___ PRF.<OV> Bol.GEN ___ send.NF cattle.camp.LOC
'Who did Yaar tell Deng that Bol sent to the cattle camp?'
- b. **Yengà cîi* *Yâar* [*Dèng* *lék*, [*yè ___ cîi Bòl* [*tuòòc wúút*]]]?
who PRF.<OV> Yaar.GEN Deng tell.NF C ___ PRF.<OV> Bol.GEN ___ send.NF cattle.camp.LOC
'Who did Yaar tell Deng that Bol sent to the cattle camp?'
(van Urk and Richards 2015:137-138)

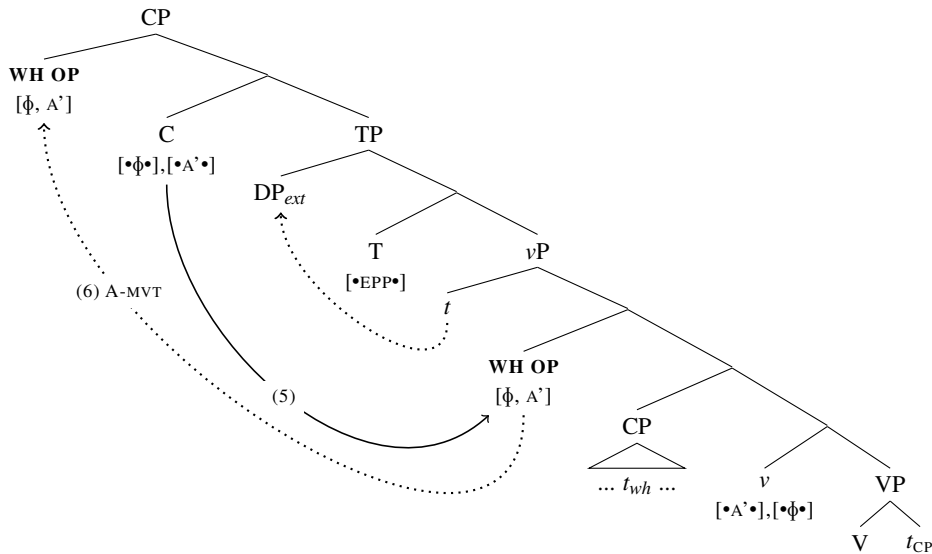
(39) a. *v* agrees for [ϕ] and attracts CP for V2



b. *v* agrees for [A'] and attracts CP-embedded pivot



c. Matrix pivot probe agrees and attracts subextracted embedded pivot from *v*'s edge



- **How to know that the embedded pivot subextracts to matrix clause already at SpecvP?** Evidence from *ke*-copying: with adjunct/PP long-distance extraction out of CP, the edge of matrix *vP* can only contain the *ké* copy and no other DP for V2 purposes.
- Adjuncts/PPs cannot satisfy *v*'s V2, and yet the edge of *vP* remains empty: both the CP object *and* the subextracted adjunct/PP fill a separate SpecvP: V2's apparent gap is filled by the extraposed CP, and *ké* spells-out the intermediate copy of the adjunct/PP.⁷

(40) PP-extraction out of CP requires higher SpecvPs to be empty

- a. *Yétenô cîi* *Yâar* [*lêk* *Dèng*], [*yè cîi* *Bôl* [*Ayén* *tuðoc*]]?
where PRF. OV Yaar.GEN tell Deng C PRF. OV Bol.GEN Ayen send
 'Where did Yaar tell Deng [that Bol sent Ayen *t*]?'
- b. **Yétenô cîi* *Yâar* [*Dèng* *lêk* [*yè cîi* *Bôl* [*Ayén* *tuðoc*]]]?
where PRF. OV Yaar.GEN Deng tell C PRF. OV Bol.GEN Ayen send
 'Where did Yaar tell Deng [that Bol sent Ayen *t*]?'

(van Urk & Richards 2015: 139)

⁷If the two effects are combined, i.e., a ditransitive verb and a plural adjunct extracted from the CP direct object, the outcome is just as expected: (i) the V2 position is obligatorily empty, with the DP indirect object disallowed to occur there; and (ii) the edge of *vP* is marked by the plural morpheme *ké* spelling out the intermediate copy of the moving adjunct, which cannot be what satisfies V2. Thus, the subextracted-from CP satisfies *v*'s V2 and the subextractee occupies a distinct SpecvP.

- (i) a. *Yè* *yâan-kò* [*cá* [*ké* /(**Dèng*) *luðok* *Dèng*] [*è cîi* *Bôl* [*ké* *Ayén* *tuðoc*]]]?
 be.3SG places-which 2SG.PRF. OV **PL** persuade.NF Deng C PRF. OV Bol.GEN **PL** Ayen send.NF
 'Which places did you persuade Deng that Bol has sent Ayen to?'
- b. *Yè* *tòny ké* *dîi* [*cá* [*ké* /(**Dèng*) *lêk* *Dèng*] [*è cîi* *Bôl* [*ké* *cuîn* *tháal*]]]?
 be.3SG pots many how 2SG.PRF. OV **3PL** tell.NF Deng C PRF. OV Bol.GEN **PL** food cook.NF
 'How many pots did you tell Deng that Bol has cooked food with?'

(van Urk p.c.)

(41) Long-distance extraction of plural adjunct out of CP requires both empty matrix SpecvP and ke-copying at the edge

- a. *Yè* **yaan-kò** *yá* [*ké* ___ *luêeel* [*è cîi* ___ *Bôl* [*ké* *Àyén* *tuòɔc*]]?
 be.3SG **places-which** be.2SG PL ___ say.NF C PRF. OV Bol.GEN PL Ayen send.NF
 ‘Which places do you say that Bol has sent Ayen to?’
- b. *Yè* **tóony ké dū** *yá* [*ké* ___ *luêeel* [*è cîi* ___ *Bôl* [*ké* *cuïin* *tháal*]]?
 be.3SG **pots many how** be.2SG PL ___ say.NF C PRF. OV Bol.GEN PL food cook.NF
 ‘How many pots do you say that Bol has cooked food with?’

(van Urk 2018: 949)

- **BUT this cannot be true for Malagasy:** below I demonstrate that, **under Phase Unlocking for long-distance pivot movement, CP complements do move, like DPs, to the high matrix pivot site**, before their pivot is subextracted.

8 HOW Malagasy and Dinka differ: Malagasy covert CP A-movement

- Embedded CPs tend to extrapose to the right regardless of *voice*-marking (Keenan 1976; Law 2007; Potsdam and Polinsky 2007).⁸

(42) Clausal objects under AV tend to extrapose to the right

- a. *Manantena* [#*fa hividy fiara aho*] **Rabe** (*fa hividy fiara aho*)
 PRS. AV.hope C FUT.AV.buy car 1SG.NOM Rabe C FUT.AV.buy car 1SG.NOM
 ‘Rabe hopes that I will buy a car.’
- b. *Handeha* [#*rehefa tafaverina ny rai=ko*] **Rabe** (*rehefa tafaverina ny rai=ko*)
 FUT. AV.go when AV.return DET father=1SG.GEN Rabe when AV.return DET father=1SG.GEN
 ‘Rabe will leave when my father returns.’

- Ergo, the exact structural position of CPs embedded under matrix TV is not surface-apparent, whether they become pivots themselves or allow subextraction of their own pivot to the matrix clause. Yet, I will argue that **CP complements do move higher in both cases** based on: (i) **NPI (non-)licensing**; (ii) **exceptional cross-clausal inverse quantifier scope**.

8.1 NPI licensing

- NPIs in Malagasy must be, at every point of the derivation, within the scope of a negative operator (Paul 2005; Potsdam 2022).

(43) NPIs must be c-commanded by a negative operator on surface

- a. *Tsy nandroso vary tamin’* n’iza-n’iza **aho**
 NEG AV.serve rice PST.P anyone 1SG.NOM
 ‘I didn’t serve rice to anyone.’
- b. **Tsy nanongo an’ i Koto* n’iza-n’iza
 NEG PST. AV.pinch ACC PN Koto anyone
 ‘No one pinched Koto.’
- c. **Tsy novidi=ko tany an-tsena* n’inona
 NEG PST. TV.buy=1SG.GEN LOC OBL-market anything
 ‘Anything wasn’t bought by me at the market.’

- An NPI contained within a non-pivot embedded CP is acceptable. Once the CP becomes the pivot, the same NPI cannot be licensed.

(44) Promotion to pivot of embedded CP bleeds NPI licensing

- a. *Tsy mihevitra intsony* **aho** [*fa nandroso vary tamin’* n’iza-n’iza *Rabe*]
 NEG AV.think anymore 1SG.NOM C PST.AV.serve rice PST.P anyone Rabe
 ‘I don’t think anymore that Rabe served rice to anyone.’

⁸Disclaimer II: Most of the cited literature claims that extraposition of declarative or adjunct CP objects under AV is obligatory. My consultant, however, unproblematically accepts sentences with no extraposition, where the CP appears between the matrix predicate and the external argument pivot. This difference might be subsumed to a number of instances of variation attested in younger, especially bilingual, Malagasy speakers (Ileana Paul & Lisa Travis, p.c.).

- b. **Tsy heveri=ko intsony [fa nandroso vary tamin' n'iza-n'iza Rabe]*
 NEG TV.think=1SG.GEN anymore C PST.AV.serve rice PST.P anyone Rabe
 'That Rabe served rice to anyone, I don't think anymore.'

- Crucially, subextraction of the embedded pivot to the matrix clause produces an equally ungrammatical result.

(45) Long-distance pivot movement bleeds NPI licensing

- a. *Tsy mihevitra intsony aho [fa nividy n'inona-n'inona tany an-tsena Rabe]*
 NEG AV.believe anymore 1SG.NOM C PST.AV.buy anything LOC OBL-market Rabe
 'I don't believe anymore that Rabe bought anything at the market.'
- b. **Tsy heveri=ko intsony Rabe_i [fa nividy n'inona-n'inona tany an-tsena t_i]*
 NEG TV.believe=1SG.GEN anymore Rabe C PST.AV.buy anything LOC OBL-market
 'Rabe, that he bought anything at the market, I don't believe anymore.'

- Since PTP of the embedded CP or of the CP's own pivot to the matrix clause bleeds NPI licensing, I suggest that in both cases the complement clause raises to the left periphery pivot site, above negation, which is merged above Voice (and plausibly above T).

8.2 Exceptional cross-clausal inverse scope

- What we already knew: An in-situ object under AV can outscope a clausebound agent pivot, generating an inverse scope reading.
- What we find out: a QP embedded in a complement CP cannot outscope a matrix QP; i.e., CPs constitute scope islands.

(46) QP in embedded CP may outscope matrix QP if the CP becomes the matrix pivot

- a. *Namaky ny boky roa ny mpianatra tsirairay*
 PST.AV.read DET book two DET student each
 'Each student read two books.'
 (each > 2, 2 > each) (Paul and L. Travis 2006:323)
- b. *Nilaza ny mpampianatra tsirairay [fa namaky ny boky roa farafahakeliny ny mpianatra]*
 PST.AV.say DET teacher each C PST.AV.read DET book two at.least DET student
 'Each teacher said that the students read at least two books.'
 (each > 2, ??2 > each)

- Under long-distance pivot movement, a QP that originates in the embedded CP may outscope a matrix QP, whether it is the overtly extracted pivot or remains in the CP on surface; i.e., Phase Unlocking undoes the clause-boundedness of QR (cf. Cecchetto 2004).

(47) QP in embedded CP may outscope matrix QP if the embedded pivot raises to matrix pivot position

- a. *Nolazain' ny mpampianatra tsirairay [fa vakin' ny mpianatra t_i] [ve ny boky roa farafahakeliny]_i?*
 PST.TV.say DET teacher each C PST.TV.read DET student EC Q DET book two at.least
 'Did each teacher say that the students read at least two books?'
 (each > 2, 2 > each)
- b. *Nolazain' ny mpampianatra tsirairay [fa namaky ny boky roa farafahakeliny t_i] [ve ny mpianatra]_i?*
 PST.TV.say DET teacher each C PST.AV.read DET book two at.least EC Q DET students
 'Did each teacher say that the students read at least two books?'
 (each > 2, 2 > each)
- c. *Nolazain' ny mpampianatra roa farafahakeliny [fa vakin' ny mpianatra t_i] [ve ny boky tsirairay]_i?*
 PST.TV.say DET teacher two at.least C PST.TV.read DET student EC Q DET book each
 'Did at least two teachers say that the students read every book?'
 (2 > every, every > 2)
- d. *Nolazain' ny mpampianatra roa farafahakeliny [fa namaky ny boky tsirairay t_i] [ve ny mpianatra]_i?*
 PST.TV.say DET teacher two at.least C PST.AV.read DET book each EC Q DET students
 'Did at least two teachers say that the students read every book?'
 (2 > every, every > 2)

- Apparently, **once a CP is unlocked for overt extraction and has its phasehood voided, it also ceases being a scope island** and enables QR of a surface-embedded QP, in compliance with *Scope Economy* and *Shortest Move* (Fox 2000:23)
- This further suggests that the CP must be filling a higher position via A-movement; otherwise it should exhibit scope freezing effects, typically associated with operator A'-movement (Lasnik and Uriagereka 1988; Epstein 1992).
- For questions, doubts or caveats on the exact locus of negation and the behavior of cross-clausal inverse scope, see Appendix 11.2.

9 WHY do Malagasy and Dinka differ

- **Malagasy Phase Unlocking of the CP must be happening not by matrix *v*, as in Dinka, but higher, by matrix C.**
- Three parameters: (i) the effect of Voice's operation ordering on argument structure; (ii) the derivation of the verbal complex and VO order via head V-movement or roll-up VP-movement; (iii) sensitivity of composite probes to defective A-intervention.

9.1 Intervention effects and splitting

- **Dinka's probe on C is not sensitive to partial A-intervention:** the subject always moves to SpecTP, regardless of *voice* and transitivity (van Urk 2015:86-92), and still an object or oblique/adjunct SpecvP are accessible under OV and OBLV, respectively.
- **Malagasy's probe on C is sensitive to partial A-intervention,** suggested by possessor raising (L. Travis 2001) and adjunct fronting (Keenan 1976; Paul 2000; Law 2007): once the probe encounters *any* DP-like element, it halts and splits; the domain for its A'-part is then restricted either internally to the intervener or to structure dominating the intervener (cf. Branan 2022).

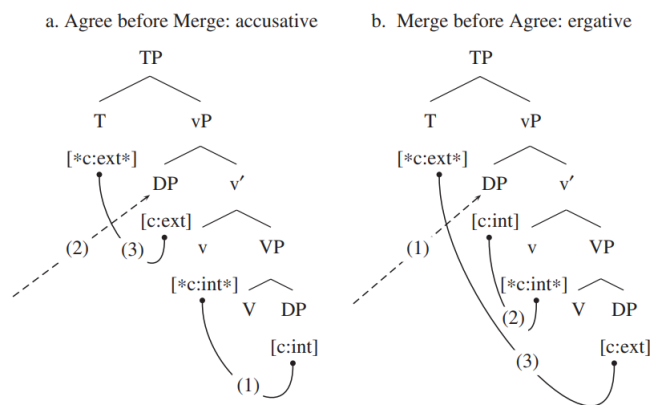
9.2 Operation ordering, alignment and subjecthood

9.2.1 Accusativity, ergativity and the order of Merge-Agree

- Müller 2009: ergative vs. accusative alignment is contingent on the timing and order of Agree and Merge on *v*/VoiceP level.⁹
- *v*/Voice bears a *c*-selectional [**•D•**] feature that is checked by introduction of the external argument (Kratzer 1996), and a case probe for "dependent" case [***c:int***] that agrees with some DP for case (notation per Heck and Mueller 2007; Mueller 2010).
- If Agree precedes Merge, an accusative pattern arises; if Merge precedes Agree, an ergative pattern emerges.

(48) **Conflicting earliness requirements for Agree and Merge at the *v*P cycle**

(Assmann et al. 2015: 356-357)



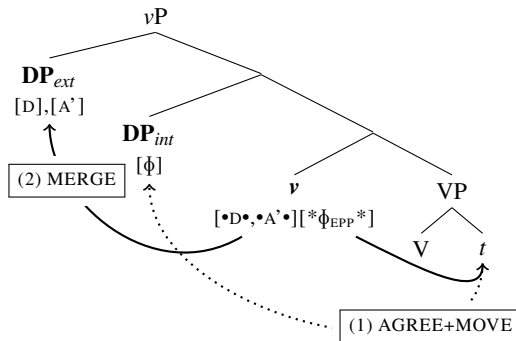
- Following Ershova 2019; 2023 and Bobaljik 2024: **the grammatical function of (surface) subject is assigned to the highest DP argument within the Voice domain**, whether base-generated or derived (as in unaccusatives and passives).
- **CPs in Dinka and Malagasy are nominalized**, either directly with a **determiner-like complementizer** (as in Malagasy control complements; Randriamasimanana 1986; 2007; Ntelitheos 2012; 2013; Potsdam and Polinsky 2015), or indirectly with a **(covert) DP-shell** above CP that allows them to merge with DP-selecting verbs (Ntelitheos 2006:ch.4 and Pearson 2018:838-837 for Malagasy; van Urk 2015:157-161 for Dinka; cf. Hartman 2012). Hence, they pattern like regular DPs for pivothood and case.

⁹Disclaimer III: the term 'alignment' is used throughout in the most neutral way possible: not to refer to encoding of (m-)case, but to the layered structure of the argument domain, as delineated by VoiceP and as derived by the order of operations Merge and Agree per Müller 2009.

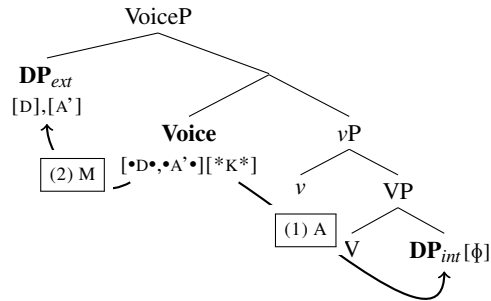
9.2.2 Argument structure and the order of specifiers

- While **Dinka** shows a **NOM-ACC pattern** in its treatment of arguments wrt. case, ϕ -agreement and structural position (Andersen 1991; van Urk 2015: 72-92), **Malagasy** shows a **split-ERG-like pattern** (Paul and L. Travis 2006; Pearson 2012).
- The **Dinka pivot functions as the clausal topic**, but is dissociated from subjecthood; the **Malagasy pivot is the surface subject**, along its topic interpretation (Lohninger and Katochoritis to appear), forming a **non-canonical passive** (Legate 2014; 2021).
- Dinka and Malagasy AV = NOM-ACC alignment: v /Voice first agrees with the internal argument assigning it accusative, and then externally merge the agent in (an outermost) Spec v P/VoiceP, where it can become the subject and be targeted by C's pivot probe.

(49) a. Dinka AV: AGREE > MERGE

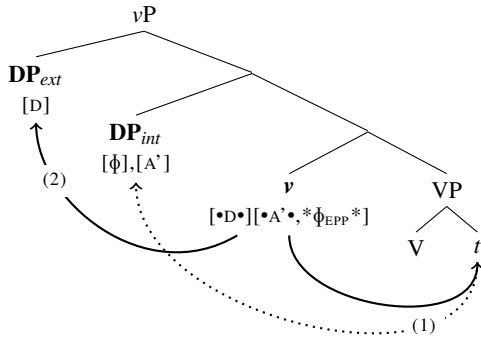


b. Malagasy AV: AGREE > MERGE



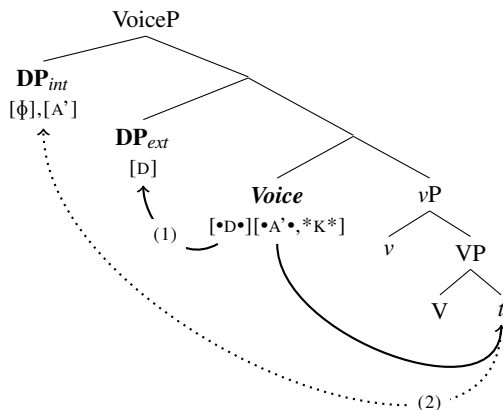
- In **Dinka OV**, the order does not change: the attracted object lands below the subject, and *Multitasking* obviates A-intervention.

(50) Dinka OV: AGREE > MERGE



- In **Malagasy TV** the order is reversed: Voice first externally merges the agent to check $[\bullet D\bullet]$, and then the theme ends up to an outer SpecVoiceP. The prospective pivot is now accessible to C's pivot probe *and* the highest DP within Voice.

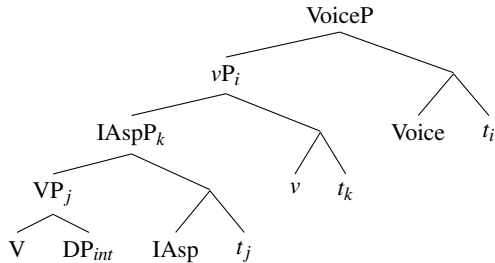
(51) Malagasy OV: MERGE > AGREE



9.3 Head V-movement vs. roll-up VP-movement

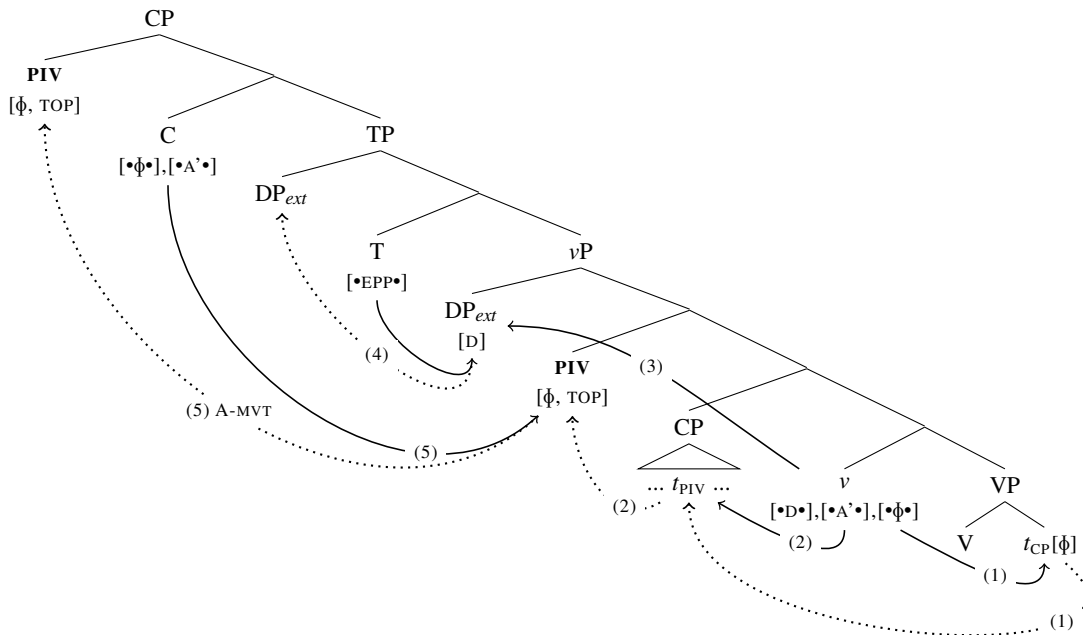
- Pearson 2000: Two types of VO languages: (i) **successive head movement** (*direct*); (ii) **successive XP-movement** (*inverse*)
- Dinka's verbal complex is formed via **head V-movement**; Malagasy employs **successive Spec-to-Spec roll-up VP-movement** within VoiceP: evidence from (i) post-verbal adverb order; (ii) order of internal arguments of ditransitives; (iii) rightwards object shift of specific non-pivot themes (Pearson 1998; Rackowski 1998; Rackowski and L. Travis 2000) (see Appendix 11.3).

(52) Malagasy roll-up VP-movement



- Recall: in Dinka OV, v bears a c-selectional [$\bullet D \bullet$] feature for External Merge of the agent, and a (**composite A/A'**) **probe** that **enters into direct Agree with the internal argument** and attracts it for case assignment and V2 satisfaction.
- If the object is a CP with a covert DP shell, but with no A'-feature, v 's composite probe first attracts the DP-like CP for V2 (only satisfying the A-part), and subsequently looks into the "unlocked" CP to subextract its pivot (satisfying the A'-part).
- As the **CP complement** and the **subextracted pivot** occupy **separate edges of v** , the higher composite probe on C directly detects and attracts the latter, which undergoes **A-movement**, like clausebound pivots, and thus feeds anaphor and variable binding.

(53) Long-distance promotion to pivot in Dinka OV

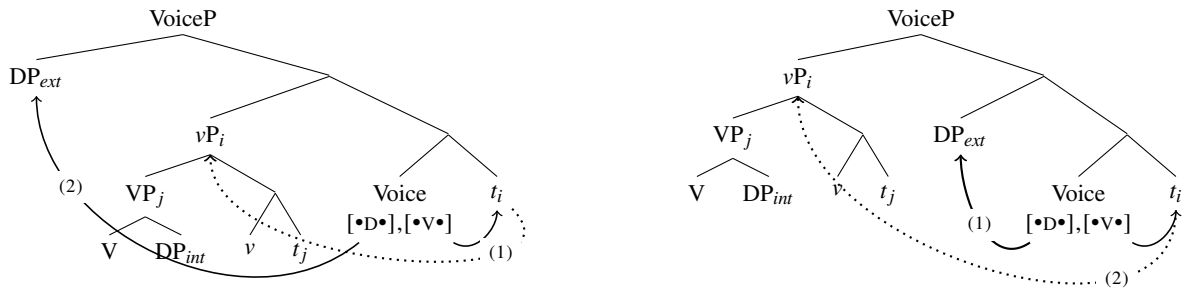


- In Malagasy TV, the **theme is carried along via roll-up VP movement and smuggled above the agent** (cf. Collins 2005). Voice is endowed with [$\bullet D \bullet$] and some movement-triggering [$\bullet V \bullet$] feature (parallel to whatever feature may drive head-movement).¹⁰
- Voice only indirectly mediates argument-structure reordering by moving its vP sister to its specifier. **Voice never directly interacts with the prospective pivot**, so there is **no way for it to agree with and "unlock" the CP complement under matrix TV**.

¹⁰Pearson 2000 links roll-up movement to the need of having a verbal feature in the head of each of the multiple predicate-internal functional projections. These FPs can be identified with a verbal features either via a head adjunction checking relationship of V with the F head, or via a Spec-head checking relationship with F. The relevant probing feature, shared by every head along the spine, would be whatever categorial feature all heads along the spine of an extended projection share.

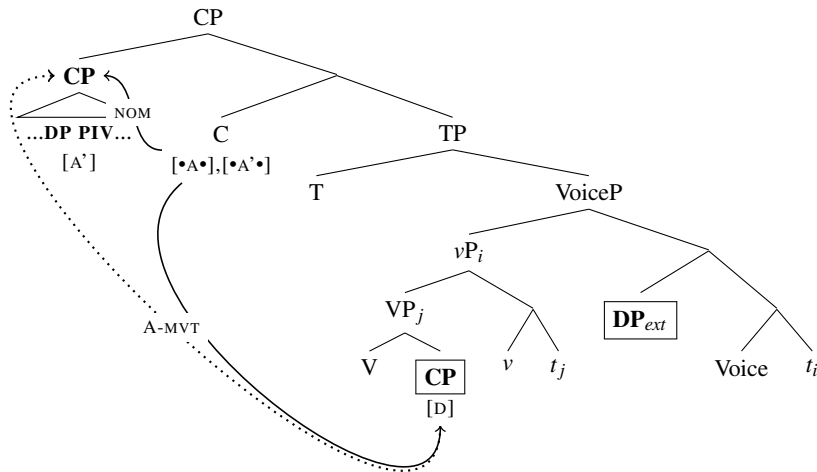
- The rolled-up VP lands below the agent under AV (because [$\bullet V \bullet$] is checked before [$\bullet D \bullet$]), but above it under OV (because the order is reversed). Closer to C's probe in the higher SpecVoiceP is the agent under AV, but the theme within VP under TV.

(54) a. Malagasy AV: AGREE (with VP) > MERGE (of agent) b. Malagasy OV: MERGE (of agent) > AGREE (with VP)

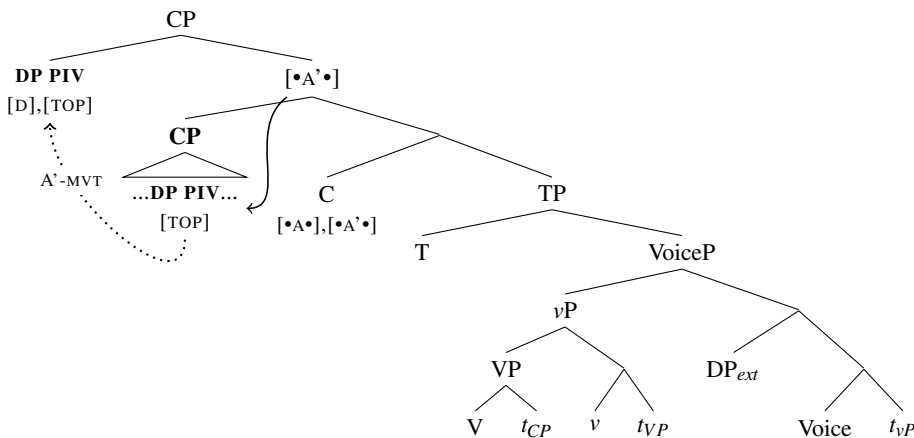


- If a CP complement bears no A'-feature, C's composite probe splits: its A-part attracts to its Spec and case-licenses the CP within the roll-up moved VP; its A'-part then looks into the "unlocked" CP and attracts its embedded pivot to an outer Spec.
- Attraction only by the A'-probe means A'-movement, and so WCO effects are induced. And as the embedded pivot is already case-licensed within the CP, with no matrix source of case available (having been saturated by the CP), Condition C obtains.

(55) a. Matrix composite probe splits: its A-part agrees in [D] with and case-licenses the CP theme



b. Matrix composite probe's A'-part agrees with and subextracts the CP-embedded pivot



- How to ensure that, under OV, the smuggled internal argument buried inside the outermost SpecVoiceP counts as more local than the external argument base-generated at the innermost SpecVoiceP? With a minimal-search algorithm inspired by Chow 2022 that combines both *in-depth* and *in-breadth* approaches to probing (cf. Branan and Erlewine to appear): see Appendix 11.4.

10 Conclusions, implications and open questions

10.1 Summarizing empirical and theoretical arguments

- In both Malagasy and Dinka, long-distance pivot movement involves Phase Unlocking of the embedded CP, but their structural height of Phase Unlocking differs: it happens at the probing cycle of matrix ν in Dinka, but of matrix C in Malagasy, given evidence that extraction of the embedded pivot requires prior CP A-movement to the left-periphery, as if the CP were the matrix pivot.
- Epiphenomenon of their different verbal formation and clausal derivation: (i) V-movement in Dinka + V2 vs. roll-up VP-movement in Malagasy; (ii) Agree (with the internal argument) > Merge (of the external argument) for ν under both AV and OV in Dinka vs. Agree (with the verbal spine) > Merge (of the external argument) for Voice under AV but Merge > Agree under OV.
- **Major premise I**
In Dinka, ν directly Agrees with and attracts the internal argument for V2 satisfaction, irrespective of *voice*-marking; in Malagasy, Voice only Agrees with its verbal-projection sister for roll-up VP-movement and never directly interacts with the internal argument.
- **Minor premise I**
Dinka employs head V-movement; Malagasy employs phrasal roll-up VP-movement.
- **Conclusion I**
Dinka ν gets to "unlock" a CP theme via independent Agree, but Malagasy Voice never gets a chance throughout the derivation.
- **Major premise II**
In Dinka, movement-inducing Agree of ν with the internal argument always precedes Merge of the external argument; in Malagasy, Agree for roll-up VP-movement precedes Merge of the external argument under AV but the order is reversed under TV.
- **Minor premise II**
In Dinka, C's composite probe is not sensitive to defective A-intervention; in Malagasy it is.
- **Conclusion II**
In Dinka OV, the pivot theme is still posited below the thematic specifier, and *Multitasking* is operative for C's composite probe; in Malagasy TV, the pivot theme is smuggled above the thematic specifier and counts as closer to C's composite probe.

10.2 Some non-trivial empirical and theoretical implications

- Phase Unlocking is not a primitive operation of the grammar; it only occurs if an independently motivated Agree of an attracting head with the intervening phase is available in the first place.
- Phase Unlocking seems capable of undoing the scope-island status of CP phases, exceptionally permitting (covert) QR and cross-clausal inverse scope, but as long as a previous step of overt extraction out of the "unlocked" CP has applied.
- A-Minimality *qua* defective intervention and economy matching conditions like *Multitasking* seem to vary parametrically across languages (or constructions? or probes?) (see Lohninger to appear).
- Provided that the surface-subject property is assigned to the highest DP argument within the Voice domain, pivots other than the external argument are mere topics with A-properties in Dinka, but become actual (subjects) subjects in Malagasy.

10.3 Some open questions

- What is the relation between Phase Unlocking and successive-cyclicity? Are they in complementary distribution, so that Phase Unlocking is only needed for extraction of material deep within the phase (Rackowski & Richards 2005; Branan & Davis 2019; Lee and K.-F. Yip 2021; Ershova 2024), or can they co-occur, so that all extraction requires it (van Urk & Richards 2015; Branan 2018; Hedding & Yuan 2023)? How can Phase Unlocking become compatible with a standard spell-out notion of phase theory?
- Does Phase Unlocking require movement of the "unlocked" agreed-with phase before extraction out of it can take place?
- Does the notion of *closeness* for locality of Agree require reference to c-command (Rackowski & Richards 2005), domination (van Urk & Richards 2015), or both (Ershova 2024)?
- Are multiple specs equidistant, and how does Minimal Search operate to reconcile *in-depth* and *in-breadth* approaches to probing?
- To which extent can CPs and DPs be taken to parallel together for various syntactic operations? (Szabolcsi 1989; Siloni 1995).
- Which are the conditions for splitting composite probes, how is their search space then defined, and how much backtracking can be integrated in the computational system? (see Lohninger and K. F. Yip 2023)

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11 APPENDIX

11.1 Dinka clausebound promotion to pivot is A-movement to a case-assigning position

(56) XP in first position (SpecCP) is in unmarked case

- a. *Ayén à-bé Bòl yɔɔc álèth rók*
Ayen 3SG-FUT. [SV] **Bol** buy.DTR clothes town.LOC
 'Ayen will buy Bol clothes at the town.'
- b. *Álèth áa-bíi Áyèn ké yɔɔk Bòl rók*
clothes 3PL-FUT. [OV] **Ayen**.GEN PL buy.DTR BoL town.LOC
 'Clothes, Ayen will buy Bol at the town.'
- c. *Rók à-bíi Áyèn álèth yɔɔk Bòl*
town 3SG-FUT. [OBLV] **Ayen**.GEN clothes buy.DTR Bol
 'At the town, Ayen will buy Bol clothes.'

(van Urk and Richards 2015:120)

(57) XP in first position (SpecCP) triggers C-agreement

- a. *Yéen cé mîr tîng*
I PRF. [SV] giraffe see.NF
 'I saw a giraffe.'
- b. *Bòl à-cé wèu kwàl*
Bol 3SG-PRF. [SV] money steal
 'Bol stole some money.'
- c. *Álèth áa-bíi Càn ké yɔɔk Bòl rók*
clothes 3PL-FUT. [OV] **Can**.GEN PL buy.DTR Bol town.LOC
 'Clothes, Can bought Bol at the town.'

(van Urk and Richards 2015:120)

(58) No WCO with movement to SpecCP

- a. *Thɔk-dè_{k/*i} à-cé dhùk ébén_i kâac*
 goat.CS-SG.3SG 3S-PRF.SV **boy** every bite.NF
 'His_{k/*i} goat bit every boy_i.'
- b. *Dhùk ébén_i à-tí thɔk-dè_i ___ kâac*
boy every 3S-PRF.OV goat.CS-SG.3SG ___ bit.NF
 'Every boy_i, his_i goat bit.'

(van Urk 2015:110)

(59) Movement to SpecCP feeds anaphor binding (subject to Condition A)

- a. *Ròor_i áa-nhiàr ròth-kén_i*
mén 3P-love.SV **self.PL-PL.3PL**
 'The men_i love themselves_i.'
- b. *Bòl_i à-cí [àkékòl-ti è ròt-dè_i] ___ píɔlìc*
Bol 3S-PRF.OV story-that P **self-SG.3SG** ___ criticize.NF
 'Bol_i, that story about himself_i has criticized.'

(van Urk 2015:111)

(60) No reconstruction for Condition C with movement to SpecCP

- a. **Yéen_i/pro_i à-cé mánh è Màyèn_i cɔɔl*
 3SG 3S-PRF.SV brother.CS P **Mayen** call.NF
 'He_{k/*i} has called a brother of **Mayen**_i.'
- b. *[Mèth-è [cé yèen_i tîng]] à-nhiàr Bòl_i*
 child-this PRF.SV 3SG see.NF 3S-love.SV **Bol**
 'This child that has seen him_i loves Bol_i.'
- c. *[Mánh è Màyèn kù Àyèn_i] cùkè_i ___ tîng*
 brother.CS P **Mayen**.GEN and **Ayen** PRF.3PL ___ see.NF
 'The brother of **Mayen and Ayen**_i, they_i have seen.'

(van Urk 2015:113-114)

(61) Movement to SpecCP reconstructs for anaphor and variable binding

- a. *Rõt-dé_i à-cè_i nhiâar*
self-SG.3SG 3S-PRF.3SG love.NF
 ‘Herself/himself_i, she/he_i hasloved.’
- b. *Kitεεp-kè_i àa-nhiéer dhük ébén_i ké*
books-PL.3SG 3PL-love.OV boy.GEN every PL
His_i books, every boy_i loves.’

(van Urk 2015:101)

(van Urk and Richards 2015:121)

11.2 Malagasy (covert) CP A-movement

11.2.1 Surmounting caveats

- Possible objection: how do we know that, under long-distance pivot subextraction, bleeding of NPI-licensing and inverse scope cannot obtain with the unlocked CP complement staying lower, say in matrix SpecVoiceP, and not further raising?
- If negation is placed lower, perhaps within VoiceP, and if it suffices for a CP-internal non-pivot QP to QR to a(n) outermost SpecVoiceP, then both properties follow: the NPI will be outside of negation’s scope and the embedded QP will c-command the matrix QP agent in (an innermost) SpecVoiceP
- Good reasons not to believe that! Firstly, negation *tsy* precedes the verbal complex, which systematically encodes Tense as a prefix.

- (62) a. *tsy* *m-an-asa*
 NEG PRS-AV-wash
 ‘not wash’
- b. *tsy* *n-an-asa*
 NEG PST-AV-wash
 ‘not washed’
- c. *tsy* *h-an-asa*
 NEG FUT-AV-wash
 ‘not will wash’

- Secondly, negation may precede Asp/TP-adjoined adverbials and take scope over them.

- (63) a. *Tsy* *efa nanana inona na inona izy ve tamin’ izany andro izany?*
 ‘At the time, did he not already have anything?’
- b. *Tsy* *mbola ny tokony ha tao rehefa misy ny olana*
 ‘When there are are problems, he does not yet know what to do.’ (Rackowski 1998:20)

- Thirdly, a universal QP theme can outscope negation only under TV, an asymmetry already noted in Kroch (1974) and Beghelli & Stowell (1996) for English. ¹¹ This suggests that negation is placed above VoiceP, since a non-pivot object under AV reaches up to the edge of VoiceP via roll-up VP-movement but can still not outscope negation (even if assumed to be QR-adjoined to VoiceP).

(64) **Internal argument may outscope negation only under TV**

- a. *Tsy nivity ny boky rehetra i Rabe*
 NEG PST.AV.buy DET book every PN Rabe
 ‘Rabe didn’t buy every book.’ (NEG > every, *every, NEG)
- b. *Tsy novidin-dRabe ny boky rehetra*
 NEG PST.TV.buy-Rabe.GEN DET book every
 ‘Every book, Rabe didn’t buy.’ (NEG > every, every > NEG)

- Long-distance promotion to pivot, triggering matrix TV, allows a CP-embedded theme QP to outscope matrix negation, even if not mapped into the overtly extracted DP pivot.

¹¹As Beghelli & Stowell (1996: 17) assert, “the universally quantified object can scope over negation only if it is focused”. My consultant only marginally accepted inverse scope, even with special focus intonation, and persistently preferred the surface scope reading, which I thereby take to be the default. Many thanks to my cohort fellow Paul Meisenbichler for valuable guidance and feedback here.

(65) Long-distance pivot movement allows for a CP-embedded QP to outscope matrix negation

- a. *Tsy mihevitra* intsony *ny mpampianatra* [*fa namaky ny boky rehetra ny mpianatra*]
 NEG PRS.AV.believe anymore DET teacher that PST.AV.read DET book every DET student
 'The teacher(s) don't believe anymore that the students read every book.' (*every > NEG)
- b. *Tsy heverin'* *ny mpampianatra* [*fa namaky ny boky rehetra*] intsony *ny mpianatra*
 NEG PRS.TV.believe DET teacher that PST.AV.read DET book every anymore DET student
 'The students, that they read every book, the teachers don't believe anymore.' (?every > NEG)

- The crucial scenario is in the presence of both matrix negation and a matrix QP: if a QP is embedded within a subextracted-from CP and that embedded QP outscoops the matrix external argument pivot, then it **must** outscope matrix negation as well.

(66) If a CP-embedded QP outscoops matrix QP under long-distance pivot movement, it **must** outscope matrix negation

- a. *Tsy mihevitra* intsony *ny mpampianatra tsirairay* [*fa namaky ny boky roa ny mpianatra*]
 NEG PRS.AV.believe anymore DET teacher every that PST.AV.read DET book two DET student
 'Every teacher doesn't believe anymore that the students read two books.' (!every > NEG > 2)
- b. *Tsy heverin'* *ny mpampianatra tsirairay* [*fa namaky ny boky roa*] intsony *ny mpianatra*
 NEG PRS.TV.believe DET student every that PST.AV.read DET book two anymore DET student
 'The students, that they read two books, every teacher doesn't believe anymore.' (2 > NEG > every, *NEG > 2 > every)

- Given that (i) inverse scope of a CP-embedded QP wrt. a matrix agent QP necessitates outscooping matrix negation, and (ii) negation has been independently shown to reside outside VoiceP (plausibly even above TP); then by entailment, the exceptional cross-clausal inverse scope patterns must be derived in a position higher than the CP's intermediate position within the outer SpecVoiceP.
- A scenario where the CP-embedded QP outscoops only the matrix agent QP but not matrix negation could be derived via reconstruction of the entire CP inside (the outermost) SpecVoiceP, where the CP was targeted by the A-part of matrix C's composite probe, and subsequent QR-adjunction of the CP-embedded QP to VoiceP, so that it can c-command the in-situ non-pivot agent.
- The unavailability of this reading suggests that QR out of the CP can indeed only be licensed via Phase Unlocking to undo the CP's scope-island status. Given a model of grammar where both overt and covert operations belong to Narrow Syntax, obeying Strict Cyclicity and the Extension Condition, such QR could only occur within the VoiceP cycle, before any further structure-building.
- Waiting for the matrix pivot to be introduced, agree with the CP complement and unlock it for the purposes of QR to the edge of VoiceP, would be countercyclic. At the same time, that such QR cannot follow LF-reconstruction *qua* copy deletion corroborates the view that overt and covert movement are only distinguished on the basis of (PF-)copy interpretation at the interfaces.

11.2.2 A challenging prediction with a challenging result

- If PTP of the entire CP complement involves Agree between the left-periphery probe and movement of the CP to the pivot site, then the CP should be equally phase-unlocked, allowing for similar inverse scope, even with no overt subextraction.
- Yet, this is not exactly the case: an inverse scope reading between a QP embedded in a pivot CP and a matrix QP is more marginal, although the CP itself evidently raises to the higher pivot position.

- (67) a. *Nolazain'* *ny mpampianatra tsirairay* [*fa namaky ny boky roa farafahakeliny ny mpianatra*]
 PST.TV.say DET teacher each C PST.AV.read DET book two at.least DET student
 'Each teacher said that the students read at least two books.'
 (each > 2, ?2 > each)
- b. *Nolazain'* *ny mpampianatra roa farafahakeliny* [*fa namaky ny boky tsirairay ny mpianatra*]
 PST.TV.say DET teacher two at.least C PST.AV.read DET book every DET student
 'At least two teachers said that the students read every books.'
 (2 > every, ?every > 2)

- Currently I have no convincing answer or solution really.

- Perhaps, when no subextraction out of the raised CP takes place, the fact that the CP is attracted by both parts of the composite probe, incl. the A'-one, induces a scope-freezing effect; or,
- For some reason, subextraction of the embedded pivot "reveals" to the non-pivot embedded QP that the phase is unlocked and it can now freely undergo QR; in the absence of an overt precedent, the equivalent covert operation cannot take place; or,
- Some unfortunate elicitation handling.

11.3 Malagasy successive roll-up VP-movement

- In Malagasy the universal hierarchy of adverbial ordering as per Cinque 1999 is only partially obeyed: while pre-verbal adverbs comply with it, post-verbal adverbs appear in the reverse mirror-image order, such that adverbs with wider scope appear to the right of adverbs with narrower scope: in sentences with multiple adverbs, raising of a verbal projection along the spine containing a lower adverb will cause that adverb to be pied-piped over a higher adverb, inverting the order at spell-out.

(68) Cinque's (1999) adverb hierarchy

- (speech act) > generally > Neg > already > still > anymore > always > completely > well
- Malagasy:** even > generally > neg > already > still > (neg) > VERB > well > completely > always > anymore

(69) Postverbal adverbs appear in the mirror order of Cinque's hierarchy

(Rackowski 1998)

- Manasa lamba tsara foana Rakoto*
AV.wash clothes well always Rakoto
'Rakoto always washes clothes well.'
- Manasa lamba tanteraka foana Rakoto*
AV.wash clothes completely always Rakoto
'Rakoto always washes clothes completely.'
- Tsy manasa lamba tsara intsony Rakoto*
NEG AV.wash clothes well anymore Rakoto
'Rakoto doesn't wash clothes well any more.'
- Tsy manasa lamba foana intsony Rakoto*
NEG AV.wash clothes always anymore Rakoto
'Rakoto doesn't always wash clothes any more.'

- While specificity-driven object shift typically occurs to the left, specific objects in Malagasy appear to move rightwards, as they follow adverbs typically following a non-specific in-situ object: object shift is always to the left, but leftward movement of the object is followed by leftward movement of a phrasal constituent containing the verb, the adverb, and the trace of the object.

(70) Rightwards object shift

(Pearson 1998)

- Nijinja vary haingana ny mpamboly*
PST.AV.cut rice quickly DET farmer
'The farmer harvested (*the) rice quickly.'
- Nijinja t_j haingana ny vary_j ny mpamboly*
PST.AV.cut EC quickly DET rice DET farmer
'The farmer harvested *(the) rice quickly.'

- Although the IO c-commands the DO in base structure, as evidenced by standard binding diagnostics, the surface order is reversed: the DO precedes the IO, but binding relations do not change; the objects are pied-piped within the roll-up moving verbal projections, and the DO does not c-command the IO from its derived position (unless becoming the pivot).

(71) Double object constructions

(Pearson 2000)

- Nanolotra ny dite ny vahiny Rakoto*
PST.AV.offer DET tea DET guest Rakoto
'Rakoto offered the guests the tea.'
- Nanaseho ny sari=ny_j ny ankizy rehetra_j Raso*
PST.AV.show DET picture=3.POSS DET child every Raso
'Raso showed every child_j his/her_j picture.'
- *Nanaseho ny ankizy rehetra_j ny reni=ny_j Raso*
PST.AV.show DET child every DET mother=3.POSS Raso
'Raso showed his/her_j mother every child.'

11.3.1 Voice as defective intervener for Agree and Phase Unlocking

- Adverbial ordering might additionally account for a potential caveat on the Phase Unlocking story.
- Typical component of Phase Unlocking theory: phases always intervene, at least defectively, for Agree because they dominate the prospective goal, and by extension the feature(s) searched by a higher probe.
- If Malagasy employs roll-up VP-movement up to SpecVoiceP to smuggle the pivot IA above the EA, why does Voice not intervene for Agree between C's probe and the IA properly contained within the moved verbal chunk at the outer SpecVoiceP?
- By definition of locality, only the phase (i.e., VoiceP) and its outermost specifier (i.e., the EA under AV, or the rolled-up vP under TV) are equally accessible goals to the higher probe; any phrase XP dominated by the maximal projection YP at the outermost SpecVoiceP (e.g., the smuggled IA pivot under TV) should not be accessible. Only under independent Agree of the probe with YP could XP be ever accessed. But vP, properly containing the IA, has no feature to render it a matching goal for C's probing features.
- Possible but empirically incomplete replies: (i) Voice is not a phase in Malagasy; (ii) phases are not defective interveners by default.
- A more intriguing answer: the last adverb in Cinque's hierarchy appearing in a reverse "mirror" order post-verbally in Malagasy is *intsony* 'anymore'; the first adverbs in the hierarchy appearing in the predicted order pre-verbally are *mbola* 'still' and *efa* 'already'.

- (72) a. Mbola *manasa* *lamba Rakoto*
still PRS.AV.wash clothes Rakoto
 'Rakoto still washes clothes.'
- b. Efa *nanasa* *lamba Rakoto*
already PST.AV.wash clothes Rakoto
 'Rakoto already washed clothes.'
- c. *Tsy* mbola efa *nahavita nisakafo Rakoto amin' ny roa ora.*
 NEG still already finish PST.AV.eat Rakoto P DET two hour
 'Rakoto has not eaten yet at 2 o'clock.'
- d. Efa mbola *tsy mahay lesona Rakoto no mbola mitabataba*
already still NEG PRS.AV.know lesson Rakoto FOC still talkative
 'Not only does he not know his lessons, but he is talkative also.'

(Rackowski 1998:16)

- Suppose that adverbs merge with particular phrases of the extended verbal projection (Asp, T, Mod, Mood, etc.), depending on their semantics. For Cinque, 'anymore' demarcates the end of the aspectual field, merging with (his) Asp(terminative)P, and is immediately followed in the hierarchy by 'already', which demarcates the first Tense-like projection, merging with (his) T(anterior)P.¹²
 - Each step of roll-up VP-movement pied-pipes all categories dominated by mover X above constituents originally dominating X. If post-verbal adverb order reflects successive VP-movement, then the linearly last post-verbal adverb reveals where VP-movement halts, and the first pre-verbal adverbs following Cinque's hierarchy reveal what dominates VP-movement's landing site.
 - This might serve as indirect evidence for the question of Voice's intervention status: **if**
- (i) **(Major premise)** VoiceP is c-selected (and dominated) by an AspP, which is itself selected by TP;
- (ii) **Minor premise** roll-up VP-movement is triggered by feature-driven Agree, akin to head movement; **then**,
- (iii) **Conclusion** roll-up movement involves an additional step of VoiceP movement to SpecAspP, and the movement-inducing Agree between VoiceP and Asp suffices to unlock the Voice's phasehood and explain the distribution of adverbs pre- and post-verbally.

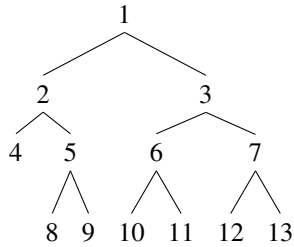
11.4 Minimal-search algorithm

- Two main approaches to Minimal Search for probing (see Branan and Erlewine to appear for discussion and references):
- (i) **Breadth-first search (BFS)**: considers all nodes at a given depth level before considering nodes at a subsequent depth level
- (ii) **Depth-first search (DFS)**: considers the left daughter at each step, searching deeper into the tree until a terminal node is reached; it then minimally backtracks to a node with daughters not yet visited.¹³

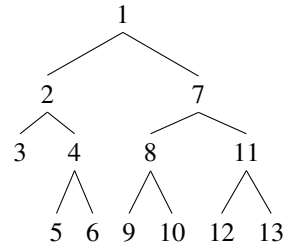
¹²In Cinque's hierarchy, *still* is below *no longer/anymore* and is associated with Asp(Continuative)P, which is dominated by Asp(Terminative)P; in Malagasy, however, 'still' evidently precedes 'anymore' in the hierarchical order, as it is one of the two first adverbs, along with 'already', to appear immediately pre-verbally.

¹³Both algorithms tacitly presuppose that linearization occurs prior to probing, so that sisters are pre-ordered for search, and search privileges left over right sisters.

(73) a. Breadth-first search



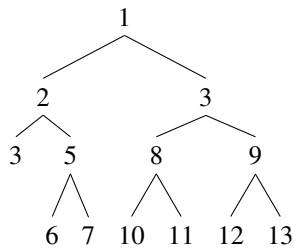
b. Depth-first search



- Advantage of **BFS**: captures the **c-command-based definition of closeness** and the **A-over-A condition** (by considering a c-commandee before its c-commander)
- Advantage of **DFS**: captures **smuggling** derivations (by searching elements within the root's left specifier before those in its sister)
- Chow 2022 proposes a novel minimal-search algorithm that combines the advantages of both BFS and DFS: like BFS, it ensures that probing will satisfy the c-command-based *closest* condition; and like DFS, it exhaustively searches within a specifier that is transparent for probing before considering the contents of the specifier's sister, thus allowing for smuggling derivations.
- **Proposed algorithm** (Chow 2022:4):
 - Consider the root node, N.
 - Consider N's left daughter, followed by N's right daughter, and mark N as visited.
 - Continue the search with the left daughter as node N in step (b).
 - Upon reaching a terminal node, minimally backtrack (in the order nodes were visited) to a visited node with an unvisited daughter node, and continue the search with that daughter as node N in step (b).

(74) [Sketch of minimal-search algorithm in Chow 2022](#)

a.



b.

