



## Overview

### Questions

1. Is agreement upward looking, downward, or does it vary?
2. How does agreement interact with case/movement/etc.?

**Formal considerations** Many long-distance linguistics dependencies are **tier-based strictly local (TSL)** (Graf 2022)

**This work** Reanalyze the Lubukusu **complementizer agreement** data from Diercks (2013) data as a TSL pattern over **MG dependency trees**

- **Upward agreement** is shown to be unproblematic
- **Hyperraised subjects** are correctly predicted not to agree

**Implications** Movement **may or may not feed** subsequent operations  
→ We need a system that can handle both feeding and counterfeeding

## TSL Syntax

### TSL in a nutshell

1. Ignore the irrelevant items; the remainder form a **tier projection**
2. Items on the tier are subject to **strictly local constraints**
3. Each logical dependency has a unique tier and constraints

**Example: English subject movement and verbal agreement**

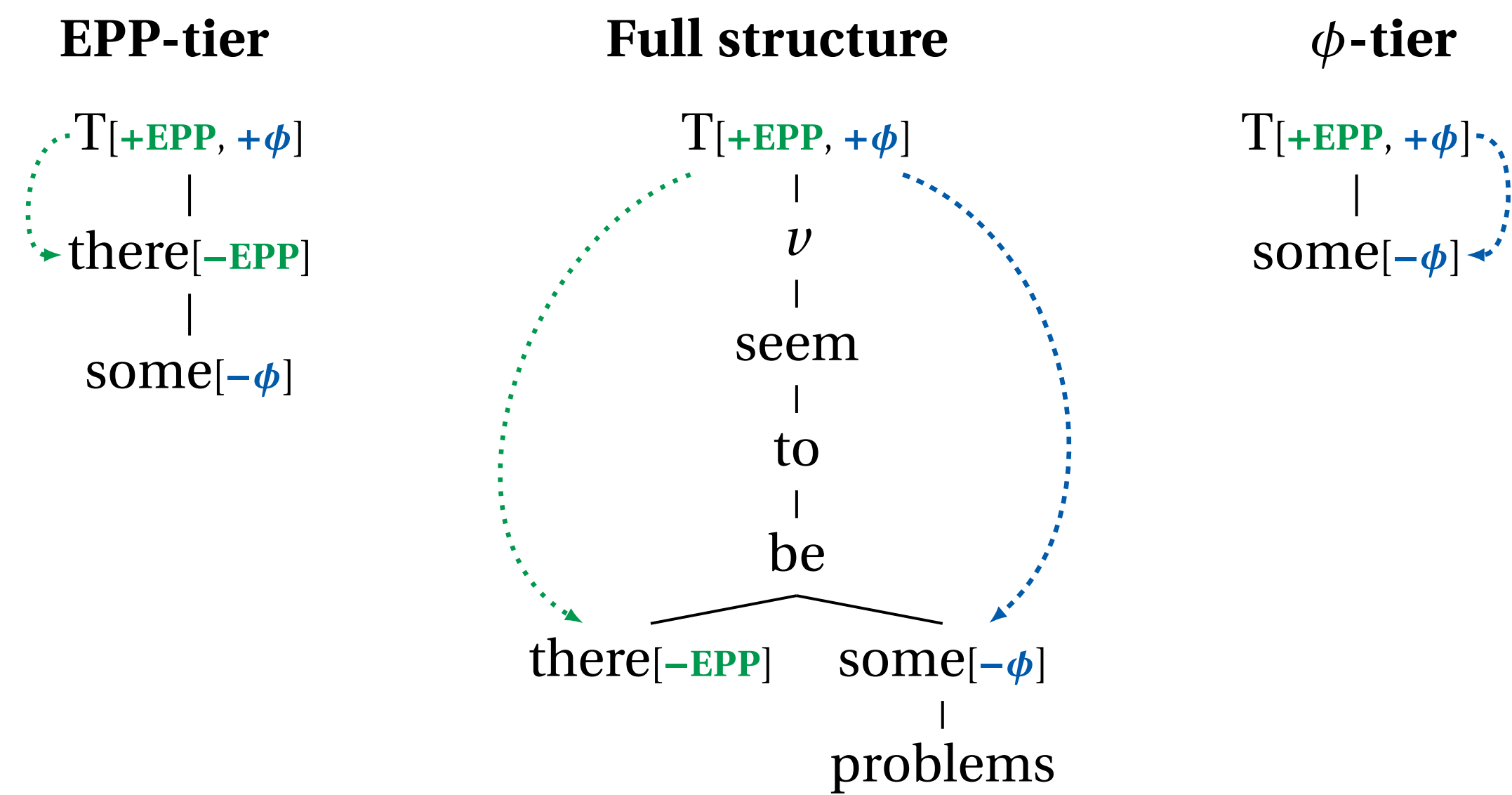


Figure 1: MG dependency tree for *There seem to be some problems*, with tiers for EPP-movement and  $\phi$ -agreement. See below for details.

### MG dependency trees

- Static representation of a syntactic derivation: a **derivation tree**
- Every node is a lexical item in base position
- Daughters of a node are its arguments in c-command order
- Features indicate movement, agreement, etc., *in the current derivation*  
+F = landing site / unvalued item    -F = mover / valuer

### TSL model of agreement (Hanson 2024)

- Project a tier based on the **d[erivational]-command** relation (Graf and Shafiei 2019), which combines dominance and precedence
- The tier for each dependency contains only (i) potential participants and (ii) relativized blockers (cf. Keine 2019)
- On the tier, a probe and its goal (or landing site and mover) must be adjacent; other constraints vary

### Notes

- *There* is a potential EPP-mover, but not a potential agreement target
- Intermediate/final positions of movers are not represented
- Successive cyclic movement is assumed not to be feature-driven

## Direction of Complementizer Agreement

**Descriptive generalization** Complementizer agreement may target the embedded subject (downward agreement) or the subject of the containing clause (upward agreement)

**TSL analysis** Tier includes C heads and subjects (D[-EPP]); order of the probe and goal varies

- Downward agreement: probe immediately precedes (commands) goal
- Upward agreement: goal immediately precedes (commands) probe

### Examples

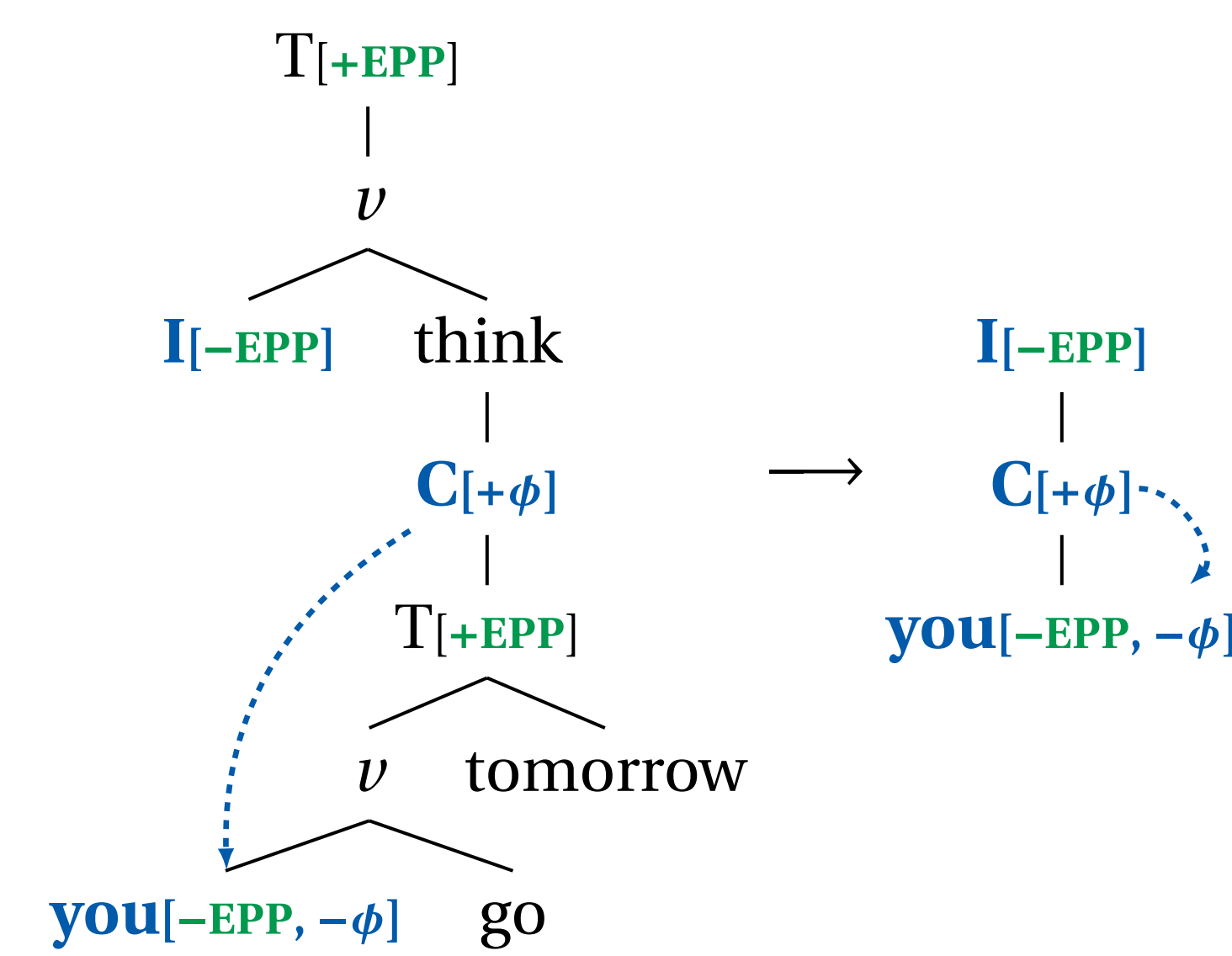
- (1) Downward complementizer agreement in West Flemish (Germanic)

*Kpeinzen da-j* [<sub>CP</sub> (*gie*) *morgen* *goat*].  
I.think that-you (you) tomorrow go  
'I think that you'll go tomorrow.'

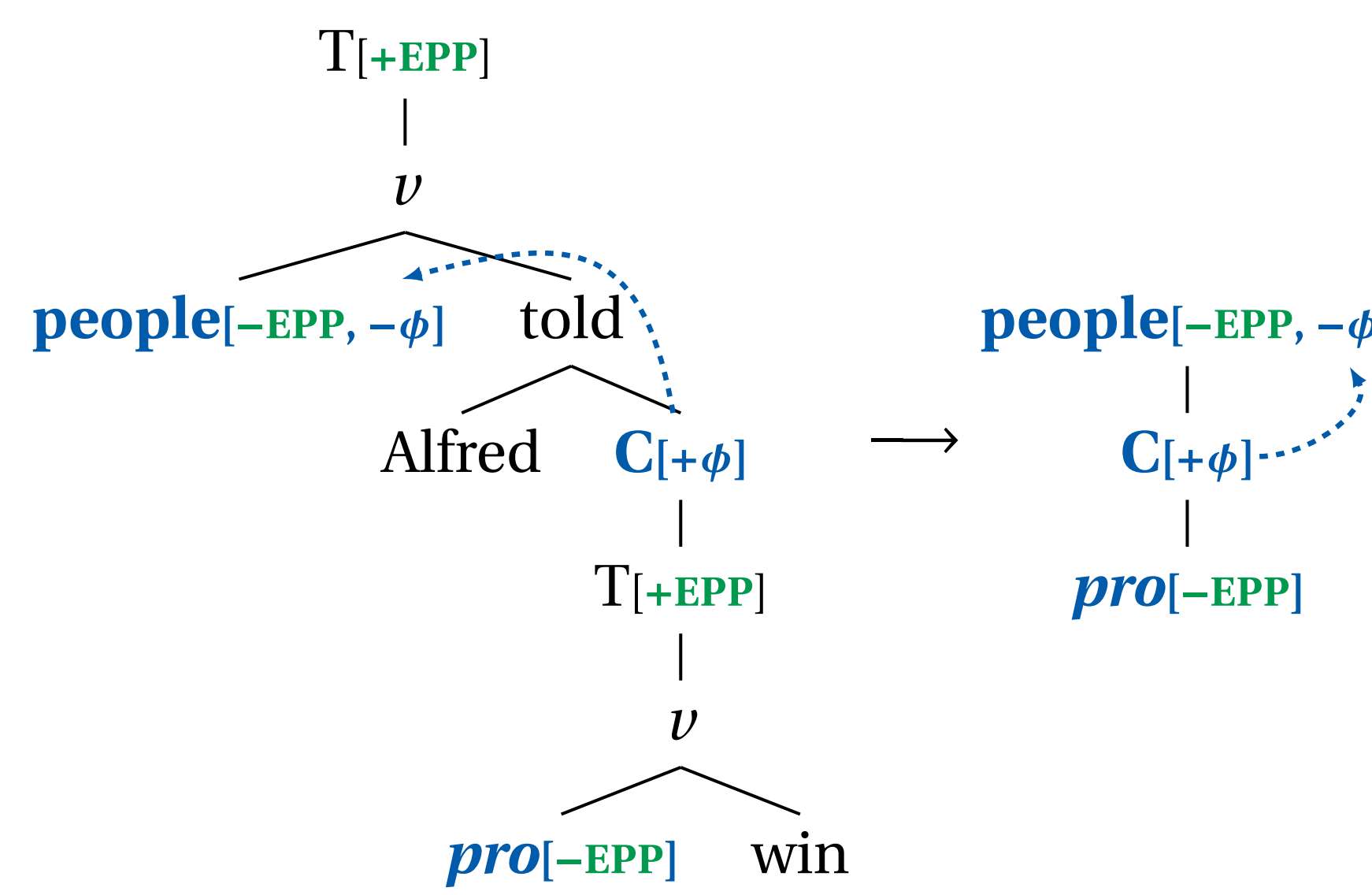
- (2) Upward complementizer agreement in Lubukusu (Bantu)

*Ba-ba-ndu ba-bolela Alfredi* [<sub>CP</sub> *ba-li* *pro* *a-kha-khile*].  
**c2-c2**-people c2-said c1.Alfred **c2**-that *pro* c1-FUT-conquer  
'The people told Alfred that he will win.'

### West Flemish (ex. 1): C agrees downward



### Lubukusu (ex. 2): C agrees upward



Note: Verbal agreement is ignored for simplicity, assumed to reside on separate tier (not shown)

## Syntactic Counterfeeding

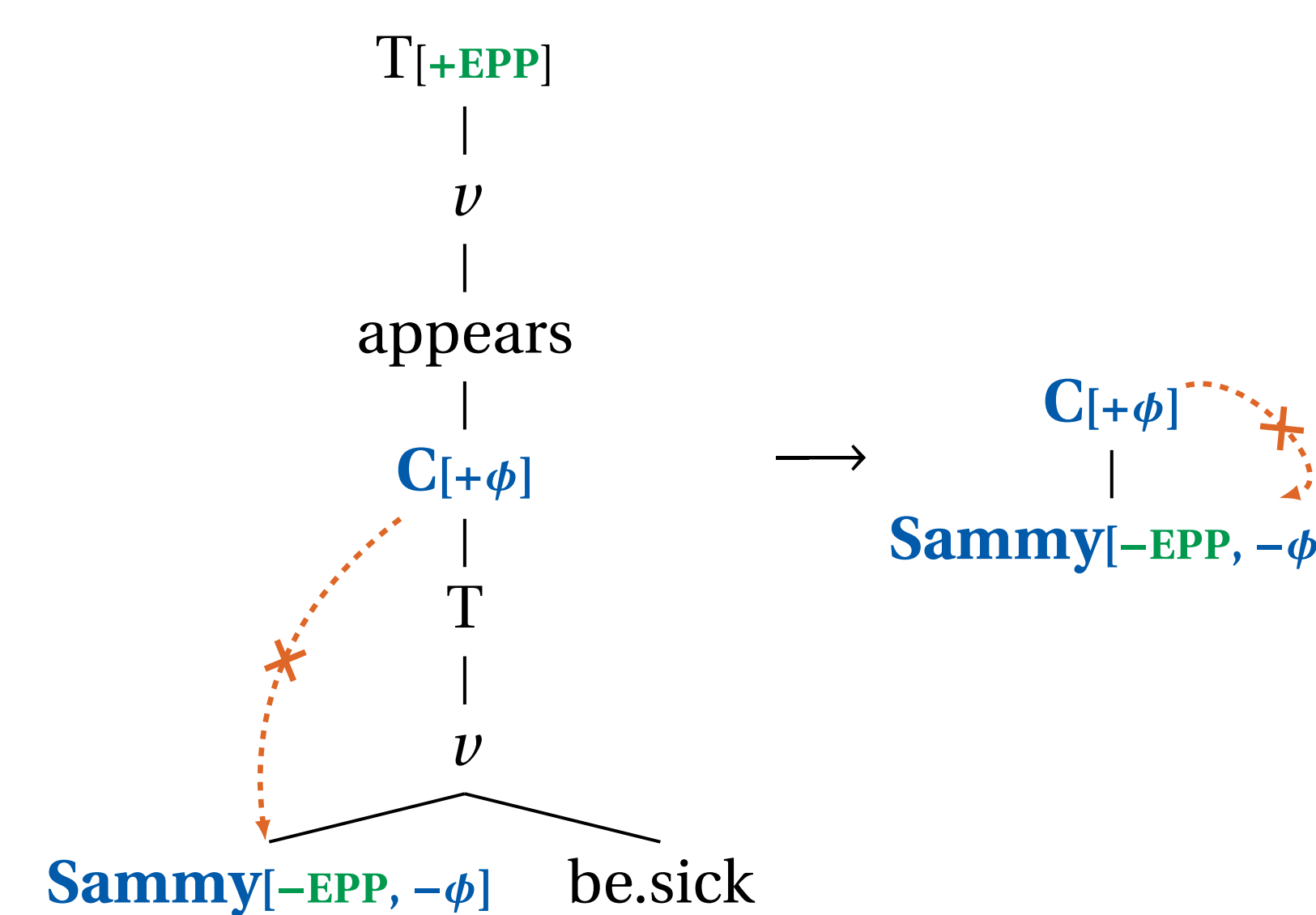
**Lubukusu hyperraising** The subject moves to an agreeing position, yet is invisible for agreement

**Explanation** Subject appears below C in dependency tree in a language with upward agreement

- (3) Agreeing complementizer incompatible with hyperraising

*Sammy a-lolekhana mbo* (\**a-li*) *a-likho* *a-lwala*.  
**c1**.Sammy c1-appears that (\***c1**-that) c1.PROG c1-be.sick  
'Sammy appears to be sick.' (lit. 'Sammy seems that is sick.')

### Lubukusu (ex. 3): Hyperraised subject is below C and cannot agree



## Operation Ordering in Syntax

**Prediction (with caveats)** Minimalism predicts feeding/bleeding; TSL over MG dependency trees predicts counterfeeding/counterfeeding

**Reality** Both types of patterns are attested

Mvmt. + Case	Object-shift <b>feeds</b> accusative marking	e.g. Turkish
Case + Agreement	Ergative marking <b>bleeds</b> V-agreement	e.g. Hindi
Mvmt. + Agreement	Hyperraising <b>counterfeeds</b> C-agreement	e.g. Lubukusu
Mvmt. + Binding	Wh-movement <b>counterbleeds</b> Principle B	e.g. English

Table 1: Examples of operation ordering in syntax.

Caveats: (i) copy movement can produce counterbleeding, (ii) TSL syntax can handle some feeding/bleeding in parallel

### Why the Lubukusu data is important

- Difficult to disentangle operation ordering from locality/visibility effects
- Movement from below upward agreeing head avoids this confound

### Towards a flexible system for operation ordering

- Naïve MG implementation: ordering among licensee features
  - e.g. Feature spec. for Lukusu D head: (+N) –D (– $\phi$ ) (–EPP)
  - Problem: derivations with ordered licensee features may not be TSL
- TSL-compatible alternative: ordered tree-to-tree maps
  - e.g. Lubukusu: Selection < C-Agreement < Hyperraising
  - TSL tree-to-tree maps are a subject of current research (cf. Graf 2023)

## Diercks' Indirect Agreement Analysis

- Claim: C agrees with operator in Spec-CP, bound by higher subject
- Problem: Requires extra stipulation to handle hyperraising case
- Comment: Upward dependency formally identical, recast as binding

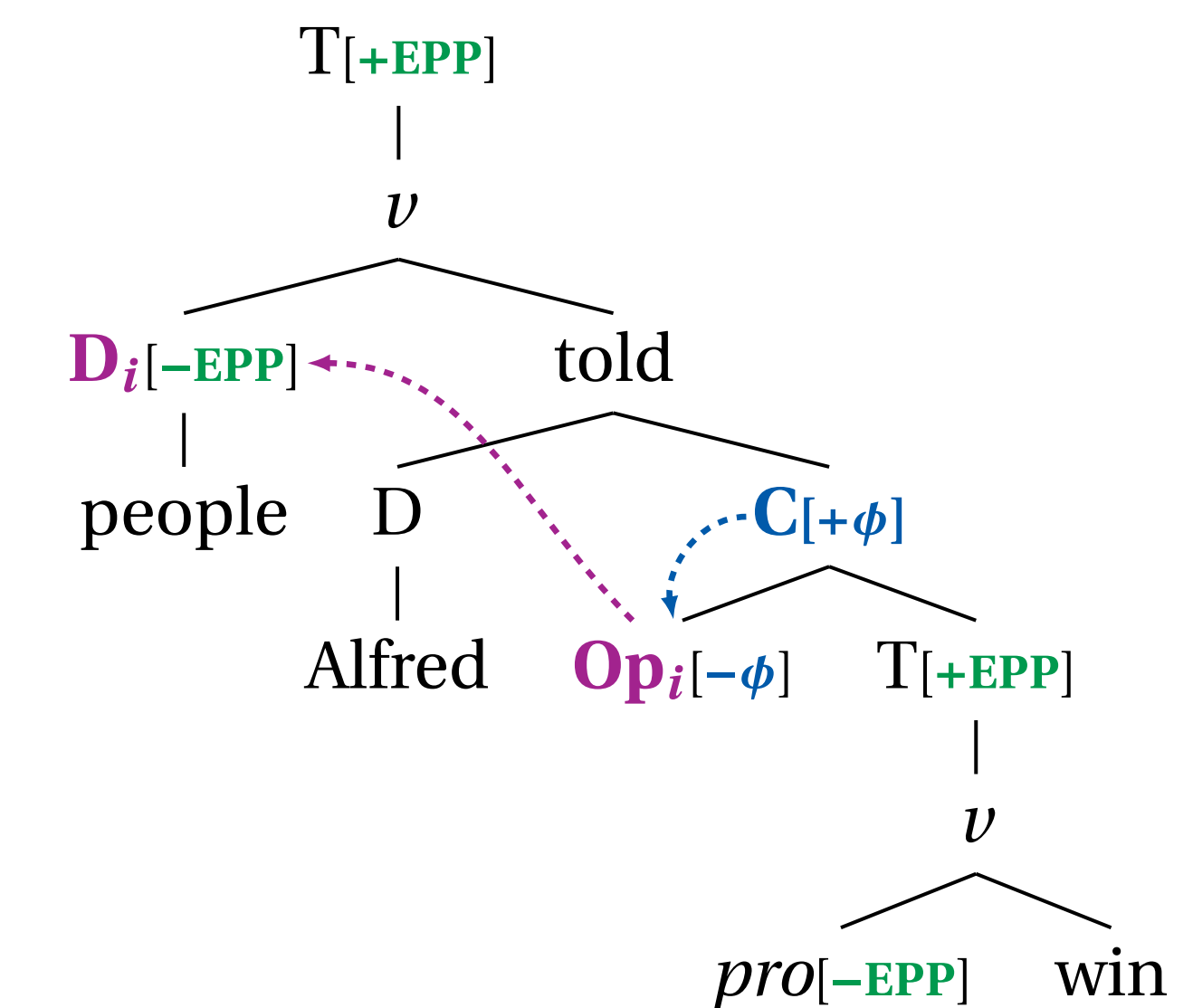


Figure 2: MG dependency tree for Diercks' analysis of (3).

## References and Acknowledgments

This work was supported by the National Science Foundation under Grant No. BCS-1845344, and by the Institute for Advanced Computational Science at Stony Brook University.

### References

Michael Diercks (2013). Indirect agree in Lubukusu complementizer agreement. *Natural Language & Linguistic Theory* 31.2. • Thomas Graf (2022). Subregular linguistics: bridging theoretical linguistics and formal grammar. *Theoretical Linguistics* 48.3–4. • Thomas Graf (2023). Subregular Tree Transductions, Movement, Copies, Traces, and the Ban on Improper Movement. *Proceedings of SCIL 2023*. • Thomas Graf and Nazila Shafiei (2019). C-command dependencies as TSL string constraints. *Proceedings of SCIL 2019*. • Kenneth Hanson (2024). Tier-Based Strict Locality and the Typology of Agreement. *Journal of Language Modeling*. To appear. • Stefan Keine (2019). Selective Opacity. *Linguistic Inquiry* 50.1.