

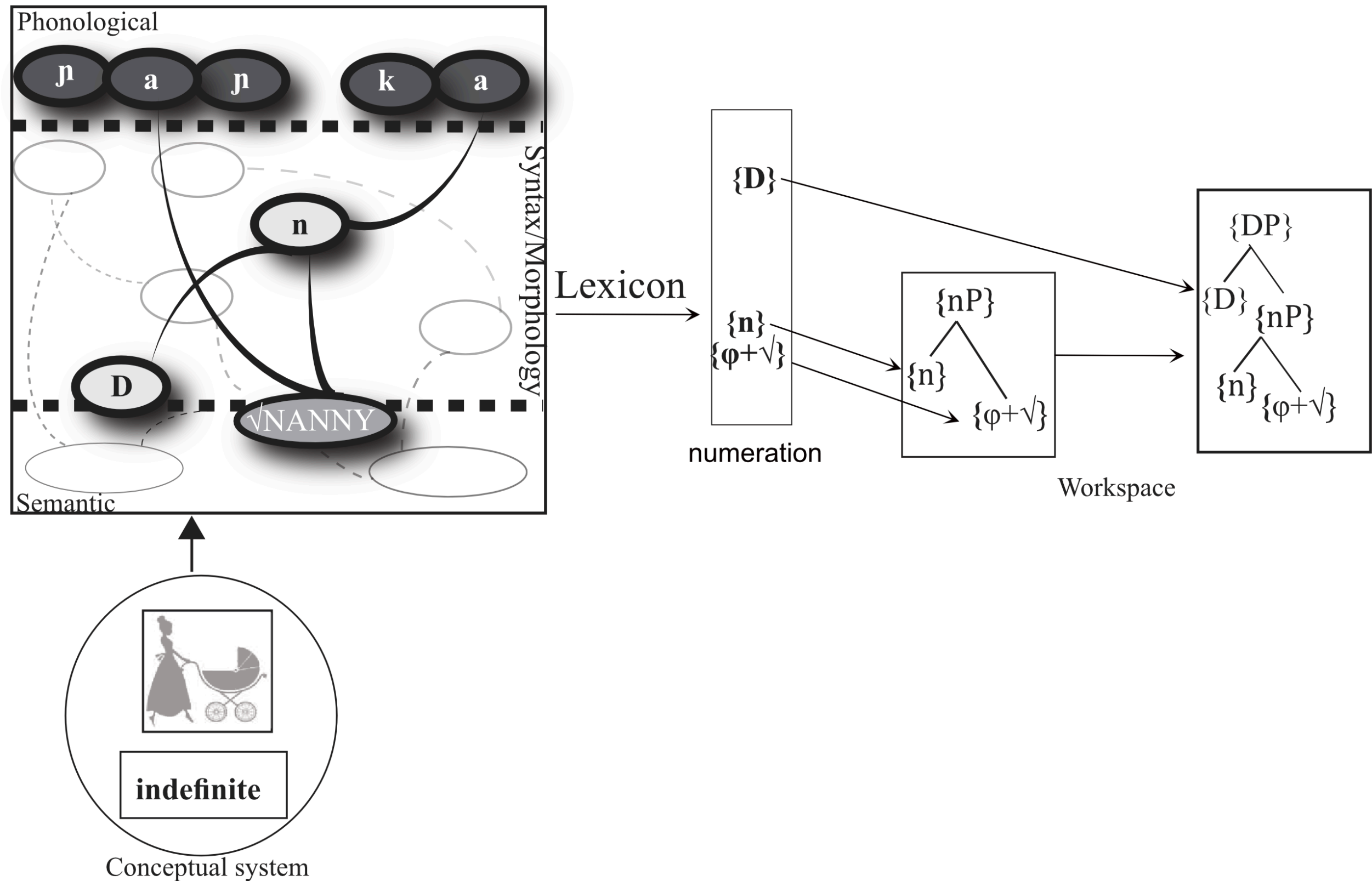
Phases Class2

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Numeration vs Lexical Array

- The Lexicon is a big place
- We need an operation SELECT that creates a subset of lexical items for syntactic computation
- Lexical Array subset of lexicon serving as input to computations
- Numeration is an indexed Lexical Array (some LI's used more than once - for example functional heads)

Merge



Labels

- Chomsky (2008) proposes a labeling algorithm
- (i) In $\{H, \alpha\}$, H a lexical item (LI), H is the label.
- If α is internally merged to β forming $\{\alpha, \beta\}$ then the label of β is the label of $\{\alpha, \beta\}$
- (Chomsky 2008: 145)

Triggers for movement

Un-interpretable features

- An uninterpretable feature F must be distinguished somehow in LEX from interpretable features.
- The simplest way, introducing no new devices, is to enter F without value: for example, [uNumber].
- That is particularly natural because the value is redundant, determined by Agree. (Chomsky 2004: 116)

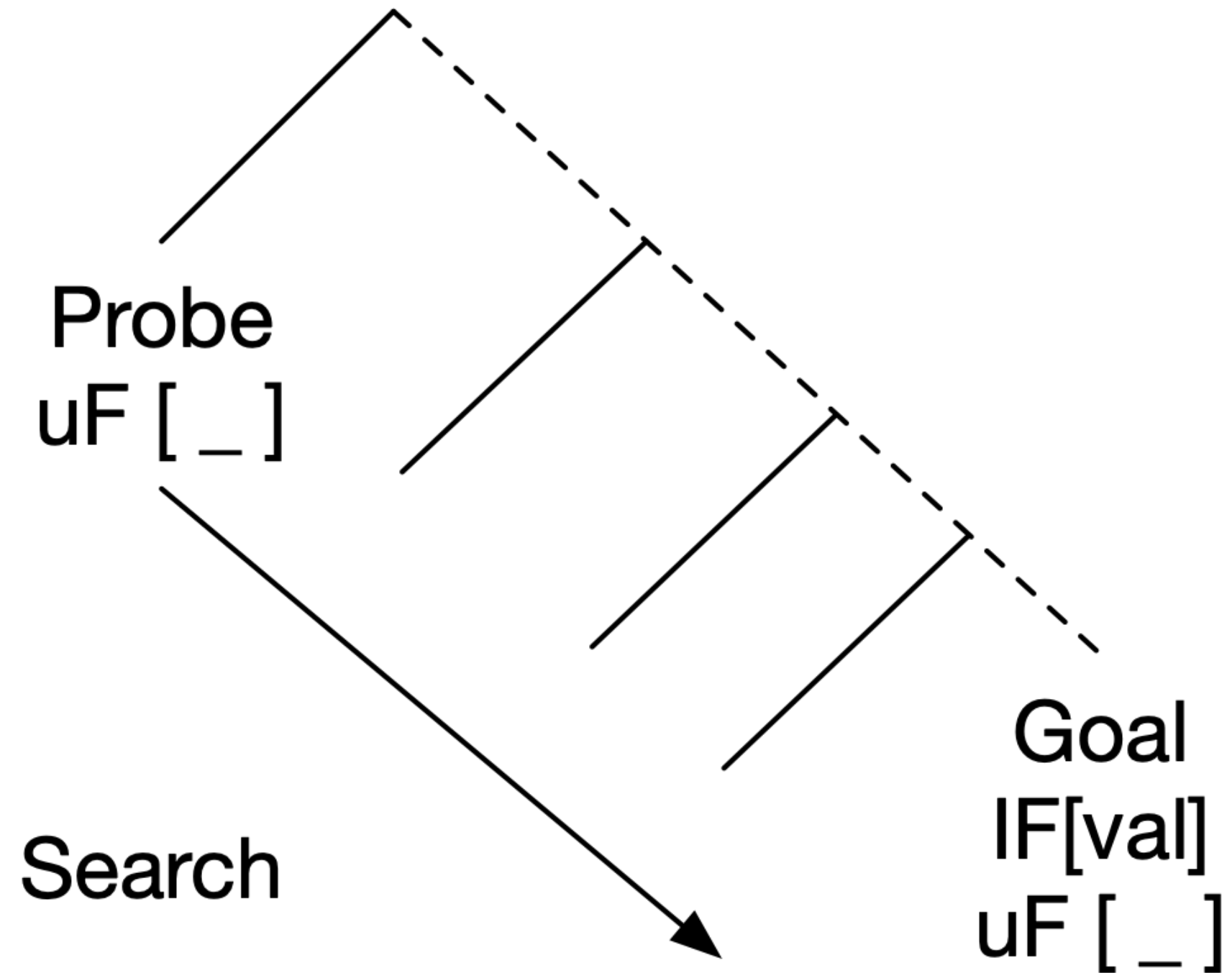
Types of features

- Types of features
 - $uF[val]$ an uninterpretable and valued feature
 - $iF[val]$ an interpretable and valued feature
 - $uF[]$ an uninterpretable and unvalued feature
 - $iF[]$ an interpretable and unvalued feature
 - (Pesetsky & Torrego 2007, Citko 2014)

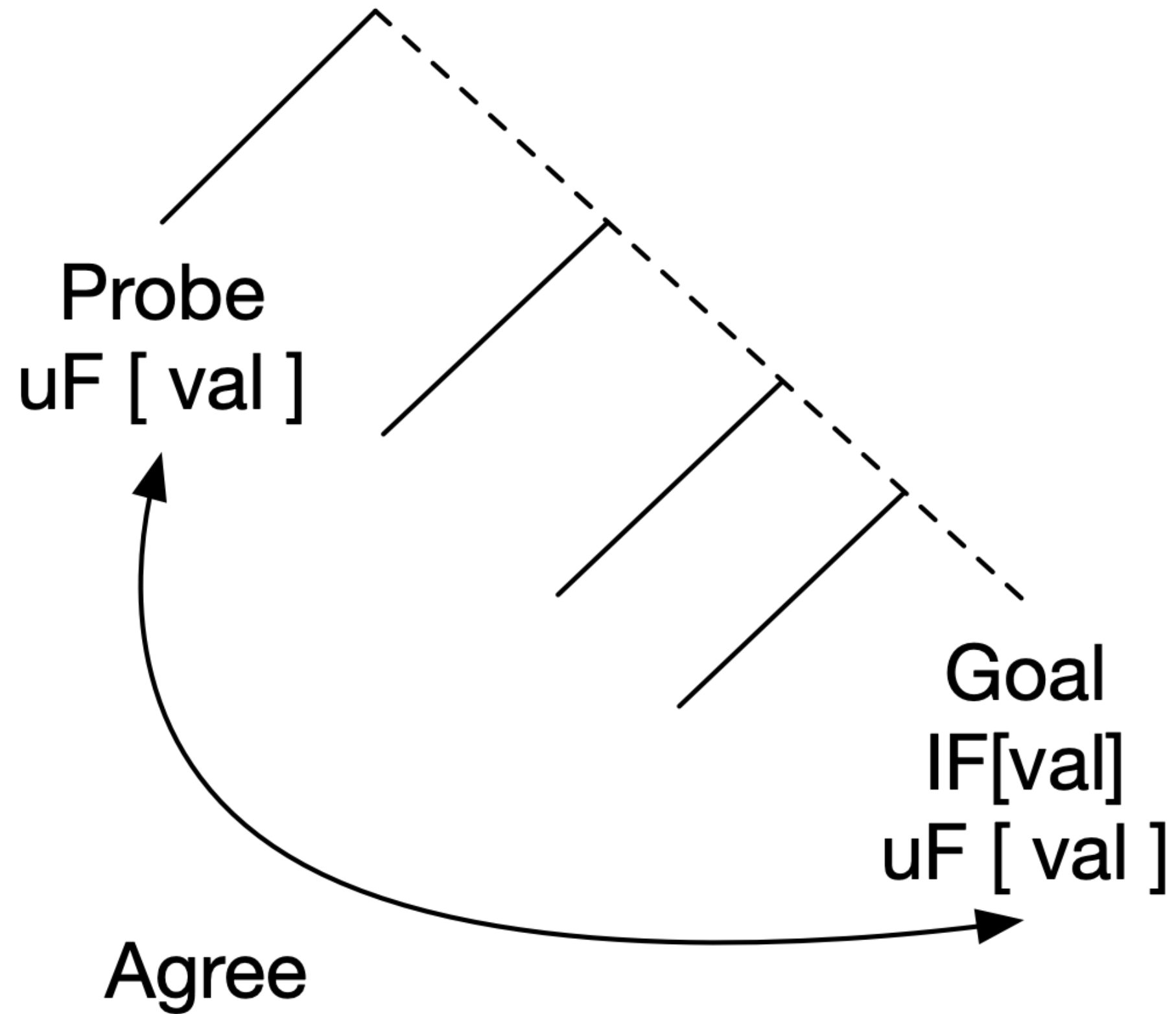
Agree conditions

- For Agree to be possible, the following conditions have to hold (cf. Chomsky 2000: 122–3, Citko 2014).
 - The Probe and the Goal have to be active, where being active means having uninterpretable/unvalued features. THE ACTIVITY CONDITION
 - The features of the Probe and Goal have to match, where matching refers to feature identity. THE MATCHING CONDITION
 - The Goal has to be inside the domain of the Probe, where the domain of the Probe is its sister. THE DOMAIN CONDITION
 - The Goal has to be in a local relationship, where locality is closest c-command. THE LOCALITY CONDITION
- When conditions are met, uninterpretable unvalued features are valued and deleted

Agree Search



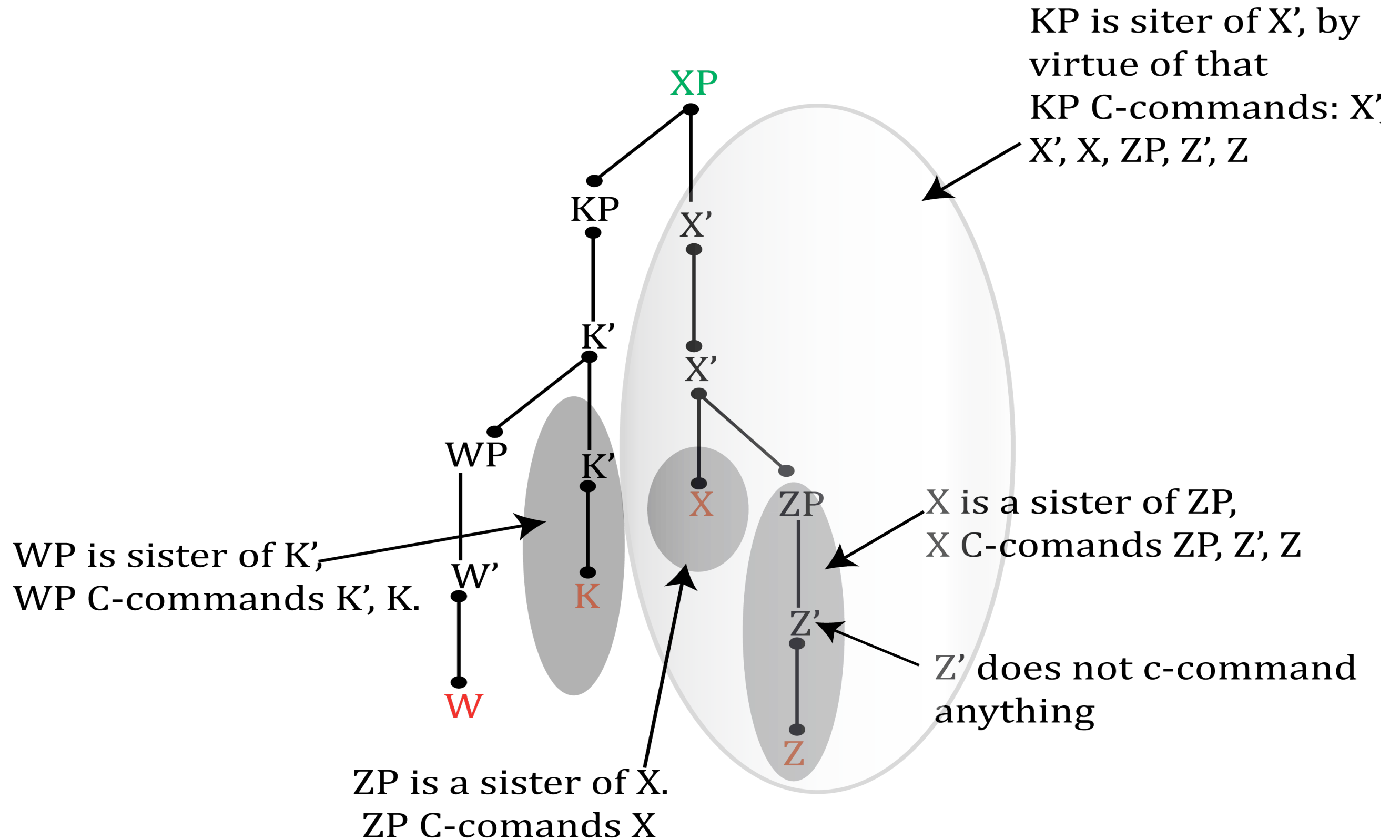
Agree



C-command

- Node X c-commands node Y if every node dominating X also dominates Y, and X does not itself dominate Y.
- C-command is connected to sisterhood and dominance.
- It allows us to capture the fact that sisterhood has repercussions on constituents contained inside the sister nodes.
- It is uncanny but C-command can account for the distribution of anaphors, that is elements like
 - pronouns: him, her, he, she, etc.; the reflexives: herself, himself, themselves, etc., and reciprocals like: each other.

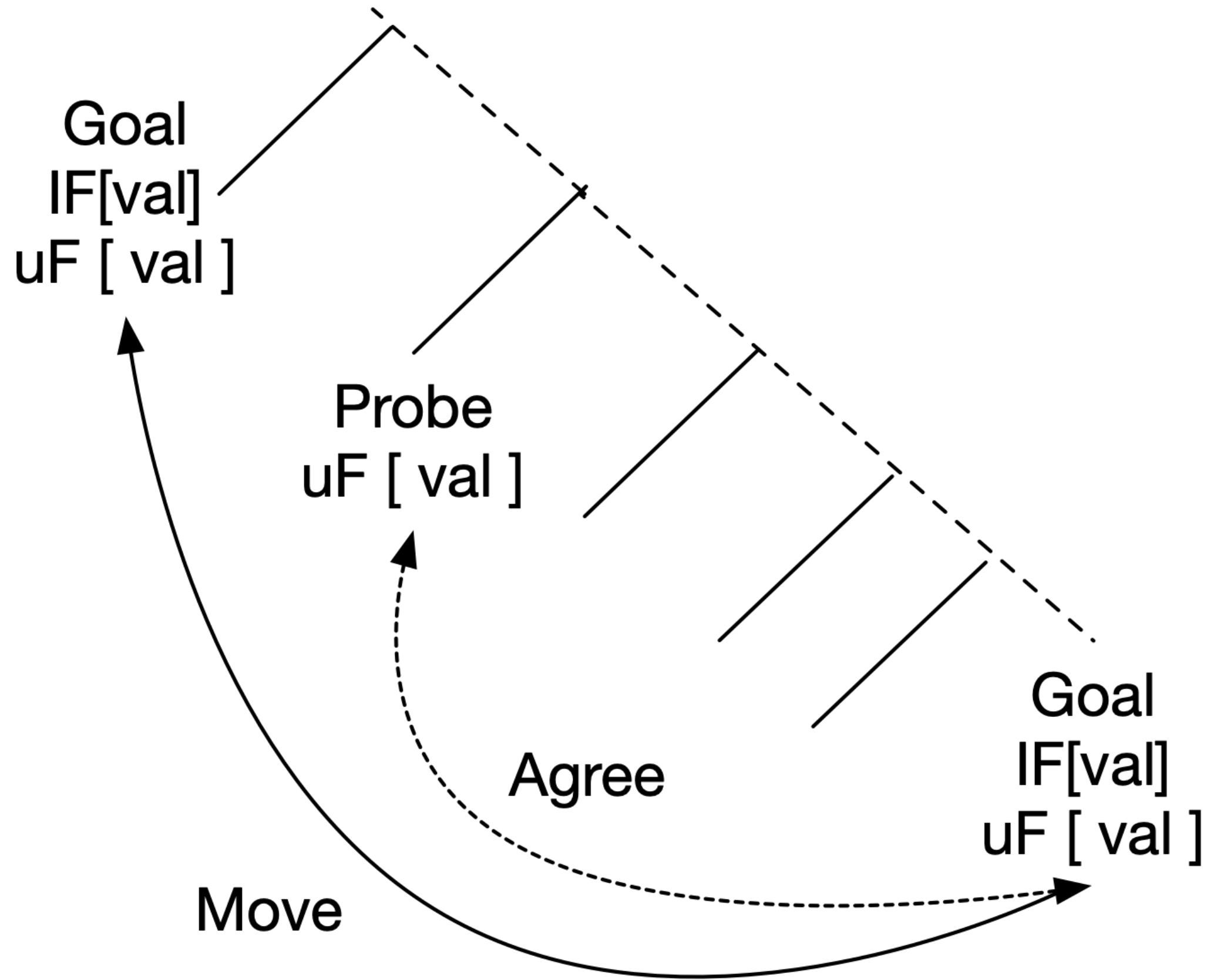
C-command



Move and Merge

- Agree - relation between a P(robe) and a feature F on a G(oal) within a defined search domain
- Merge: "takes two syntactic objects a, b and forms an ordered set L(a, b), where L is the Label
- Internal Merge (Move) combines Merge and Agree.
 - The distinction between A and A' movement is reduced to types of features: phi features drive A-movement, Periphery features drive A'movement.
 - A Probe has to have an EPP feature that allows a Spec projection as a result of movement.

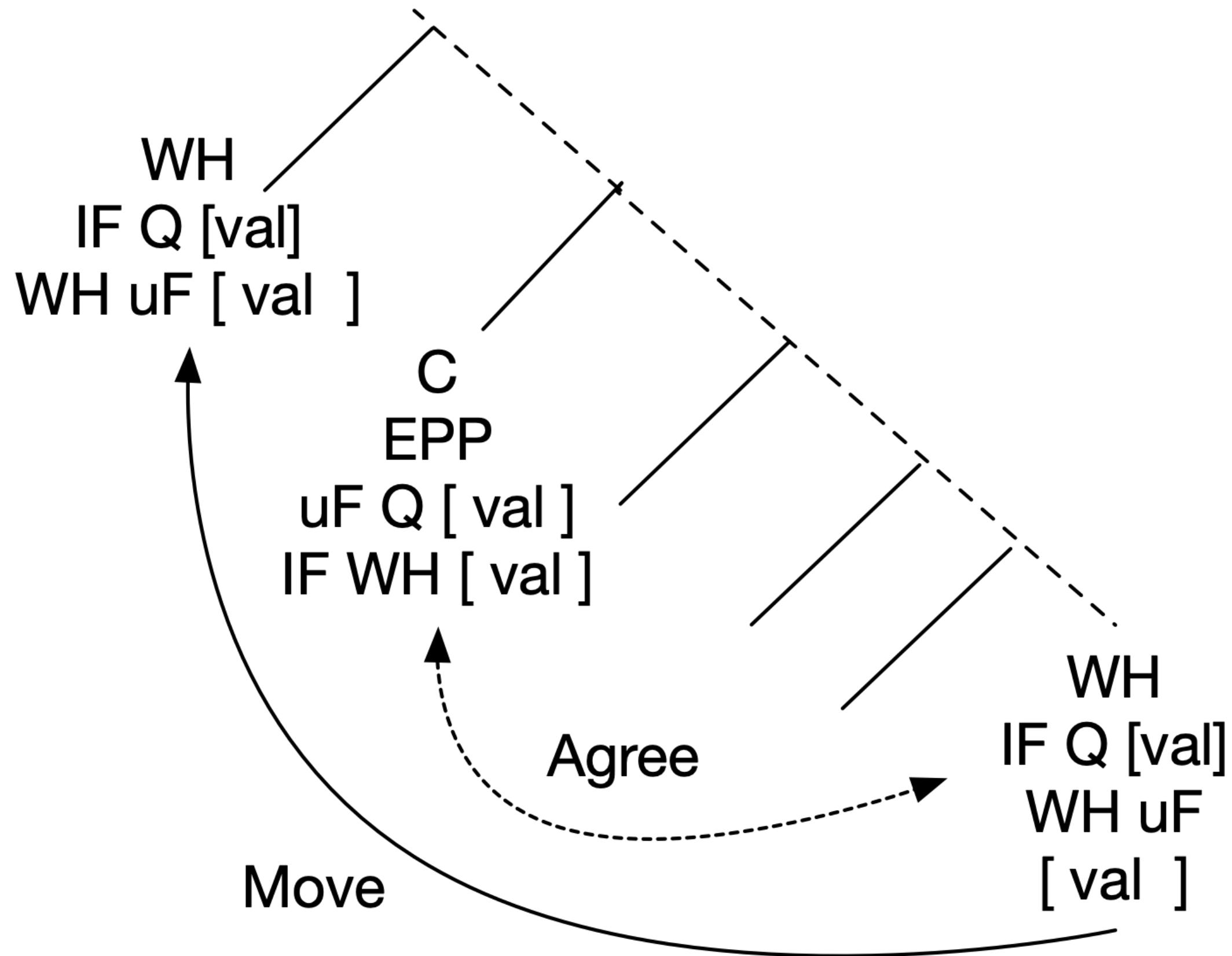
Move



Wh agreement - Move

- wh-phrases have uninterpretable wh feature and interpretable Q feature, which matches uninterpretable probe uQ on C, which also has an interpretable wh-feature
- C has an EPP feature
- Internal Merge (Move) is Pied Piping of the Goal (XP).

Wh move

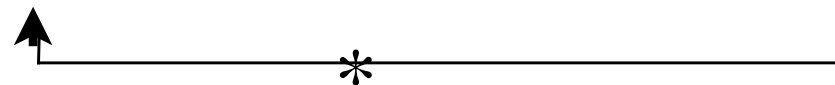


Attract - Probe and Goal Superiority

***What did you wonder who photographed?**

[_{CP} ____ did_[+wh] [_{TP} you wonder [_{CP} ____ Ø_[+wh] [_{TP} who photog what ?]]]

[_{CP} ____ did_[+wh] [_{TP} you wonder [_{CP} Ø_[+wh] [_{TP} who photog what_i ?]]]



can't do this! Who somehow
blocks movement of what

Agree closest:

**Every instance of wh-movement to C must be movement of the highest
wh-phrase in the c-command domain of C.**

Wh cyclic move

[_{CP} What do [_{TP} you think [_{CP} [_{TP} Bill loves what_i]]]]



[_{CP} What do [_{TP} you think [_{CP} [_{TP} Bill loves what_i]]]]



Wh-islands

***What did you wonder who photographed?**

[_{CP} ____ did_[+wh] [_{TP} you wonder [_{CP} ____ Ø_[+wh] [_{TP} who photog what ?]]]

[_{CP} ____ did_[+wh] [_{TP} you wonder [_{CP} who_k Ø_[+wh] [_{TP} who_k photog what ?]]]



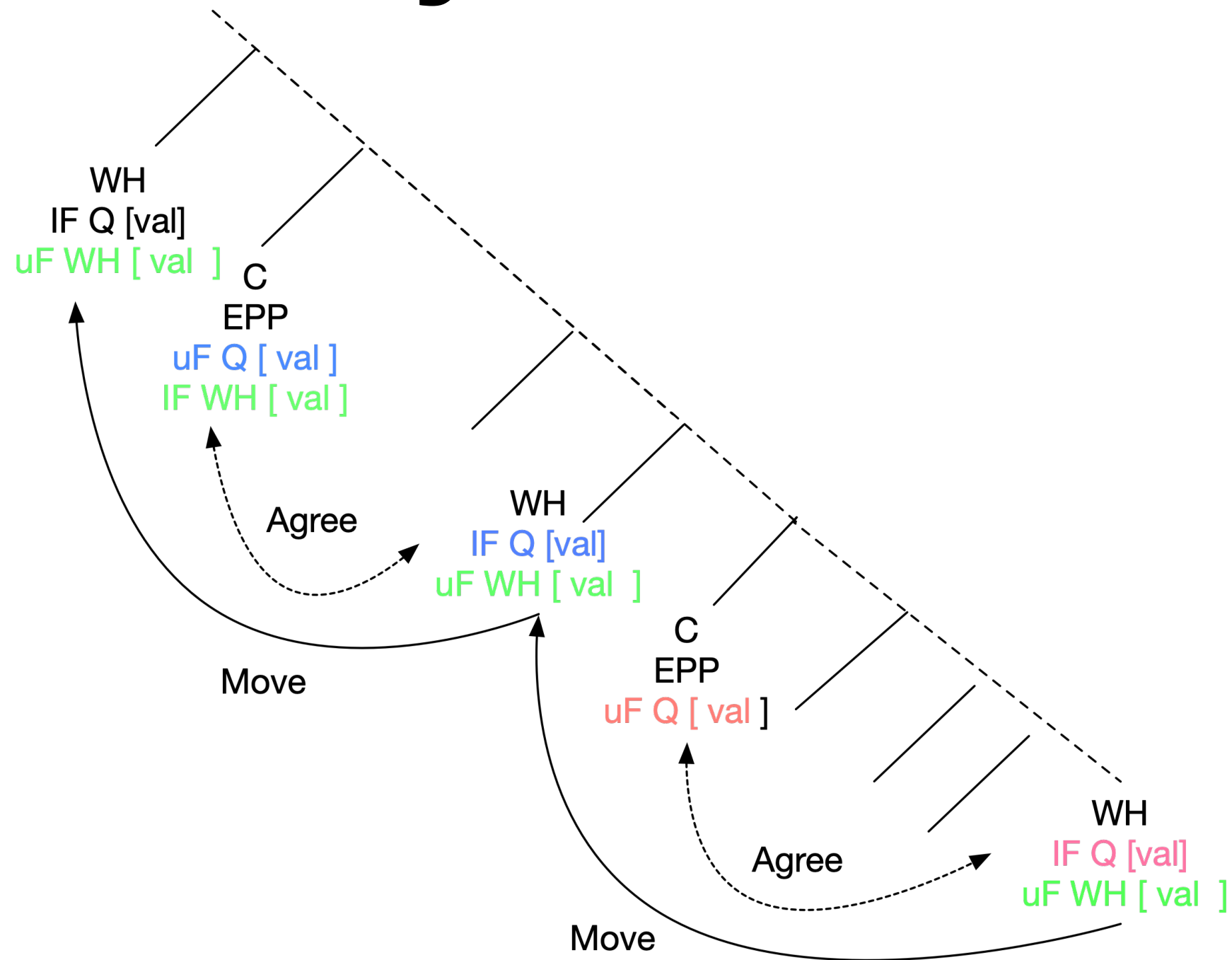
[_{CP} what_i did_[+wh] [_{TP} you wonder [_{CP} who_k Ø_[+wh] [_{TP} who_k photog what_i ?]]]



Can't do this - need to move via CP

|

Cyclic move

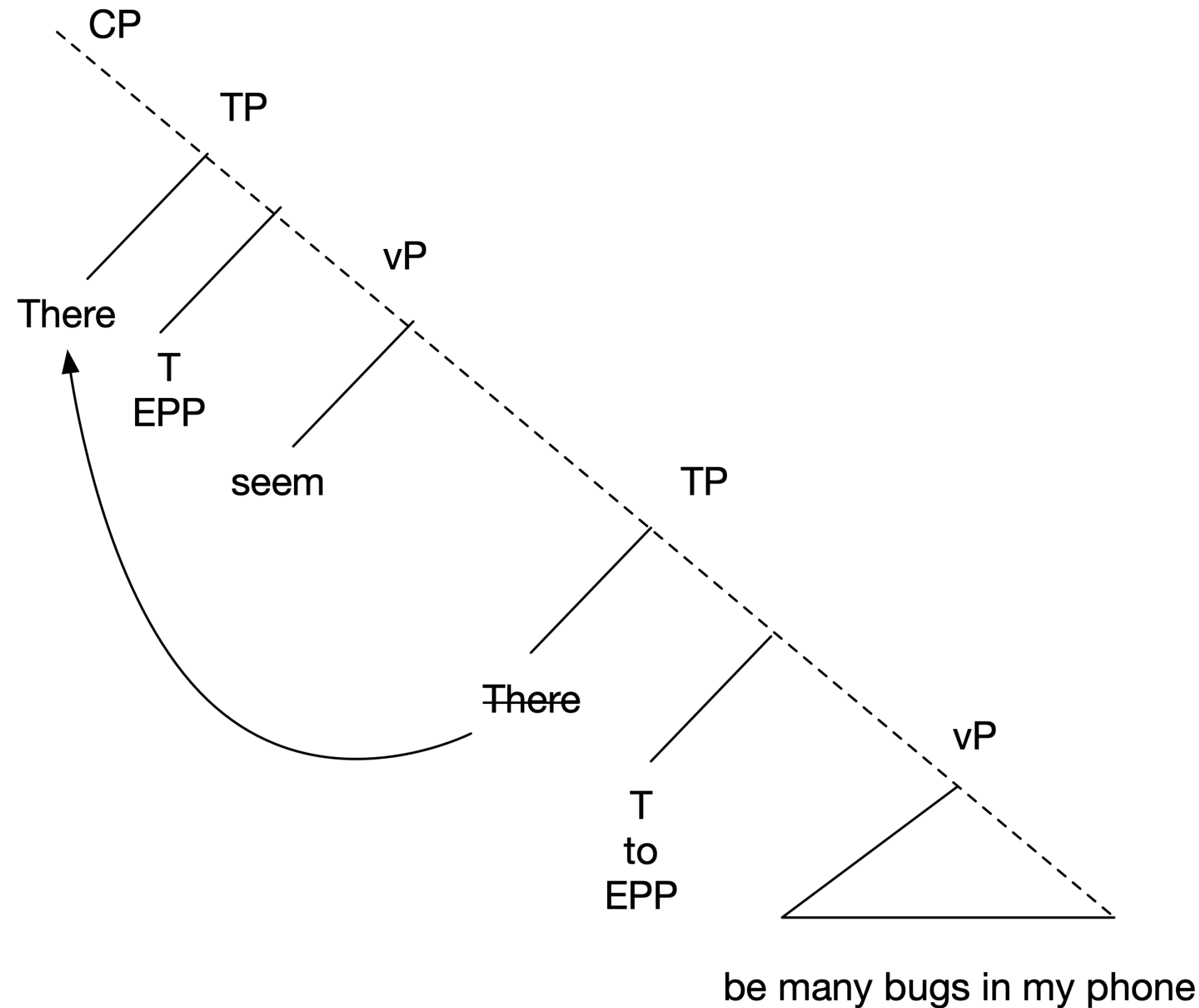


- successive-cyclic movement, C has to have a EPP and a Periphery feature which attracts wh phrases but does not delete their wh-feature.

Merge over Move

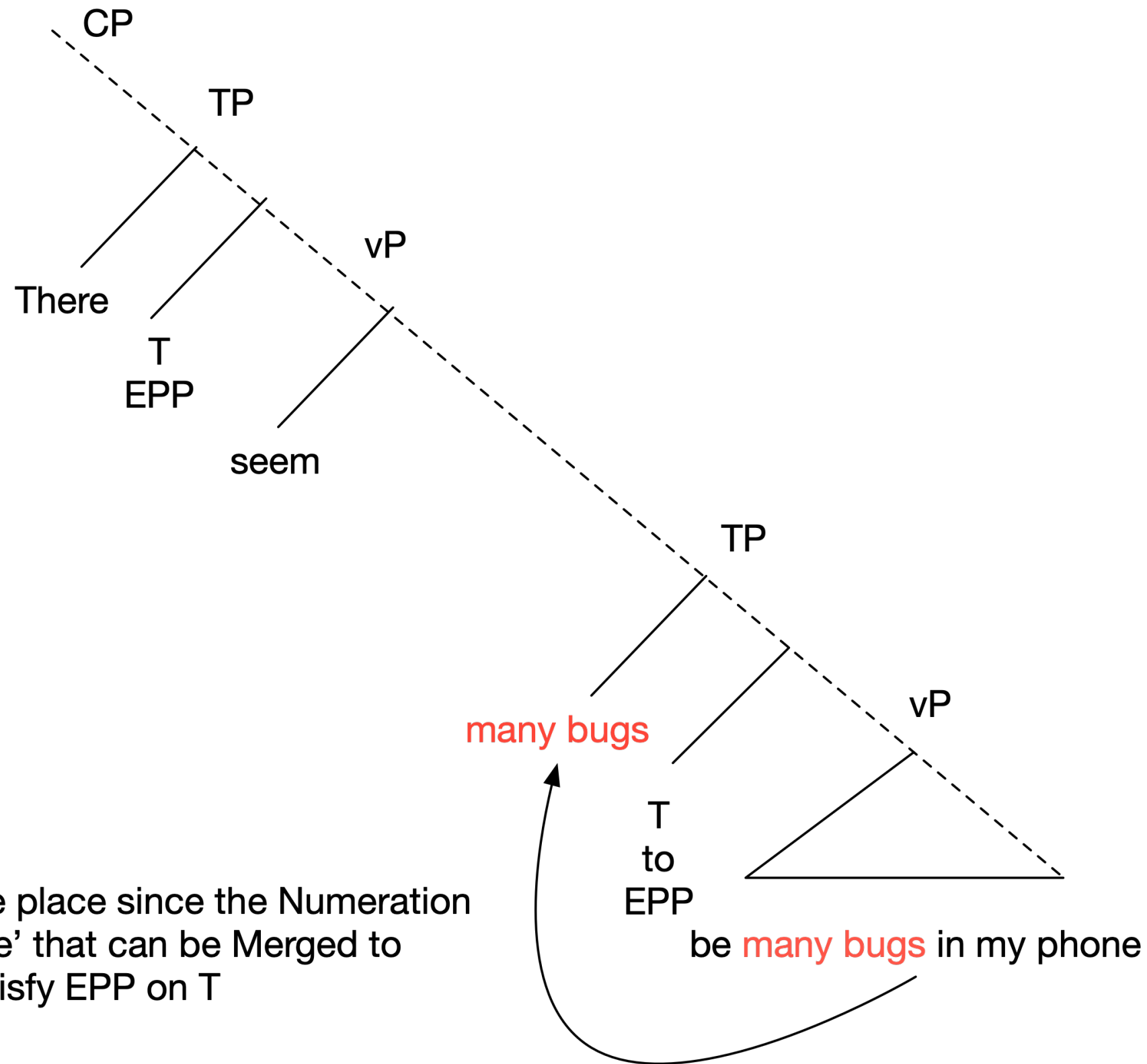
- Economy conditions like Merge over Move
 - There seem to be many bugs in my phone,
VS
 - *There seem many bugs to be in my phone

- There seem to be many bugs in my phone



- Merger of 'there' blocks movement of 'many bugs'

Merge blocks move



- This is an economy condition - Merge is simpler

Merge does not always block move (Marantz's problem)

- There seem to be many bugs in the phone on which a woman seems to be talking
 - Compare
- Many bugs seem to be in the phone on which there seems to be a woman talking

CP domain

- **There** seem to be **many bugs** in the phone on which **a woman** seems to be talking
 - the phone [CP on which [**a woman**]₁ seems t₁ to be talking]
- Is a relative clause a DP modified by a CP
- CP Must be derived before there is the expletive ‘there’ in the numeration, otherwise it would block movement of [a woman]

Expletive blocking

- In fact with merge over move would have no movement with expletives
- There was assumed to be a reason why **the phone** had been bugged

Chunking the numeration

- Lexical Array when indexed for how many times LI's are accessed is a Numeration
- When a CP is constructed the Numeration N1 is exhausted a new Numeration N2 is created and the CP is added as an LI
- The contents of such a CP are not accessible to syntactic derivation
- Consequently we cannot undo move inside the relative clause on account that we have an expletive in N2 since the CP was constructed in N1 where there was no such expletive

CP phase

- Such CP's that are reintroduced to the numeration are called phases
- The complement of C is inaccessible to syntactic computation.

PIC

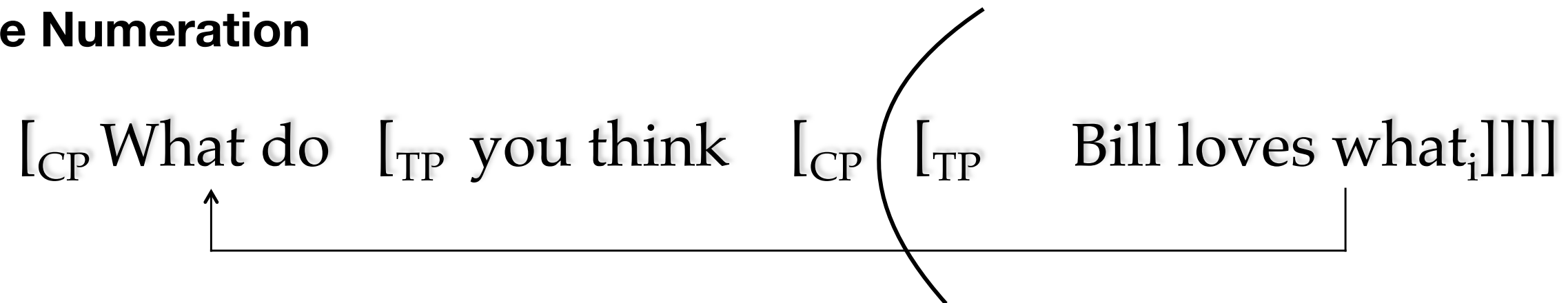
- Phase Impenetrability Condition (PIC) (Chomsky 2000: 108)
 - In phase α with head H, the domain of H is not accessible to operations outside α ,
 - only H and its edge are accessible to such operations
- Recall that a CP has a label C and CP needs to merge with subsequent structure, the whole phase cannot be inert to syntactic operations

Cyclicity

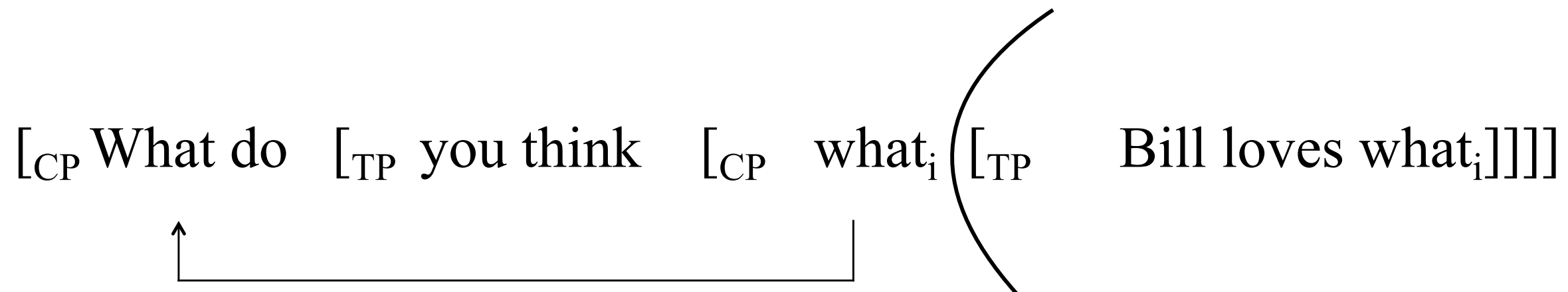
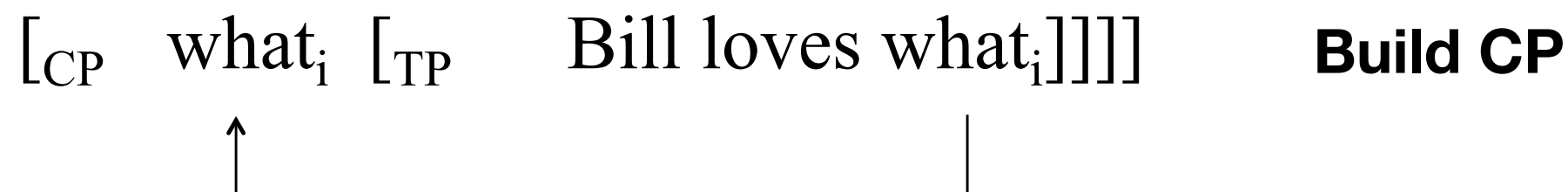
- PIC derives cyclicity since movement in one fell swoop would violate PIC
- Topmost C would need to probe across embedded CP to reach inside it and target a wh

Phases and PIC force cyclicly

One Numeration



Two Numerations



Add CP to new Numeration - making CP edge accessible

Evidence for intermediate movement

- Cyclic movement plus copy theory allows us to assume that a complex wh expression such as *all what (what all)* can leave subparts that are not carriers of uninterpretable wh feature along the way
- This is connected to the mystery of pied piping - why do we see effects of movement at all?
- Should not just features move
- We will not discuss this

Wh All stranding

- Stranded all in West Ulster English (James McCloskey. 2001. Quantifier float and wh-movement in an Irish English. Linguistic Inquiry 31:57-84.)
- a. What **all** did he say (that) he wanted?
- b. What did he say (that) he wanted **all**?
- c. What did he say **all** (that) he wanted?
- a. Where do you think **all** they'll want to visit?
- b. Who did Frank tell you **all** that they were after?
- c. What do they claim **all** (that) we did?

Irish all stranded at intermediate position

- The data is argued to show that 'all' is left behind in an intermediate position of movement
- All does not need to check an wh feature
- Whatever P feature intermediate C had was checked via wh movement, so was the EPP
- Wh expression must raise further to license wh feature

2 CP in Irish

- Creidim [CP gu-r inis sé bréag].
believe.1sgc.dcl-past tell he lie
'I believe that he told a lie.'
- an fhilíocht [CP a chum. sí___]
the poetry. c.ext composed she
'the poetry that she composed'
- There two types of C in Irish, one via which an XP has moved, and one which has not (McCloskey 2002:185–186)

Cyclic movement trigger

Extraction trace

- an t-ainm [CP **a** hinnseadh dúinn [CP **a** bhí ____ ar an áit]]
the name. c.ext was-told. to-us. c.ext was on the place
‘the name that we were told was on the place’
- (McCloskey 2002:185)
- Wh movement triggers a movement type C in embedded Cps

Agreement in CP

- **K**-u Isaa foog [CP **k**-u a bëgg]?
agr-c Isaa think agr-c 2sg love
'Who does Isaa think you love?'
- **F**-u Isaa wax ne [CP **f**-u-ma jàng-e taalif y-a]?
agr-c Isaa say frc agr-c-1sg read-loc poem def
'Where did Isaa say that I read the poems?'
- (Torrence 2012:22) Wolof phi agreement between C and moved wh phrase as far as class.
- Agreement in lower C suggests a local configuration between C and WH - this is called parasitic agreement.

Inversion in Belfast English

- Who did John hope [CP **would** he see ____]?
- What did Mary claim [CP **did** they steal ____]?
- Irish fires inversion in embedded CP (Belfast English; Henry 1995:109)

V2 effects

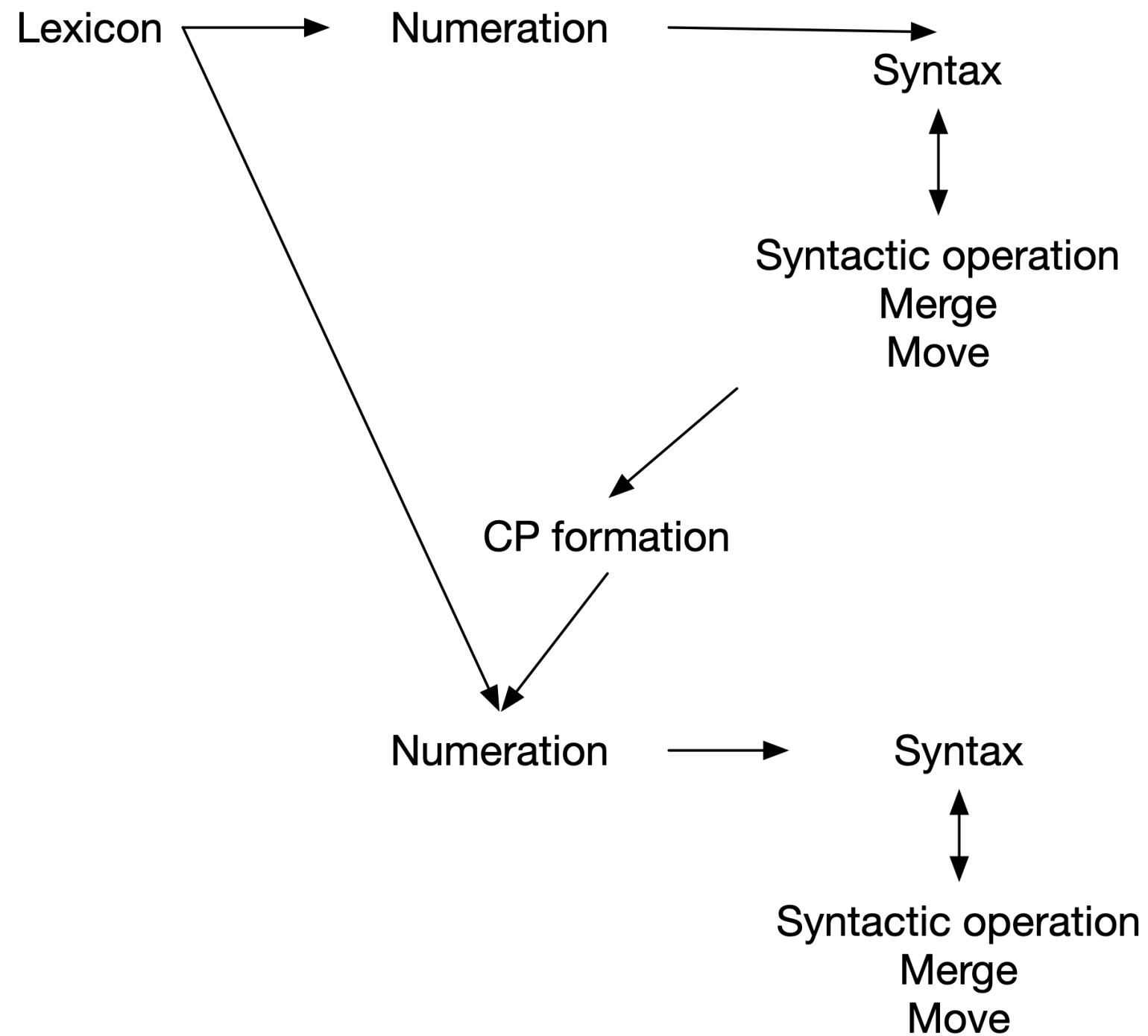
- Wen sagt Johan [CP__sehe er___]?
who. acc says Johan see.sbj he
'Who does Johan say that he is seeing?'
- *Wen sagt Johan [CP er sehe___]?
who.acc says Johan he see.sbj
'Who does Johan say that he is seeing?'
- German has V2 effects (German; Thiersch 1978:135)

V2 effects in cyclic move

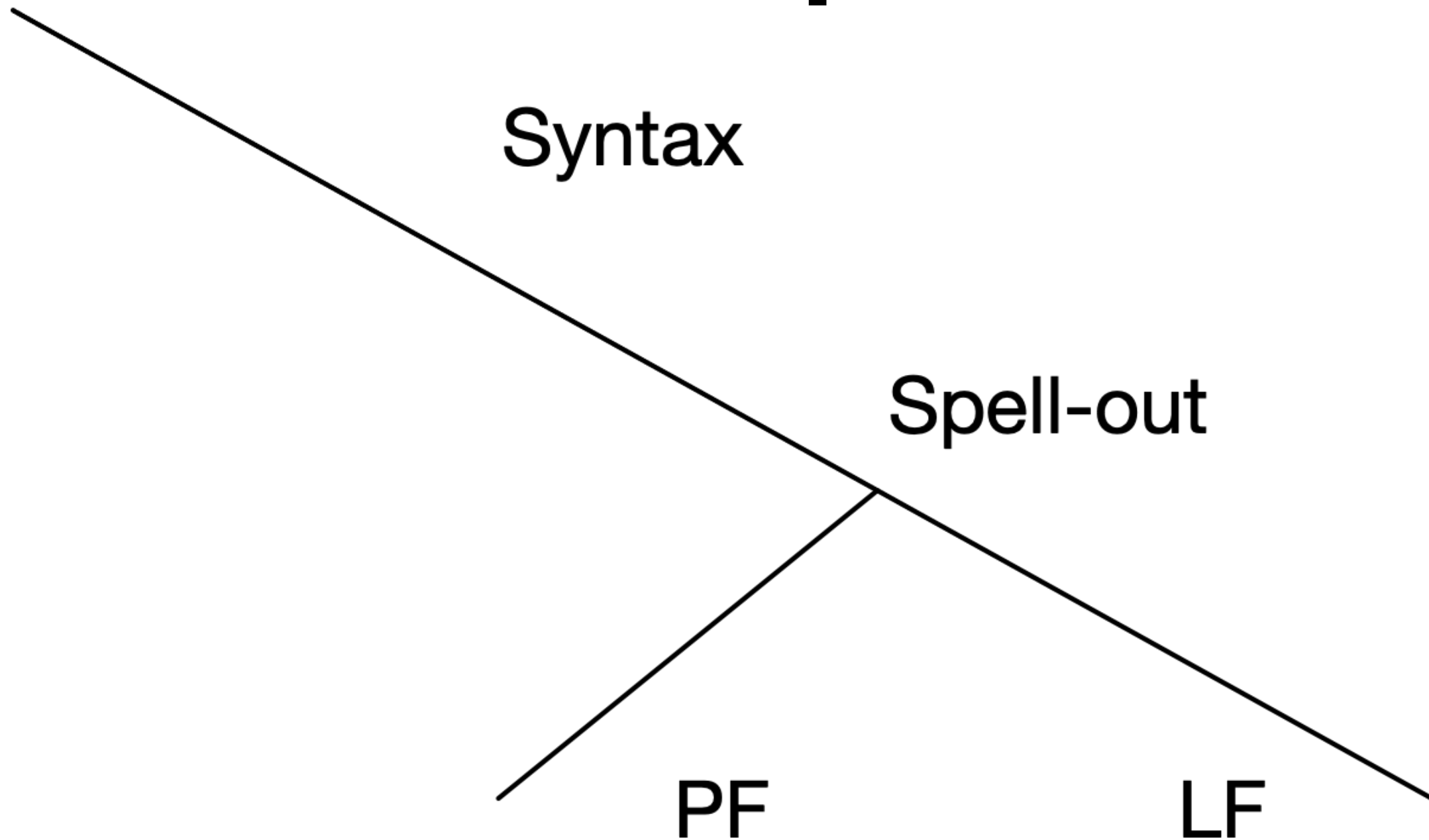
Coppe Von Urk (2020)

- In welche Schule sagte Leo [CP ____ **sei** er gegangen]?
to which school said Leo is.sbj he went
'To which school did Leo say he went?'
- *In welche Schule sagte Leo [CP er **sei** gegangen]
to which school said Leo he is.sbj went
'To which school did Leo say he went?'

CP in the numeration

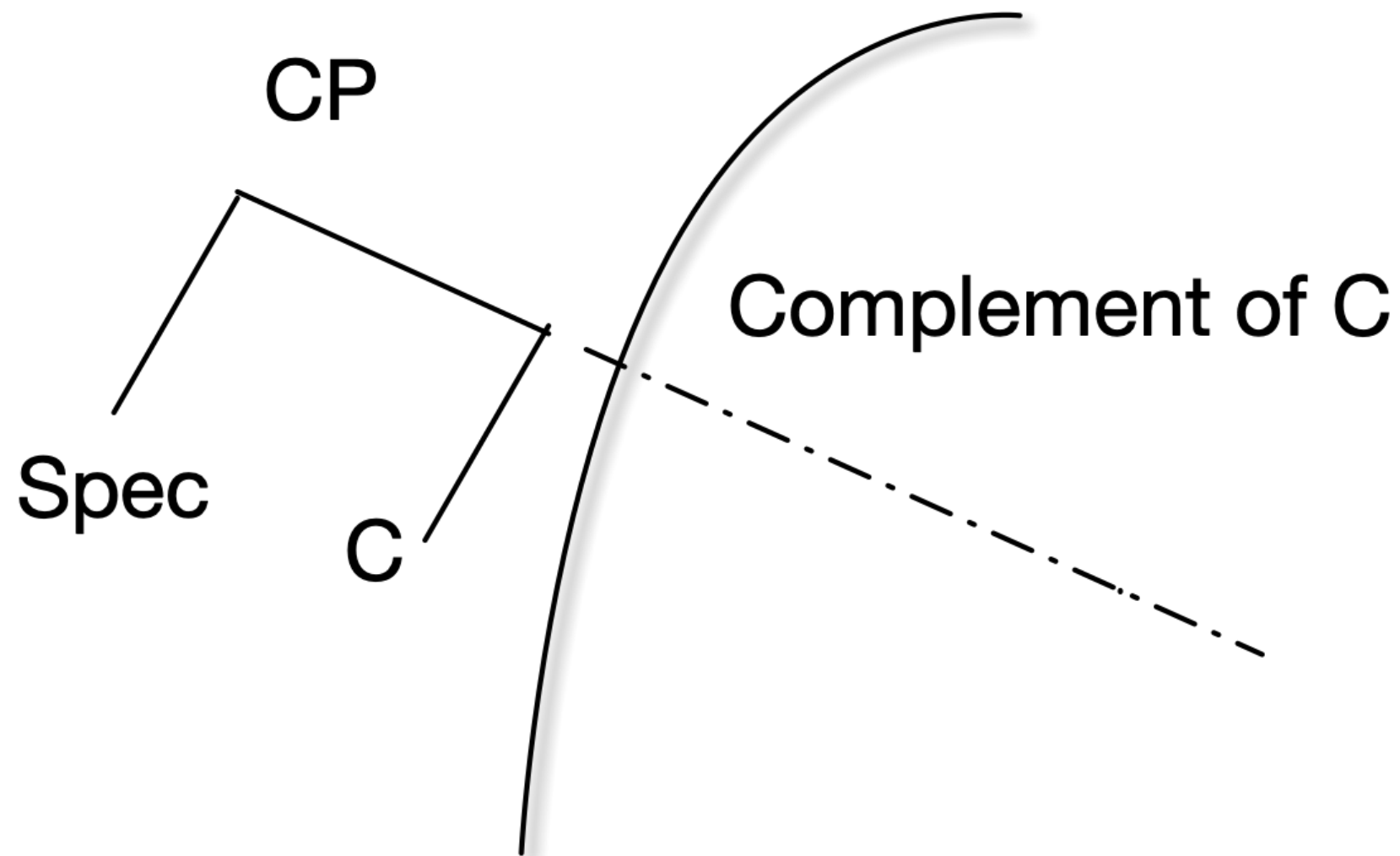


CP Spell out



- Syntactic computation at some point sends material to PF (ultimately Sensory-Motor interface) - I use PF ~SM interchangeably, same LF ~CI - this is not innocuous

What is sent to PF (S-M)



- C and Spec-C need to be accessible to further computation that affects PF and LF
- Complement of C is 'frozen' PF wise

Edge has to be visible (PIC)

- The edge of CP phase has to be visible so that it is accessible to subsequent syntactic computation that alters word order such as cyclic move.

Phases and PIC force cyclicly

[_{CP} what_i [_{TP} Bill loves what_i]]] **Build CP**

[_{CP} What do [_{TP} you think [_{CP} what_i (_{TP} Bill loves what_i)]]]]

[_{TP} Bill loves what_i]]] **Sent to PF**

[_{TP} Bill loves what_i]]] **Copy unpronounced**

PF effects

- Sluicing elision of TP
- I met someone but I do not know who ~~I met~~
- Susan thought that John met someone but I do not know who ~~Susan thought that John met~~
- Ellipsis targets complement of C but spares its Spec.
- Ellipsis is Suppression of PF

Reconstruction and Binding

- We also observe reconstruction effect that are CP sensitive
 - Binding conditions apply at intermediate positions
 - Scope interpreted at intermediate positions

QR

- There needs to be a component of syntactic computation that has no effect on PF:
- Some boy read every book
 - One book read every book
 - For every book there was a boy who read it
- Quantifier Raising (here movement of every above some) derives second meaning
- QR has no effect on word order
 - Need for syntactic computation after word order is established

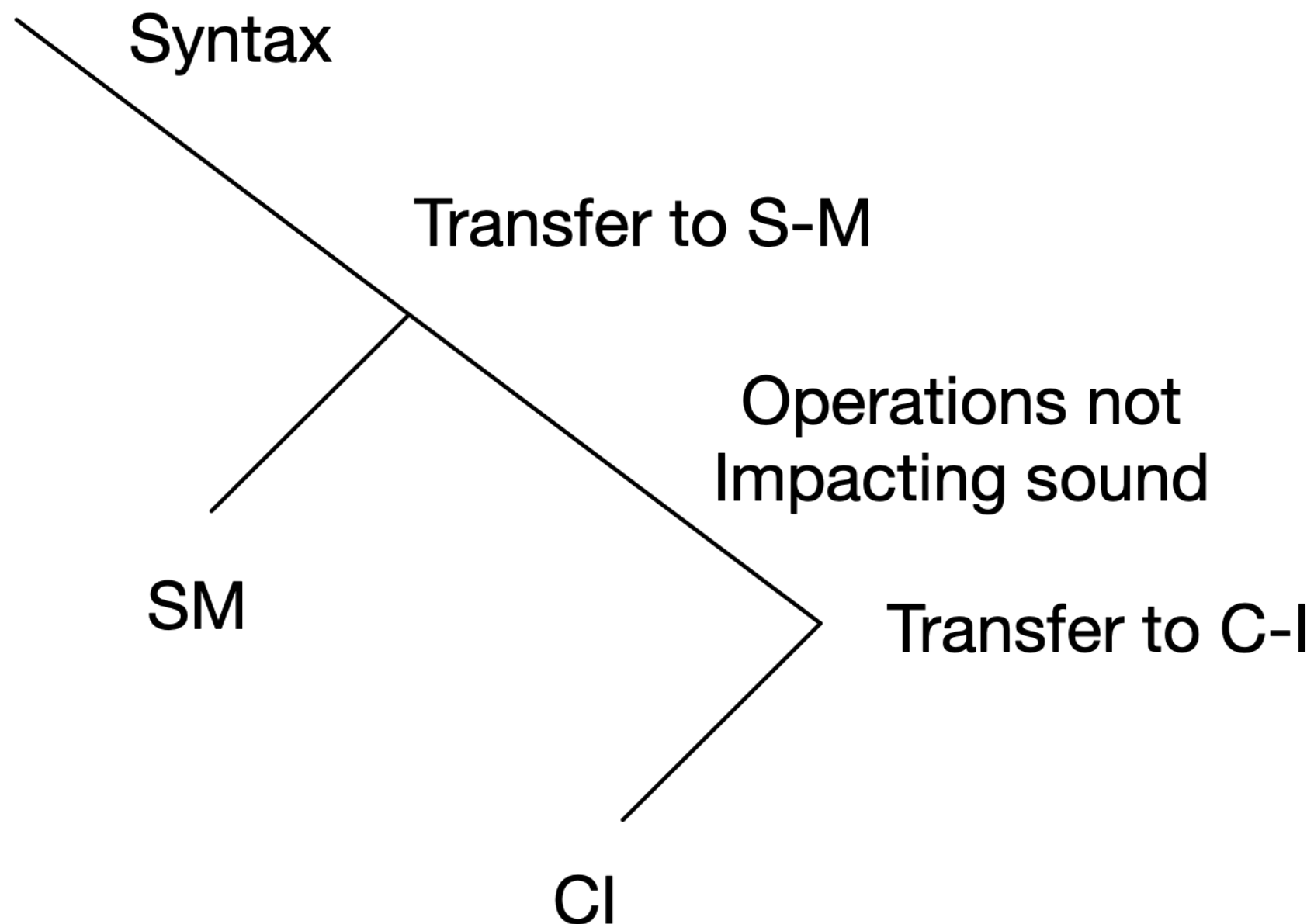
Binding effects (LF)

- Reconstruction in Wh movement
 - Condition A - reconstruction has to be below Sam above Kim
 - Which picture of herself_{1/2} did you tell Sam₁ [Kim₂ likes ___]?
- Condition C - wh expression has to reconstruct to t' for every student >he and no violation of Condition C
 - Relative clause does not need to be interpreted in base position:
- [DP Which argument that **Johni** made] did **hei** believe?
- [Which (of the) paper(s) that **he1** gave to **Ms. Brown2**] did **every student1** hope [CP **t'** that **she2** will read t?]
- *[Which (of the) paper(s) that **he1** gave to **Ms. Brown2**] did **she2** hope [CP **t'** that **every student1** will revise t?]
- (Fox 1999: 173, citing Lebeaux 1990, Citko 2014, van Urk 2020)

Reconstruction

- For some processes there is the option of interpreting a copy not at the topmost position
- Binding is such a Process
- Scope is such a process

Spell out - or what its is really called Transfer



- The model proposed we need to assume asymmetric spell out (Transfer) since output to S-M if followed by 'covert' computations such as Quantifier Raising

The nature of covert operations crucial

- We can have simultaneous C-I and S-M Transfer if we assume that copies can be spelled out in situ (movement has no PF effect)
- This predicts that covert movement is not different from overt i.e same island sensitivity in covert phrasal movement
- That is problematic

Islands in wh and QR

QR behaves like wh

- Coordinate Structure Constraint: movement must not originate from only one conjunct.
- (2) *Which beer did someone [ate fries and drink t] after leaving class?
- Someone [ate fries and drank every beer] after leaving class
- *every>someone no wide scope for every beer there was a student who drank it after class

Islands in WH and QR

QR does not behave like wh

- subject are islands for wh movement (Subject Island Constraint).
- *What country does [someone in t] adores Chomsky?
- [Someone in every country] adores Chomsky.
 - every > someone For every country, there is someone who adores Chomsky

Intervention effects

- German: intervention above wh-in-situ, rescued by scrambling
- Wer hat Luise **wo** angetroffen?
who has Luise where met
'Who met Luise where'?
- *Wer hat niemanden **wo** angetroffen?
who has no one where met
- Wer hat **wo** niemanden angetroffen?
who has where no one met
'Who didn't meet anybody where'?
- Covert move - pair list reading. John in Boston, Mary in Syracuse, etc (Beck 1996)
- Covert wh move does not alleviate intervention effects, which are arguably not PF effects.
- Covert and overt wh are not identical.