

# Edge features and crosslinguistic variation

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19th Workshop on Syntax, Semantics and Phonology

Nantes Université, 29/9/23

# 1. Introduction

## Goal:

To show that much of the **crosslinguistic variation involving *wh*-movement** may be determined by the features that trigger successive cyclic movement (*edge features* – *EFs*)

# 1. Introduction

## Basic Assumptions:

- . Syntactic movement is feature-driven (e.g. Chomsky 1995) →
  - . **intermediate steps of successive cyclic movement are feature-driven**
  
- . Formal features may be intrinsically valued or unvalued regardless of their interpretability (e.g. Pesetsky and Torrego 2007) →
  - . an **unvalued** feature must be licensed by a corresponding **valued** feature
  - . an **uninterpretable** valued feature must be licensed by a corresponding **interpretable** valued feature

# 1. Introduction

## Basic Assumptions:

. Chomsky (2008): traces don't count for minimality purposes (only the head of the chain does)

(1)  $[X_i \dots Y_k \dots t_i \dots t_k \dots]$

(3)  $*[Y_k \dots X_i \dots t_k \dots]$

(2)  $*[Y_k \dots X_i \dots t_i \dots t_k \dots]$

. Reinterpretation (Nunes 2021b, 2022): if a given element has an unvalued feature, it does not qualify as a proper intervener for purposes of minimality computations.

(4)  $[X_{\sqrt{[F:val]}} \dots X_{[F:u]} \dots]$

(5) a.  $[Y_k \dots X_{[F:u]} \dots t_k \dots]$

b.  $*[Y_k \dots X_{[F:val]} \dots t_k \dots]$

# 1. Introduction

**Goal:** . To argue that much of the crosslinguistic variation involving *wh*-movement may follow from the answers to (i)-(iii):

- (i) **Where** is the edge feature EF (i.e. the feature that triggers successive cyclic A'-movement) located?
- (ii) Is EF **obligatorily or optionally** associated with its lexical host?
- (iii) Is EF intrinsically **valued or unvalued**?

## 2. The lexical host of edge features

### 2.1. Edge features on phase heads

- . Chomsky (2000): after a phase is completed, its head may optionally be assigned an EPP-type of feature, which then attracts a local *wh*-element.

(6) What did John say that Mary saw?

[<sub>vP</sub> Mary [<sub>v'</sub> *v* saw what]]

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## 2. The lexical host of edge features

### 2.1. Edge features on phase heads

. Problem: overgeneration/lookahead (e.g. Bošković 2007):

(7) [<sub>vP</sub> Mary  $v_{EPP}$  bought what]

. Is EPP-assignment to  $v$  in (7) licit?

. YES, if *John* is the **matrix** subject in (8a)

. NO, if *who* is the **matrix** subject in (8b)

(8) a. **What** did John say that Mary bought?

b. \*Who said that Mary **what** bought?

## 2. The lexical host of edge features

### 2.2. Edge features on moving elements

. Bošković (2007):

- (i) the uninterpretable feature that triggers successive-cyclic movement ( $uF$ ) is hosted by the moving element;
- (ii)  $uF$  must function as a probe in order to be licensed;
- (iii) crosslinguistic variation:
  - a. Bulgarian *wh*-phrases:  $uF$
  - b. Korean *wh*-phrases:  $iF$
  - c. English *wh*-phrases: ( $uF$ )

## 2. The lexical host of edge features

### 2.2. Edge features on moving elements

- (8) a. **What** does John think that Mary bought?  
b. \*Who thinks that Mary **what** bought?

- (9)a. [Mary *v* bought **what**] . no uF on *what* →  
. no *wh*-movement →  
. **Q cannot have its *wh*-feature checked (PIC):**
- b. \*[does-**Q<sub>wh</sub>** [John think Mary bought what]]

## 2. The lexical host of edge features

### 2.2. Edge features on moving elements

- (8) a. **What** does John think that Mary bought?  
b. \*Who thinks that Mary **what** bought?

(10)a. [Mary  $\nu$  bought **what<sub>uF</sub>**]  $\rightarrow$ uF must function as a probe:

- b.  $\sqrt{[\mathbf{what}_{uF}$  does- $Q_{wh}$  [John [ $t$  think [ $t$  that [Mary [ $t$  bought  $t$ ]]]]]} (cf. (8a))
- c. \* $[\nu_P \nu$  think [ $_{CP}$  that [ $_{TP}$  Mary [ $_{\nu_P}$  **what<sub>uF</sub>** bought  $t$ ]]]] (cf. (8b))

## 2. The lexical host of edge features

### 2.2. Edge features on moving elements

Problem: . *wh*-movement may depend on a local phase head

(11) Who do you think (**\*that**) saw Mary?

(12) a. [<sub>CP</sub> that [<sub>TP</sub> **who**<sub>uF</sub> [*t* saw Mary]]]

b.  $\sqrt{[\text{who}_{uF} \text{ do-Q}_{wh} [\text{you} [\text{vP } t [\text{you} \text{ think} [\text{CP } t \text{ that} [t [\text{vP } t [\text{v}' \text{ v}saw Mary]]]]]]]]]]]$



## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements (Nunes 2021a)

An edge feature EF may be lexically encoded on:

(i) *wh*-elements or (ii) phase heads (or a head of the extended projection of the phase head).

**If (ii) obtains, the phase head may assign EF to the closest *wh*-element in its probe domain:**

(13) [... Ph<sub>EF</sub> ... [... WH ...]]  $\xrightarrow{\text{EF assignment}}$   
[... Ph ... [... WH<sub>EF</sub> ...]]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

- . English:

EF is lexically **optional on phase heads** ( $\text{Ph}_{(\text{EF})}$ )

- . Brazilian Portuguese:

EF is lexically **optional on *wh*-elements** ( $\text{WH}_{(\text{EF})}$ )



## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving alike: upward movement of objects (BP: WH<sub>(EF)</sub>)

- (14) a. O João acha que a Maria viu quem?  
the J. thinks that the M. saw who
- b. Quem o João acha que a Maria viu?  
who the J. thinks that the M. saw
- c. \*O João acha que a Maria quem viu?  
the J. thinks that the M. who saw  
'Who does João think that Maria saw?

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who the J. thinks that the M. saw
- c. \*O João acha que a Maria quem viu?  
the J. thinks that the M. who saw  
'Who does João think that Maria saw?

. *Quem* without EF: no *wh*-movement

[Q [o João [acha [que a Maria [viu **quem**]]]]]

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who the J. thinks that the M. saw

c. \*O João acha que a Maria quem viu?

the J. thinks that the M. who saw

‘Who does João think that Maria saw?’

. *Quem* with EF → full *wh*-movement: OK

[**Quem**<sub>√EF</sub> Q [o João [*t* acha [*t* que a Maria [*t* viu *t*]]]]]

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who the J. thinks that the M. saw
- c. \*O João acha que a Maria **quem** viu?  
the J. thinks that the M. who saw  
'Who does João think that Maria saw?'

. *Quem* with EF → partial *wh*-movement: \*

\*[Q [o João [acha [que a Maria [**quem**<sub>EF</sub> viu *t*]]]]]

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. Behaving alike: upward movement of objects (En:  $\text{Ph}_{(\text{EF})}$ )

- (15) a. \*Does John think that Mary saw **who**?  
b. \*Does John think that Mary **who** saw?  
c. **Who** does John think that Mary saw?

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- (15) a. \*Does John think that Mary saw **who**?  
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c. Who does John think that Mary saw?

. If the lower  $v$  does not have EF  $\rightarrow$  no *wh*-movement  
 $\rightarrow$  **Q cannot check its *wh*-feature**

\*[**Q<sub>wh</sub>** [John thinks [(that) Mary [viu **who**]]]]  
|-----\*PIC-----|

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b. \*Does John think that Mary who saw?  
c. Who does John think that Mary saw?

. If the lower  $v$  has EF  $\rightarrow$  **EF assignment**

$[_{vP} \text{Mary} [_v, v_{\text{EF}} \text{saw who}]] \rightarrow [_{vP} \text{Mary} [_v, v \text{saw } \mathbf{who}_{\text{EF}}]]$

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. partial *wh*-movement: \*

\*[does+Q<sub>wh</sub> [John [think [that [Mary [**who**<sub>EF</sub> saw *t*]]]]]]



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c. **Who** does John think that Mary saw?

. full wh-movement: OK

[**who**<sub>√EF</sub> does+Q<sub>√wh</sub> [John [*t* think [*t* that [Mary [*t* saw *t*]]]]]]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

#### . Behaving alike: **parasitic gaps**

- (16) a. [**Which paper**]<sub>i</sub> did you file  $t_i$  without my reading  $PG_i$  first?  
b. \*Who filed [**which paper**]<sub>i</sub> without my reading  $PG_i$  first?

(Nunes and Santos 2009)

- (17) a.  $\sqrt{[$ [**Que livro**]<sub>i</sub> você recomendou  $t_i$  [depois que **COM**prou  $PG_i$  **ON**tem  
which book you recommended after that bought yesterday  
b.  $\#$ [Você recomendou [**que livro**]<sub>i</sub> [depois que **COM**prou  $PG_i$  **ON**tem]]  
you recommended which book after that bought yesterday  
'Which book did you recommend after buying yesterday?'

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving alike: **sideward movement of objects** (Nunes 1995, 2001, 2004, Nunes and Uriagereka 2000, Hornstein 2001, Hornstein and Nunes 2002)

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(17) [<sub>vP</sub> my **v<sub>EF</sub>** reading [which paper] first]

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- (17) [<sub>VP</sub> [<sub>VP</sub> you v file [**which paper**]<sub>EF</sub>] [<sub>PP</sub> without [my [<sub>VP</sub>  $t$  [~~my~~ v reading  $t$  first]]]]]



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- (17) [<sub>CP</sub> [**which paper**]<sub>√EF</sub> did+Q [<sub>TP</sub> you [<sub>VP</sub> **t** [[~~you~~ v file **t**]  
[<sub>PP</sub> without [my [<sub>VP</sub> **t** [~~my~~ v reading **t** first]]]]]

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- (18) \*<sub>CP</sub> who Q <sub>TP</sub> ~~who~~ <sub>VP</sub> <sub>VP</sub> ~~who~~ v filed [which paper]<sub>EF</sub> ]  
[<sub>PP</sub> without [my <sub>VP</sub> *t* [~~my~~ v reading *t* first]]]]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects  
(Hornstein 2001, Boeckx, Hornstein and Nunes 2010, Hornstein and Nunes 2014)

. Adjunct control in English → **subject control**:

- (19) a. [Which man]<sub>i</sub> greeted [**which woman**]<sub>k</sub> after [***ec***<sub>i/\*k</sub> entering the room]
- b. [**Which woman**]<sub>k</sub> did John<sub>i</sub> greet *t*<sub>k</sub> after [***ec***<sub>i/\*k</sub> entering the room]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Adjunct control in Brazilian Portuguese:

. If the matrix object is *in situ* → **subject control**

(20) [Os alunos]<sub>i</sub> entrevistaram [**que professores**]<sub>k</sub>

*the students interviewed which professors*

antes de **ec**<sub>i/\*k</sub> sair de férias?

*before of leave of vacation*

‘Which professors did the students interview before leaving on vacation?’

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Adjunct control in Brazilian Portuguese (Rodrigues 2004, Nunes 2014): . If the matrix object undergoes *wh*-movement  
→ **subject or object control**

(21) [**que professores**]<sub>k</sub> [os alunos]<sub>i</sub> entrevistaram *t*  
*which professors the students interviewed*  
antes de **ec**<sub>i/k</sub> sair de férias?  
*before of leave of vacation*  
‘[Which professors]<sub>k</sub> did [the students]<sub>i</sub> interview before  
**they**<sub>i/k</sub> left on vacation?’

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in English (Hornstein 2001):

(22) Who<sub>i</sub> greeted John<sub>k</sub> after [**ec**<sub>i/\*k</sub> entering the room]

(23) N = { **John**<sub>1</sub>, v<sub>1</sub>, greet<sub>0</sub>... }

K = greet

L = [<sub>VP</sub> **who** [<sub>v</sub>, v entering the room]]

**Merge-over-Move**

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(22) Who<sub>i</sub> greeted John<sub>k</sub> after [**ec**<sub>i/\*k</sub> entering the room]

(23) N = { **John**<sub>0</sub>, v<sub>1</sub>, greet<sub>0</sub>... }

K = [greet **John**]                      L = [<sub>vP</sub> who [<sub>v</sub> v entering the room]]



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. Derivation of adjunct control in English (Hornstein 2001):

(22) Who<sub>i</sub> greeted John<sub>k</sub> after [**ec**<sub>i/\*k</sub> entering the room]

(23) N = {John<sub>0</sub>, v<sub>0</sub>, greet<sub>0</sub>...}

K = [**who** [v greet John]]      L = [<sub>vP</sub> **t** [<sub>v</sub>, v entering the room]]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in English (Hornstein 2001):

(22) Who<sub>i</sub> greeted John<sub>k</sub> after [**ec**<sub>i/\*k</sub> entering the room]

(23) [<sub>CP</sub> **who** *-ed* [<sub>VP</sub> [<sub>VP</sub> **t** v greet John] [after **t** entering the room]]]

→ **subject control**

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in BP (Nunes 2021a):

- (24)a. Ela<sub>i</sub> cumprimentou **quem**<sub>k</sub> depois de [**ec**<sub>i/\*k</sub> entrar na sala]  
she greeted who after of enter in-the room  
'Who did she greet after entering the room?'
- b. **Quem**<sub>k</sub> ela<sub>i</sub> cumprimentou **t**<sub>k</sub> depois de [**ec**<sub>i/k</sub> entrar na sala]  
who she greeted after of enter in-the room  
'Who<sub>k</sub> did she<sub>i</sub> greet after **she**<sub>i</sub>/**he**<sub>k</sub> entered the room?'

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in BP (Nunes 2021a):

(25) N = { **ela**, ... }

she

K = cumprimentou

greeted

L = [ { **quem/quem<sub>EF</sub>** } entrar na sala ]

who

enter in-the room

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Derivation of adjunct control in BP (Nunes 2021a):

(25) N = { **ela**, ... }

she

K = cumprimentou

greeted

L = [**quem** entrar na sala]

who enter in-the room

. If *quem* does not have EF → Merge-over-Move

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Derivation of adjunct control in BP (Nunes 2021a):

(25) N = { **ela**<sub>0</sub>, ... }

her

K' = [cumprimentou **ela**]  
greeted her

L = [quem entrar na sala]  
who enter in-the room

. If *quem* does not have EF → Merge-over-Move

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in BP (Nunes 2021a):

(26)

[<sub>CP</sub> Q [<sub>TP</sub> **quem** [[*t* cumprimentou ela] [depois de *t* entrar na sala]]]]  
who greeted she after of enter in-the room  
‘Who greeted her after entering the room?’

→ **subject control**

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Derivation of adjunct control in BP (Nunes 2021a):

(25) N = { **ela**, ... }

she

K = cumprimentou

greeted

L = [ **quem**<sub>EF</sub> entrar na sala ]

who enter in-the room

. If *quem* has EF → Merge-over-Move is preempted



## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement of subjects**

. Derivation of adjunct control in BP (Nunes 2021a):

(27) N = {ela, ...}

she

K = [cumprimentou **quem**<sub>EF</sub>]  
greeted who

L = [*t* entrar na sala]  
enter in-the room

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Derivation of adjunct control in BP (Nunes 2021a):

(28)

\*[<sub>CP</sub> Q [<sub>TP</sub> ela [[cumprimentou **quem**<sub>EF</sub>] [depois de *t* entrar na sala  
she greeted who after of enter in-the room

\*‘**Who**<sub>i</sub> did she greet after **he**<sub>i</sub> entered the room?’

*wh-in situ* → \*object control reading

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: **sideward movement** of subjects

. Derivation of adjunct control in BP (Nunes 2021a):

(29)

[<sub>CP</sub> **quem**<sub>√EF</sub> Q [<sub>TP</sub> ela [[cumprimentou *t*] [depois de *t* entrar na sala  
who she greeted after of enter in-the room  
'**Who**<sub>*i*</sub> did she greet after **he**<sub>*i*</sub> entered the room?']

***wh*-movement** → √**object control reading**

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

. BP ( $WH_{(EF)}$ ): no subject-object asymmetry

(30) a. O João disse que **quem** criticou a Maria?

the J. said that who criticized the M.

a'. [Q [o João disse [que **quem** criticou a Maria]]]

b. **Quem** o João disse que criticou a Maria?

who the J. said that criticized the M.

b'. [<sub>CP</sub> **quem**<sub>√EF</sub> Q [o João [*t* disse [que *t* criticou a Maria]]]

‘Who did João say criticized Maria?’

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

. English ( $\text{Ph}_{\text{EF}}$ ): *that*-trace effect

(31) Who do you think (**\*that**) saw Mary?

(32) [<sub>VP</sub> who [<sub>V'</sub> **v**<sub>EF</sub> saw Mary]]

. Nonstarter: a phase head can only assign EF to an element in its probe domain

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(33) [<sub>CP</sub> **C** [<sub>TP</sub> who [<sub>vP</sub> *t* [<sub>v</sub>, *v* saw Mary]]]

. Allomorphy involving C → presence/absence of EF on C:

(34) a. **C<sub>that</sub>**: is not specified for EF.

b. **C<sub>∅</sub>**: is optionally specified for EF.

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) a.  $C_{\text{that}}$ : is not specified for EF.

(35) [<sub>CP</sub> that [who [<sub>VP</sub> *t* [<sub>V'</sub> v saw Mary]]]]

no EF-assignment → *who* cannot move:

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) a.  $C_{\text{that}}$ : is not specified for EF.

(35) [<sub>VP</sub> Peter **v<sub>EF</sub>** said [<sub>CP</sub> that [**who** [<sub>VP</sub> *t* [<sub>v</sub> saw Mary  
|—————\*PIC—————|

. no EF assignment → *who* cannot move



## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) a.  $C_{\text{that}}$ : is not specified for EF.

(35)  $*[_{\text{CP}} \text{do} + \mathbf{Q}_{\text{wh}} [_{\nu\text{P}} \nu \text{think} [_{\text{CP}} \text{that} [ \mathbf{who} [_{\nu\text{P}} t [_{\nu'} \nu \text{saw}$   
Mary]]]]]]]

## 2. The lexical host of edge features

2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) b.  $C_{\emptyset}$ : is optionally specified for EF

(36) [<sub>CP</sub>  $C_{\emptyset}$ -EF [who [<sub>VP</sub>  $t$  [v saw Mary]]]

## 2. The lexical host of edge features

2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) b.  $C_{\emptyset}$ : is optionally specified for EF

(36)  $[_{CP} C_{\emptyset} [who_{EF} [_{VP} t [V \text{ saw Mary}]]]$

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Behaving differently: upward movement of subjects

(31) Who do you think (**\*that**) saw Mary?

(34) b.  $C_{\emptyset}$ : is optionally specified for EF

(36) [<sub>CP</sub> **who**<sub>√EF</sub> do+Q<sub>√wh</sub> [you [<sub>VP</sub> **t** [~~you~~ v think [<sub>CP</sub> **t** C<sub>∅</sub> [**t** [<sub>VP</sub> t [<sub>V'</sub> v  
saw Mary]]]]]]]]]]



## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. How is this approach different from Rizzi's (2006) Subject Criterion, for instance?

. Different predictions regarding ECP effects involving objects:

. Rizzi and Schlonsky (2007): “Movement of objects and other complements is not similarly constrained since there is no Object Criterion, parallel to the Subject Criterion.”

. Nunes (2021a): Subjects are not especial; object extraction may also be conditioned by allomorphy involving  $v$ :

(37) a. [**C** [<sub>TP</sub> **wh**<sub>SU</sub> ... [ <sub>$v$ '</sub>  $t$   $v$  [<sub>VP</sub> V DP]]]]

b. [<sub>VP</sub> DP [ <sub>$v$ '</sub>  $v$  [<sub>VP</sub> V **wh**<sub>OB</sub>]]]]

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

. Saddy (1991): Bahasa Indonesian is an optional *wh-in situ* language, whose *wh*-elements may move to a focus position preceding the particle *yang*:

(38) *Bahasa Indonesia* (Saddy 1991)

- |    |       |        |        |        |                                       |                            |
|----|-------|--------|--------|--------|---------------------------------------|----------------------------|
| a. | Siapa | men-   | cintai | Sally  | ( <i>wh</i> -subject <i>in situ</i> ) |                            |
|    | who   | TRANS- | loves  | Sally  |                                       |                            |
| b. | Siapa | yang   | men-   | cintai | Sally                                 | (moved <i>wh</i> -subject) |
|    | who   | FOC    | TRANS- | loves  | Sally                                 | ‘Who loves Sally?’         |
| c. | Sally | men-   | cintai | siapa  | ( <i>wh</i> -object <i>in situ</i> )  |                            |
|    | Sally | TRANS- | loves  | who    |                                       |                            |
| d. | Siapa | yang   | Sally  | ∅-     | cintai                                | (moved <i>wh</i> -object)  |
|    | who   | FOC    | Sally  | loves  |                                       | ‘Who does Sally love?’     |

## 2. The lexical host of edge features

### 2.3. Edge features on either phase heads or moving elements

Bahasa Indonesia:

(39) a.  $v_{men}$ : is not specified for EF

b.  $v_{\emptyset}$ : is specified for EF

(40)  $[_{VP} DP [_v, \textit{men-} [_{VP} V \textit{wh}]]] \rightarrow$

No EF assignment  $\rightarrow$  \**wh*-movement

(41) a.  $[_{VP} DP [_v, \textit{\emptyset-EF} [_{VP} V \textit{wh}]]] \rightarrow_{EF \text{ assignment}}$

b.  $[_{VP} DP [_v, \textit{\emptyset-} [_{VP} V \textit{wh}_{EF}]]] \rightarrow \checkmark \textit{wh}$ -movement



### 3. Edge features and valuation

- . If the relation between interpretability and intrinsic valuation is not biconditional (e.g. Pesetsky and Torrego 2007) →
  - . **[EF:val]** ([EF:Top]; [EF:Q]; [EF:Rel]; [EF:Foc], etc.)
  - . **[EF:u]**
- . An **unvalued** EF must be valued by a **valued** feature
- . An **EF intrinsically valued** as  $x$  must be checked by an **interpretable** feature valued as  $x$

### 3. Edge features and valuation

#### 3.1. Intrinsically **valued** edge features on phase heads

(42) a. [<sub>Phase1</sub> ... **Ph<sub>1</sub><sub>[EF:Q]</sub>** [... WH ...]]  $\rightarrow$  EF assignment

b. [<sub>Phase1</sub> ... Ph<sub>1</sub> [... **WH<sub>[EF:Q]</sub>** ...]]

c. [<sub>Phase1</sub> **WH<sub>[EF:Q]</sub>** [... Ph<sub>1</sub> ... *t* ...]]

(43) a. [<sub>Phase2</sub> ... **Ph<sub>2</sub><sub>[EF:Q]</sub>** ... [<sub>Phase1</sub> **WH<sub>[EF:Q]</sub>** [... Ph<sub>1</sub> ... *t* ...]]]

b. \* [<sub>Phase2</sub> ... Ph<sub>2</sub> ... [<sub>Phase1</sub> **WH<sub>[EF:Q],[EF:Q]</sub>** [... Ph<sub>1</sub> ... *t* ...]]]

⊗ Last Resort

### 3. Edge features and valuation

#### 3.1. Intrinsically **valued** edge features on phase heads

*Que-qui* effects in long distance extraction (e.g. Kayne 1975):

(44) l'homme que je pense **que/\*qui** Jean croit **qui/\*que** viendra  
the-man that I think that/QUI Jean believes QUI /that will.come  
'the man that I think that Jean believes will come'

(45)a. *qui*: is specified for a valued instance of EF

([EF:Q], [EF:Rel], ...)

b. *que*: is not specified for EF

### 3. Edge features and valuation

#### 3.1. Intrinsically **valued** edge features on phase heads

*Que-qui* effects in long distance extraction (e.g. Kayne 1975):

- (44) l'homme que je pense que/\*qui Jean croit **qui/\*que** viendra  
the-man that I think that/QUI Jean believes QUI /that will.come  
'the man that I think that Jean believes will come'

- (46) a. [<sub>CP</sub> **qui**<sub>[EF:Rel]</sub> [<sub>TP</sub> OP ... ]] →<sub>EF</sub> assignment  
b. [<sub>CP</sub> qui [<sub>TP</sub> **OP**<sub>[EF:Rel]</sub> ... ]]  
c. [<sub>CP</sub> **OP**<sub>[EF:Rel]</sub> qui [<sub>TP</sub> *t* ... ]]

### 3. Edge features and valuation

#### 3.1. Intrinsically **valued** edge features on phase heads

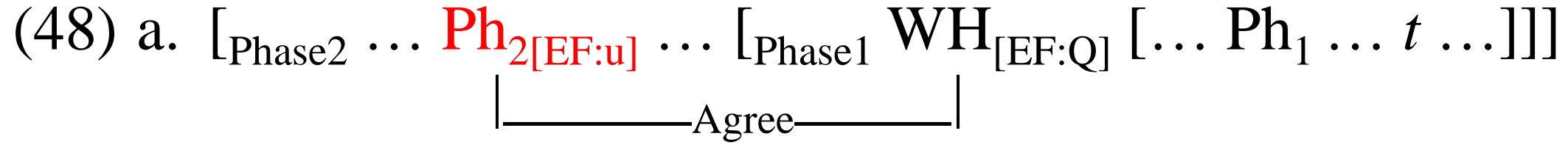
*Que-qui* effects in long distance extraction (e.g. Kayne 1975):

- (44) l'homme que je pense **que/\*qui** Jean croit qui/\*que viendra  
the-man that I think that/QUI Jean believes QUI /that will.come  
'the man that I think that Jean believes will come'

- (47) a. [<sub>CP</sub> **qui**<sub>[EF:Rel]</sub> [<sub>TP</sub> ... [<sub>VP</sub> OP<sub>[EF:Rel]</sub> ... [<sub>CP</sub> *t* qui [<sub>TP</sub> *t* ... ]]]]]  
b. \* [<sub>CP</sub> qui [<sub>TP</sub> ... [<sub>VP</sub> **OP**<sub>[EF:Rel],[EF:Rel]</sub> ... [<sub>CP</sub> *t* qui [<sub>TP</sub> *t* ... ]]]]]

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads



# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

(48) a.  $[_{\text{Phase2}} \dots \text{Ph}_{2[\text{EF:u}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$   
|-----Agree-----|

b.  $[_{\text{Phase2}} \dots \text{Ph}_{2\checkmark[\text{EF:Q}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

(48) a.  $[_{\text{Phase2}} \dots \text{Ph}_{2[\text{EF:u}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$   
|-----Agree-----|

b.  $[_{\text{Phase2}} \dots \text{Ph}_{2\checkmark[\text{EF:Q}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$

c.  $[_{\text{Phase2}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_{2\checkmark[\text{EF:Q}]} \dots [_{\text{Phase1}} t [\dots \text{Ph}_1 \dots t \dots]]]$



# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

(48) a.  $[_{\text{Phase2}} \dots \text{Ph}_{2[\text{EF:u}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$   
|-----Agree-----|

b.  $[_{\text{Phase2}} \dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$

c.  $[_{\text{Phase2}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} t [\dots \text{Ph}_1 \dots t \dots$

d.  $[_{\text{Phase-n}} \text{WH}_{\sqrt{[\text{EF:Q}]}} \text{Q} \dots [_{\text{Phase2}} t \dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} t [\dots$

### 3. Edge features and valuation

#### 3.2. Intrinsically **unvalued** edge features on phase heads

(48) a.  $[_{\text{Phase2}} \dots \text{Ph}_{2[\text{EF:u}]} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$   
|-----Agree-----|

b.  $[_{\text{Phase2}} \dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_1 \dots t \dots]]]$

c.  $[_{\text{Phase2}} \text{WH}_{[\text{EF:Q}]} [\dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} t [\dots \text{Ph}_1 \dots t \dots$

d.  $[_{\text{Phase-n}} \text{WH}_{\sqrt{[\text{EF:Q}]}} \text{Q} \dots [_{\text{Phase2}} t \dots \text{Ph}_{2\sqrt{[\text{EF:Q}]}} \dots [_{\text{Phase1}} t [\dots$

. What is the contribution of the unvalued EF on Ph<sub>2</sub> in (48a)?

. How does it satisfy Last Resort in a nonvacuous way?

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

. Proposal:

(i) the unmarked situation is for a phase head to license an escape hatch A'-specifier, regardless of its specification for EF (e.g. declarative *that* in English)

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Proposal:

(i) the default situation is for a phase head to license an escape hatch A'-specifier, regardless of its specification for EF (e.g. declarative *that* in English)

(ii ) an [EF:u] on a phase head signals its ability to license an escape hatch A'-specifier

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Proposal:

(i) the unmarked situation is for a phase head to license an escape hatch A'-specifier, regardless of its specification for EF (e.g. declarative *that* in English)

(ii ) an [EF:u] on a phase head signals its ability to license an escape hatch A'-specifier

(iii) if a language explicitly associates a given phase head with [EF:u] → other phase heads of the same type that are not specified for EF are not able to license an escape hatch A'-specifier.

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Complementizer allomorphy in Irish

McCloskey (2002):

(49) a. “If the clause hosts A’-binding of a trace, it is headed by the particle *aL*”:

a’. an t-ainm **a** hinnseadh dúinn **a** bhí \_ ar an áit  
the name **aL** was-told to-us **aL** was on the place  
‘the name that we were told was on the place’

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Complementizer allomorphy in Irish

McCloskey (2002):

(49) b. “In the absence of any A’-binding, we have (...) a form of the particle *go*”:

b’. Creidim **gu**-r inis sé bréag.

I-believe **GO**-[PAST] tell he lie

‘I believe that he told a lie.’

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Complementizer allomorphy in Irish

(50) a.  $C_{aL}$ : is specified for an unvalued instance of EF ([EF:u])

b.  $C_{go}$ : is not specified for EF.

(51) a. [WH ... *aL* ... *aL* ... *aL* ... *t*]

b. \*[WH ... *aL* ... *go* ... *aL* ... *t*]



### 3. Edge features and valuation

#### 3.2. Intrinsically **unvalued** edge features on phase heads

. Going Irish on the lower level: **v allomorphy and EF specification**

(52) *Bahasa Indonesia* (Saddy 1991)

a. Bill **men**-gira      Tom **men**-harap      Fred **men**-cintai      **siapa**  
Bill    TRANS-thinks Tom TRANS-expects Fred TRANS-loves who

b. \***Siapa** yang Bill **men**-gira      Tom **men**-harap      Fred **men**-cintai  
who    FOC B.    TRANS-thinks T. TRANS-expects Fred TRANS-loves

c. **Siapa** yang Bill -kira      Tom -harap      Fred -cintai  
who    FOC Bill    think Tom      expect      Fred      love  
'Who did Bill think Tom expects Fred loves?'

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

. Going Irish on the lower level: ***v* allomorphy and EF specification**

(53) *Bahasa Indonesia*

a.  $v_{\emptyset}$ : specified for an optionally valued instance of EF. ([EF:val] or [EF:u])

b.  $v_{men-}$ : not specified for EF.

(54) a. [WH ...  $v_{\emptyset}$  ...  $v_{\emptyset}$  ...  $v_{\emptyset}$  ... *t*]

b. \*[WH ...  $v_{\emptyset}$  ...  $v_{men-}$  ...  $v_{\emptyset}$  ... *t*]

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Going Irish on the lower level: **v allomorphy and EF specification**

Defaka (Bennett, Akinlabi, and Connell 2012):

(55) a. ì **Bòmá** ésé-kà-rè

I Boma see-FUT-NEG

‘I will not see Boma’

(discourse-neutral)

b. **Bòmá** ndò ì ésé-kà-rè-**kè**

Boma FOC I see-FUT-NEG-KE

‘I will not see Boma.’

(local focus movement)

c. **ándù** ndò Bòmá fàà-**kè** [ ìní été-**kè** ]

canoe FOC Boma say-KE they have-KE

‘It’s a canoe that Boma said they have’

(nonlocal focus movement)

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

. Going Irish on the lower level:  $v$  allomorphy and EF specification

Defaka:

(56) a.  $v_{-ke}$  : specified for an optionally valued instance of EF. ([EF:val] or [EF:u])

b.  $v_{\emptyset}$ : not specified for EF.

(57) a. [WH ...  $v_{-ke}$  ...  $v_{-ke}$  ...  $v_{-ke}$  ...  $t$ ]

b. \*[WH ...  $v_{-ke}$  ...  $v_{\emptyset}$  ...  $v_{-ke}$  ...  $t$ ]

# 3. Edge features and valuation

## 3.2. Intrinsically **unvalued** edge features on phase heads

### . Going Irish on the lower level: $v$ allomorphy and EF specification

$v_{[EF:u]}$  is not restricted to object extraction

(58) *Defaka* (Bennett, Akinlabi & Connell 2012)

**Bruce** ndò Bòmá jí-rí-**kè** [á é-sé-mà]

Bruce FOC Boma know-**KE** her see-NFUT

‘Boma knows (that) Bruce saw her’

(59) *Bahasa Indonesia* (Saddy 1991)

**Siapa** yang Bill  $\emptyset$ -beri Tom  $\emptyset$ -harap [**men**-cintai Fred]

who FOC Bill thinks Tom expects TRANS-loves Fred

‘Who does Bill think Tom expects loves Fred?’

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.1. No [EF:Q] specification

→ no *wh*-movement

(60) Japanese (Saito 1985)

Taroo-ga dare-ni nani-o ageta no?

*Taroo-nom who-dat what-acc gave Q*

‘Who did Taroo give what?’

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features **on *wh*-elements**

### 3.3.2. Obligatory [EF:u] specification

. Nunes (2021b, 2022): if a given element has an unvalued feature, it does not qualify as a proper intervener for purposes of minimality computations.

(61) [ $Y_k \dots X_{[F:u]} \dots t_k \dots$ ]

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:u] specification

(62) [<sub>FocP</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]

(63) a. [<sub>FocP</sub> **WH**<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... **WH**<sub>2-[EF:u]</sub> ...]]  
          ↑ \_\_\_\_\_ OK (transparency) \_\_\_\_\_ |



# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:u] specification

(62) [<sub>FocP</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]

(63) a. [<sub>FocP</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

b. ✓ [<sub>FocP</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]]

↑ \_\_\_\_\_ OK (transparency) \_\_\_\_\_ |

↑ \_\_\_\_\_ OK (equidistance) \_\_\_\_\_ |

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:u] specification

(62) [<sub>FocP</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]

(63) a. [<sub>FocP</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

b.  $\surd$  [<sub>FocP</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]]

↑ \_\_\_\_\_ OK (transparency) \_\_\_\_\_ |  
↑ \_\_\_\_\_ OK (equidistance) \_\_\_\_\_ |

(64) a. [<sub>FocP</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

↑ \_\_\_\_\_ OK (no intervention) \_\_\_\_\_ |

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:u] specification

(62) [<sub>FocP</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]

(63) a. [<sub>FocP</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

b.  $\surd$  [<sub>FocP</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]]

↑ \_\_\_\_\_ OK (transparency) \_\_\_\_\_ |  
↑ \_\_\_\_\_ OK (equidistance) \_\_\_\_\_ |

(64) a. [<sub>FocP</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

b. [<sub>FocP</sub> WH<sub>2-[EF:Foc]</sub> [<sub>Foc'</sub> WH<sub>1-[EF:Foc]</sub> [<sub>Foc'</sub> Foc ... WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]]]

↑ \_\_\_\_\_ OK (no intervention) \_\_\_\_\_ |  
↑ \_\_\_\_\_ OK (transparency + equidistance) \_\_\_\_\_ |

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:u] specification

If all  $WH_{[EF:u]} \rightarrow$

- . No *wh-in situ*
- . multiple *wh*-fronting
- . no superiority effects

(65) *Serbo-Croatian* (Bošković 1997):

a. **Koj šta** kupuje?

*who what buys*

b. **Šta koj** vižda?

*what who buys*

‘Who bought what?’

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:Q] specification

(66) [Q ... WH<sub>1</sub>-[EF:Q] ... WH<sub>2</sub>-[EF:Q] ... ]

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:Q] specification

(66) [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]

(67) a. [WH<sub>1-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]  
          ↑ \_\_\_OK (no intervention)—|

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:Q] specification

(66) [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]

(67) a. [WH<sub>1-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]

↑ — OK (no intervention) — ↓

b. \* [WH<sub>2-√[EF:Q]</sub> [WH<sub>1-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]]

↑ — \* (minimality) — ↓

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:Q] specification

(66) [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]

(67) a. [WH<sub>1-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]

↑ \_\_\_OK (no intervention)\_\_\_|

b. \*[WH<sub>2-√[EF:Q]</sub> [WH<sub>1-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]]

↑ \_\_\_\_\_\* (minimality)\_\_\_\_\_|

(68) \*[WH<sub>2-√[EF:Q]</sub> [Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ]]

↑ \_\_\_\_\_\* (minimality)\_\_\_\_\_|



# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features **on *wh*-elements**

### 3.3.2. Obligatory [EF:Q] specification

If all  $WH_{[EF:Q]} \rightarrow$

- . *no *wh-in situ**
- . *single *wh*-questions: OK*
- . *multiple *wh*-questions: \**

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.2. Obligatory [EF:Q] specification

- (69) a. \***Cé** aL rinne **caidé**? (Irish, McCloskey 1979)  
who C did what  
'Who did what?'
- b. \***Chi** há scritto **che cosa**? (Italian, Calabrese 1984)  
'Who has written what?'
- c. \***yaa** yimid **goorma**? (Somali, Stoyanova 2008)  
who-FM came time-which  
'Who came when?'
- d. \***Wiy** yzrin **may**? (Berber, Stoyanova 2008)  
who-CM saw-PART what-CM  
'Who saw what?'

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.3. Optional [EF:Q] specification

(70) a. [Q ... WH<sub>1</sub> ... WH<sub>2</sub> ...] → OK

b. [ Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2-[EF:Q]</sub> ... ] → \*

↑ \_\_\_\_\_\* (minimality) \_\_\_\_\_ |

c. [ Q ... WH<sub>1</sub> ... WH<sub>2-[EF:Q]</sub> ... ] → \*

↑ \_\_\_\_\_\* (minimality) \_\_\_\_\_ |

d. [ Q ... WH<sub>1-[EF:Q]</sub> ... WH<sub>2</sub> ... ]

↑ \_\_\_\_\_OK (no intervention) \_\_\_\_\_ |

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.3. Optional [EF:Q] specification

If all  $WH_{([EF:Q])} \rightarrow . \textit{wh-in situ}: \text{OK}$

. multiple *wh*-fronting: \*

. multiple *wh*-questions: OK  $\rightarrow$  superiority

(71) a. Você acha que **quem** comprou **o quê**?

you think that who bought what

b. \***Quem o que** você acha que comprou?

who what you think that bought

c. \***O que** você acha que **quem** comprou?

what you think that who bought

(BP)

d. **Quem** você acha que comprou **o quê**?

who you think that bought what

‘Who do you think bought what?’

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.4. Combining [EF:val] with [EF:u]

- (72) a.  $[_{\text{FocP}} \mathbf{Foc} [_{\text{EF:Q}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]] \rightarrow_{\text{EF assignment}}$   
b.  $[_{\text{FocP}} \text{Foc} [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]} \mathbf{[EF:Q]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]]$

. Derivation I (WH<sub>2</sub> moves first):

$[_{\text{FocP}} \text{WH}_{2-\sqrt{[\text{EF:Foc}]}} [_{\text{Foc}' \text{Foc}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]} \mathbf{[EF:Q]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]$   
 $[_{\text{FocP}} \text{WH}_{1-\sqrt{[\text{EF:Foc}]} \mathbf{[EF:Q]}}] [_{\text{Foc}' \text{WH}_{2-\sqrt{[\text{EF:Foc}]}}] [_{\text{Foc}' \text{Foc}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]} \mathbf{[EF:Q]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]$   
 $[_{\text{ForceP}} \text{WH}_{1-\sqrt{[\text{EF:Foc}]} \mathbf{[EF:Q]}}] \mathbf{Q} [_{\text{FocP}} \text{WH}_{1-\sqrt{[\text{EF:Foc}]} \mathbf{[EF:Q]}}] [_{\text{Foc}' \text{WH}_{2-\sqrt{[\text{EF:Foc}]}}] [_{\text{Foc}' \text{Foc}}]$

final order  $\rightarrow$  WH<sub>1</sub> WH<sub>2</sub>

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.4. Combining [EF:val] with [EF:u]

- (72) a.  $[_{\text{FocP}} \mathbf{Foc} [_{\text{EF:Q}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]] \rightarrow_{\text{EF assignment}}$   
b.  $[_{\text{FocP}} \text{Foc} [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]-[\text{EF:Q}]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]]$

. Derivation II (WH<sub>1</sub> moves first):

$[_{\text{FocP}} \text{WH}_{1-\sqrt{[\text{EF:Foc}]}-[\text{EF:Q}]} [_{\text{Foc}' \text{Foc}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]}-[\text{EF:Q}]} \dots \text{WH}_{2-[\text{EF:u}]} \dots]$   
 $[_{\text{FocP}} \text{WH}_{2-\sqrt{[\text{EF:Foc}]}]} [_{\text{Foc}' \text{WH}_{1-\sqrt{[\text{EF:Foc}]}-[\text{EF:Q}]}]}] [_{\text{Foc}' \text{Foc}}] [_{\text{TP}} \text{WH}_{1-[\text{EF:u}]}-[\text{EF:Q}]} \dots \text{WH}_{2-[\text{EF:u}]}]$   
 $[_{\text{ForceP}} \text{WH}_{1-\sqrt{[\text{EF:Foc}]}-\sqrt{[\text{EF:Q}]}}] \text{Q} [_{\text{FocP}} \text{WH}_{2-\sqrt{[\text{EF:Foc}]}}] [_{\text{Foc}' \text{WH}_{1-\sqrt{[\text{EF:Foc}]}-[\text{EF:Q}]}}] [_{\text{Foc}' \text{Foc}}]$

final order  $\rightarrow$  WH<sub>1</sub> WH<sub>2</sub>

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.4. Combining [EF:val] with [EF:u]

- (72) a. [<sub>FocP</sub> **Foc** [EF:Q] [<sub>TP</sub> WH<sub>1</sub>-[EF:u] ... WH<sub>2</sub>-[EF:u] ...]] →<sub>EF assignment</sub>  
b. [<sub>FocP</sub> Foc [<sub>TP</sub> WH<sub>1</sub>-[EF:u]-[EF:Q] ... WH<sub>2</sub>-[EF:u] ...]]

. Derivation I (WH<sub>2</sub> moves first): final order → WH<sub>1</sub> WH<sub>2</sub>

. Derivation II (WH<sub>1</sub> moves first): final order → WH<sub>1</sub> WH<sub>2</sub>

↓  
“superiority” effect

# 3. Edge features and valuation

## 3.3. Valued and unvalued edge features on *wh*-elements

### 3.3.4. Combining [EF:val] with [EF:u]

- (72) a. [<sub>FocP</sub> **Foc** [<sub>EF:Q</sub>] [<sub>TP</sub> WH<sub>1-[EF:u]</sub> ... WH<sub>2-[EF:u]</sub> ...]] →<sub>EF</sub> assignment  
b. [<sub>FocP</sub> Foc [<sub>TP</sub> WH<sub>1-[EF:u]-[EF:Q]</sub> ... WH<sub>2-[EF:u]</sub> ...]]

*Serbo-Croatian* (Bošković 2002):

- (73) a. Ko koga voli                      (74) a. Ko **li** koga voli  
          *who whom loves*                      *who C whom loves*  
b. Koga ko voli                              b. \*Koga **li** ko voli  
          *whom who loves*                      *whom C who loves*

**li**<sub>[EF:Q]</sub>



### 3. Edge features and valuation

#### 3.3. Valued and unvalued edge features on *wh*-elements

##### 3.3.4. Combining [EF:val] with [EF:u]

Serbo-Croatian (Bošković 2002): *li*<sub>[EF:Q]</sub>

(73) a. Ko koga voli  
*who whom loves*

b. Koga ko voli  
*whom who loves*

(74) a. Ko **li** koga voli  
*who C whom loves*

b. \*Koga **li** ko voli  
*whom C who loves*

Bulgarian:  $\emptyset$ <sub>[EF:Q]</sub>

(75) a. **Koj kogo** vižda?  
*who whom sees*

b. \***Kogo koj** vižda?  
*whom who sees*

(Rudin 1988)

‘Who sees who?’

## 4. Concluding remarks

. If the intermediate steps of successively cyclic movement are feature driven,

- (i) **Where** is the feature that triggers successive cyclic A'-movement located?
- (ii) Is EF **obligatorily or optionally** associated with its lexical host?
- (ii) Is it intrinsically **valued or unvalued**?

## 6. Concluding remarks

### . Unified account of:

- . why partial *wh*-movement is generally disallowed and why parasitic gaps generally cannot be licensed by *in situ wh*-phrases;
- . why adjunct control may be affected by A'-movement in some languages;
- . why some languages impose restrictions on local subject extraction, whereas others impose restrictions on local object extraction;
- . why one may usually find allomorphy affecting phase heads tied to A'-movement;
- . why this allomorphy may be exclusively related to local A'-extraction in some languages but not in others;
- . why some phase heads in some languages do not allow extraction from their domains, while others require that their domain contain an extraction site;
- . why there are languages that do not allow multiple *wh*-questions;
- . why languages that do not allow multiple *wh*-questions do not license *wh-in situ*.

**Merci Beaucoup!**

**OBRIGADO!**