



# **Feature Merger and Feature Realization**

## **A unifying approach to nominal structure**

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CRISP

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# Long debated questions

Is the category **D** universal?

Are **determiners** heads or phrases?

What category are **Possessors, Demonstratives, Cardinals**, and other high nominal modifiers?



# Today's roadmap



Heads and feature bundling



Projection, Concord, Agreement



Possessors as independent Phases



The left periphery of the Nominal Phase



Conclusions



# Arguments against the universality of D(P)

Many languages do not have articles

In a subpart of such languages other functional heads (gender, number, case) are not present

Other determiners (demonstrative, quantifiers, possessives) are generally present but treated as **adjectives**



# Alternative hypotheses, all against the universality of D(P)

- Pre-established categories do not exist (Haspelmath 2007)
- Language universals do not exist (Evans and Levinson's (2009)
- Determiners are an epiphenomenon, the function of determination does exist (e.g. pronouns, Hudon 2004).
- There is a parameter that regards presence/absence of functional heads (Boskovic's 2005 line of research).
- There are many functional features related to D (definiteness, specificity, Case, argumenthood, referentiality, Number, Person, etc.) that can be present or absent in a language (e.g. Chierchia 1998, Cheng & Sybesma 1999, a.o.)
- Only the features present in the numeration are projected (minimalist perspective).



# Arguments in favour of the universality of D(P)

(Giusti forthcoming)

- All languages have means to express different types of indexicality (deixis, quantification, specificity, DOM, interaction with Aspect, scrambling, classifiers, number marking, topicality)
- Many languages have means to express argumenthood (Case, classifiers, etc.)
- D is a functional head related to “genitive” assignment (Saxon genitive, Construct state, etc.)
- Children are more sensitive to functional heads than what can be expected from exposure data exposure (Valian 1986, 2009)

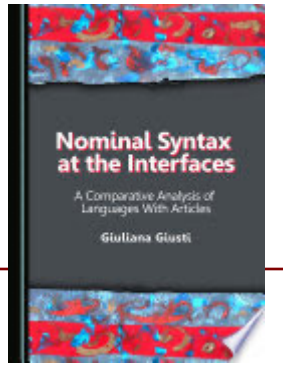


# Theory internal assumptions (in a generative perspective)

- Functional features are part of UG
- They are present at the very initial stage
- They all remain present in every language (Cartography)
- Only those that are found in the input are maintained (Minimalism)
- Each feature heads an independent functional head (Cinque & Rizzi 2008)
- Features can be bundled, (respecting the hierarchy, Giorgi and Pianesi 1997, Giusti 2015)



# Giusti (2015)



Heads are **hierarchical bundles of features**.

N, bundled with all its interpretable and uninterpretable features, reemerges [**projects**] as many times as necessary in order to

- saturate open positions of N (arguments);
- saturate open positions of modifiers (APs) [**concord**];
- externally **agree** with a [SUBJECT] possessor (if present) and assign Case to it, at the highest non-phasal projection, (Richards 2007)
- internally **agree** with an indexical (cf. Arsenijević 2007, 2015), and
- value an uninterpretable Case feature at the phasal level (Pesetsky and Torrego 2001, 2004, 2007).



# Hierarchy of the functional features of N (first approximation)

**Case**

**Reference**

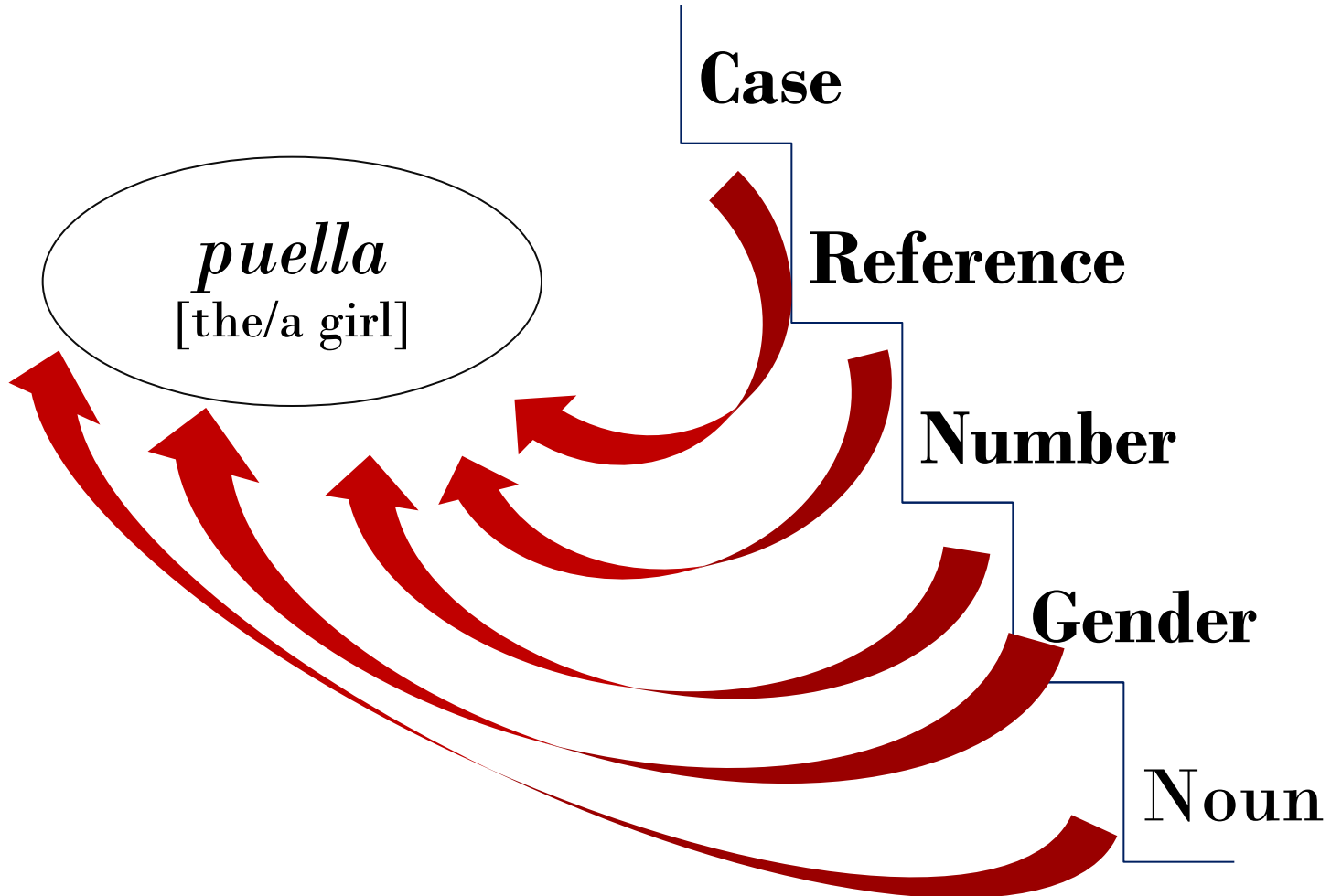
**Number**

**Gender**

**Noun**



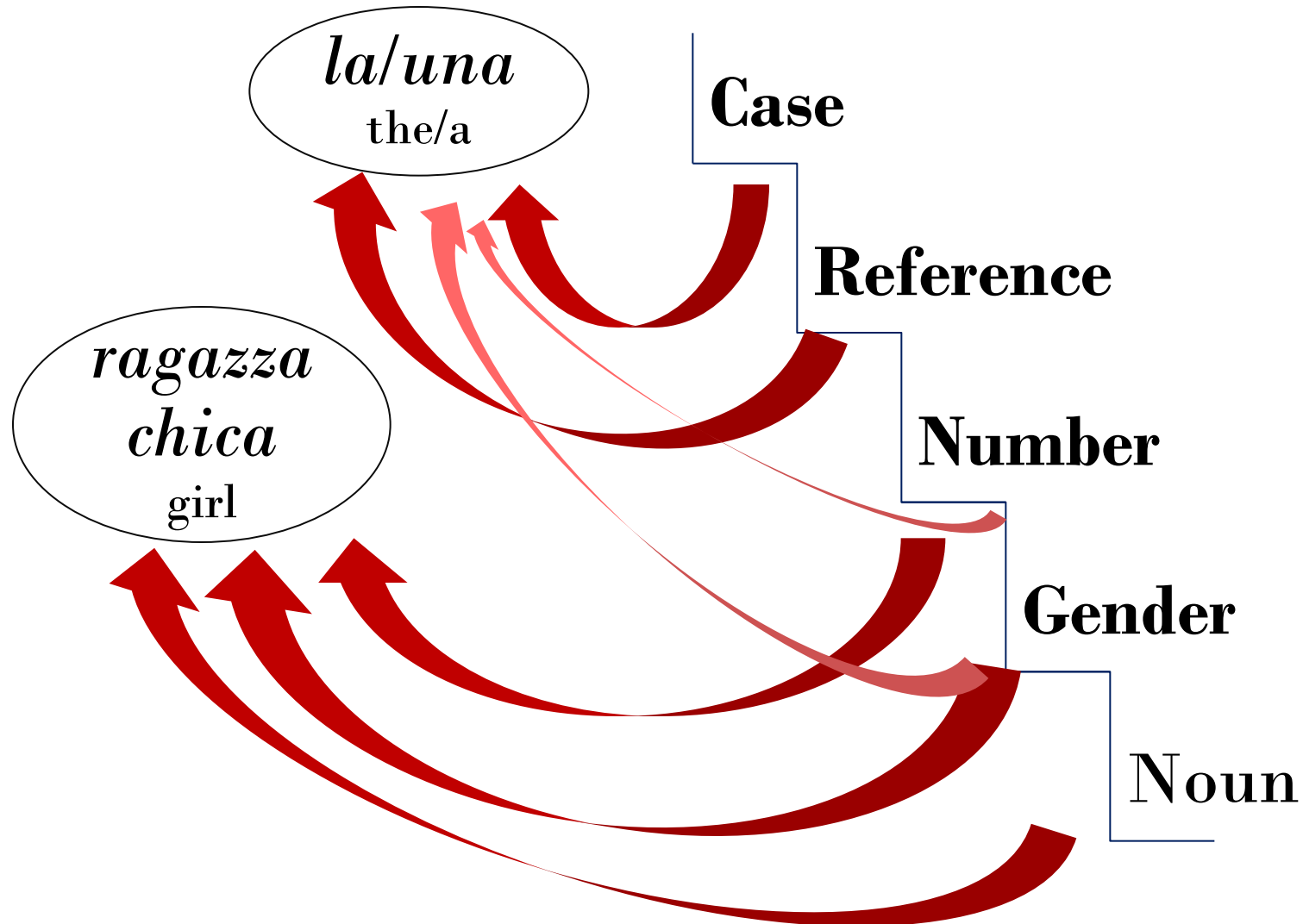
# Latin





# Western Romance

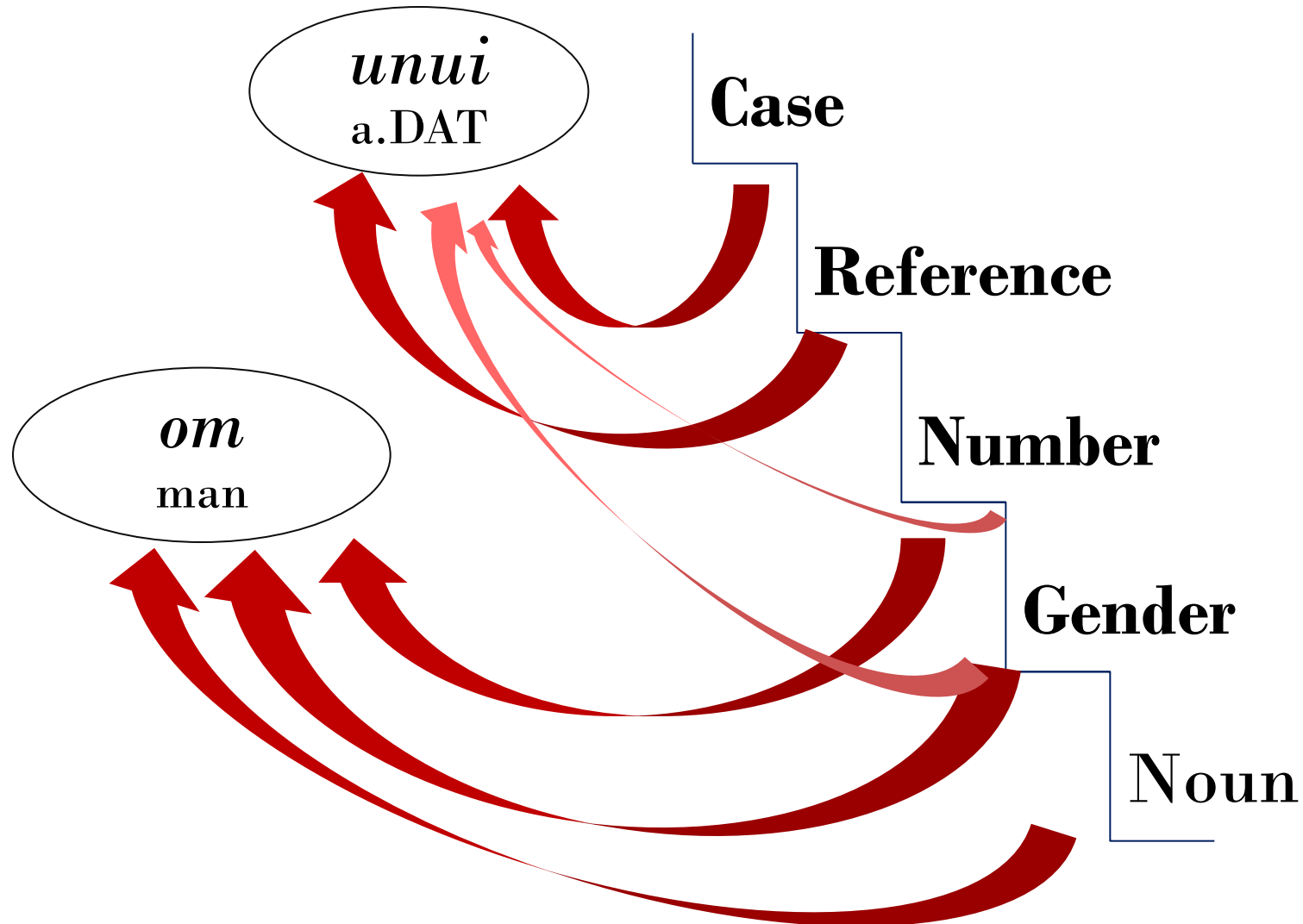
## N is realized as a scattered head





# Eastern Romance

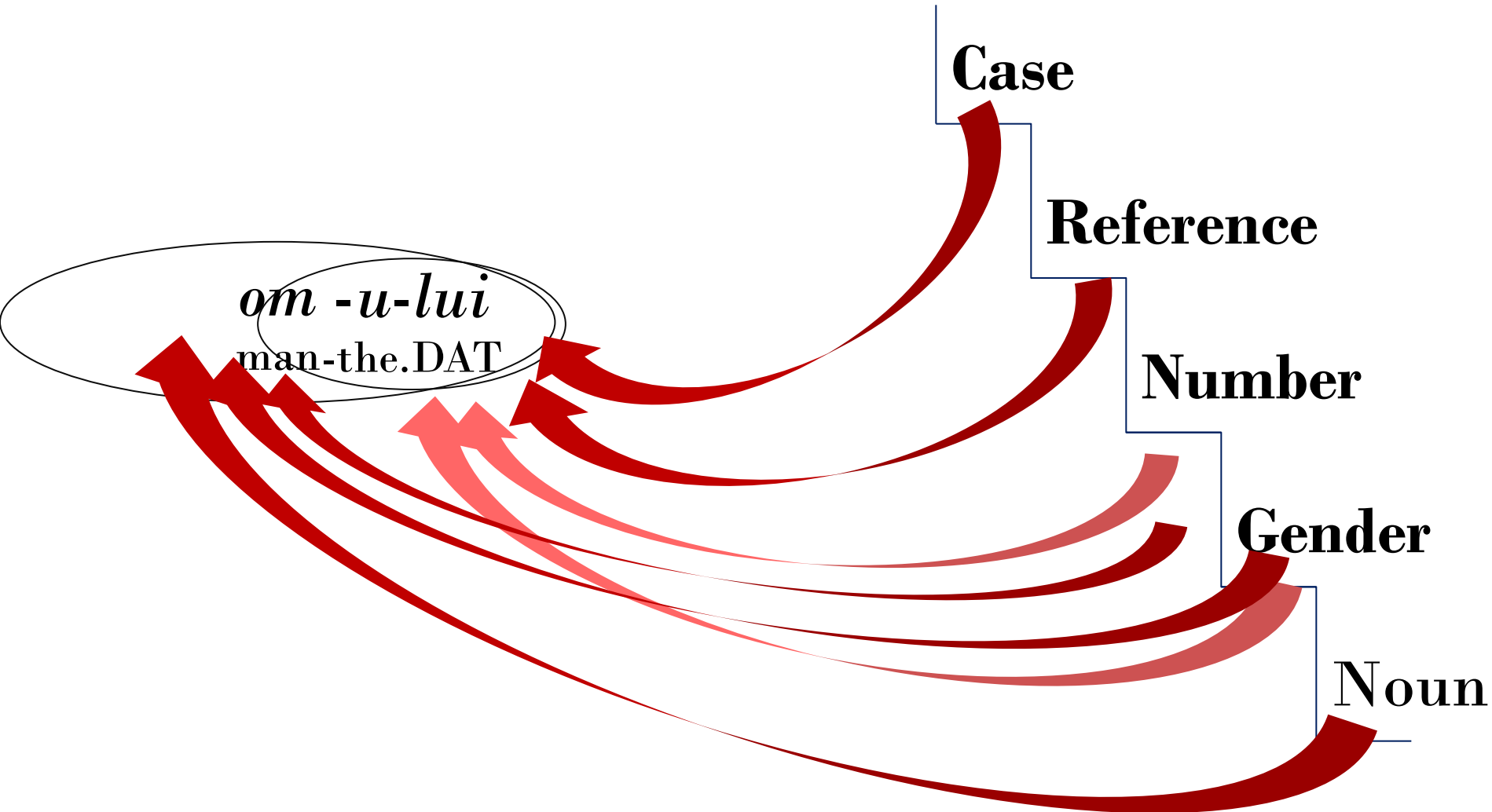
**N[-def] is realized as a scattered head**



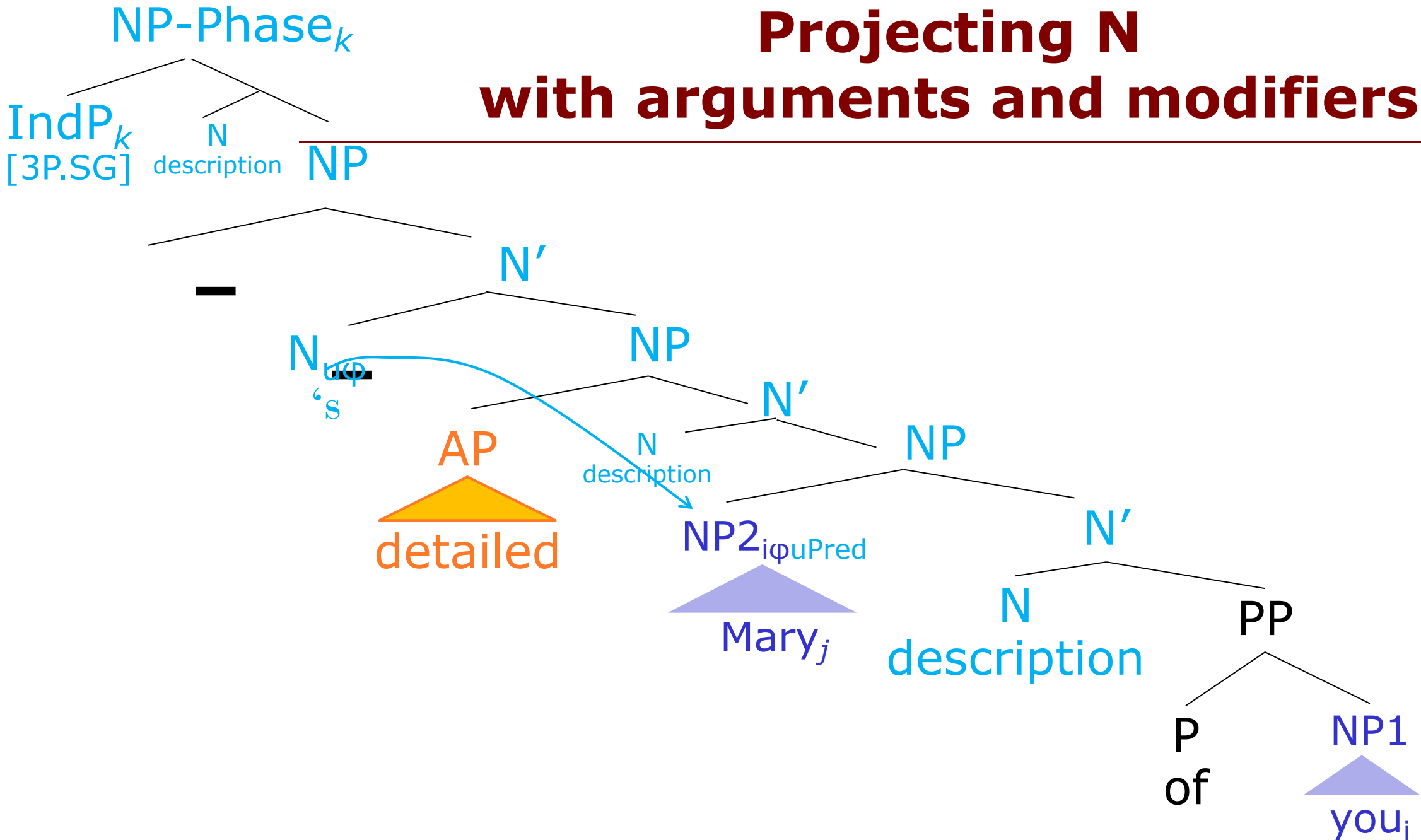


# Eastern Romance

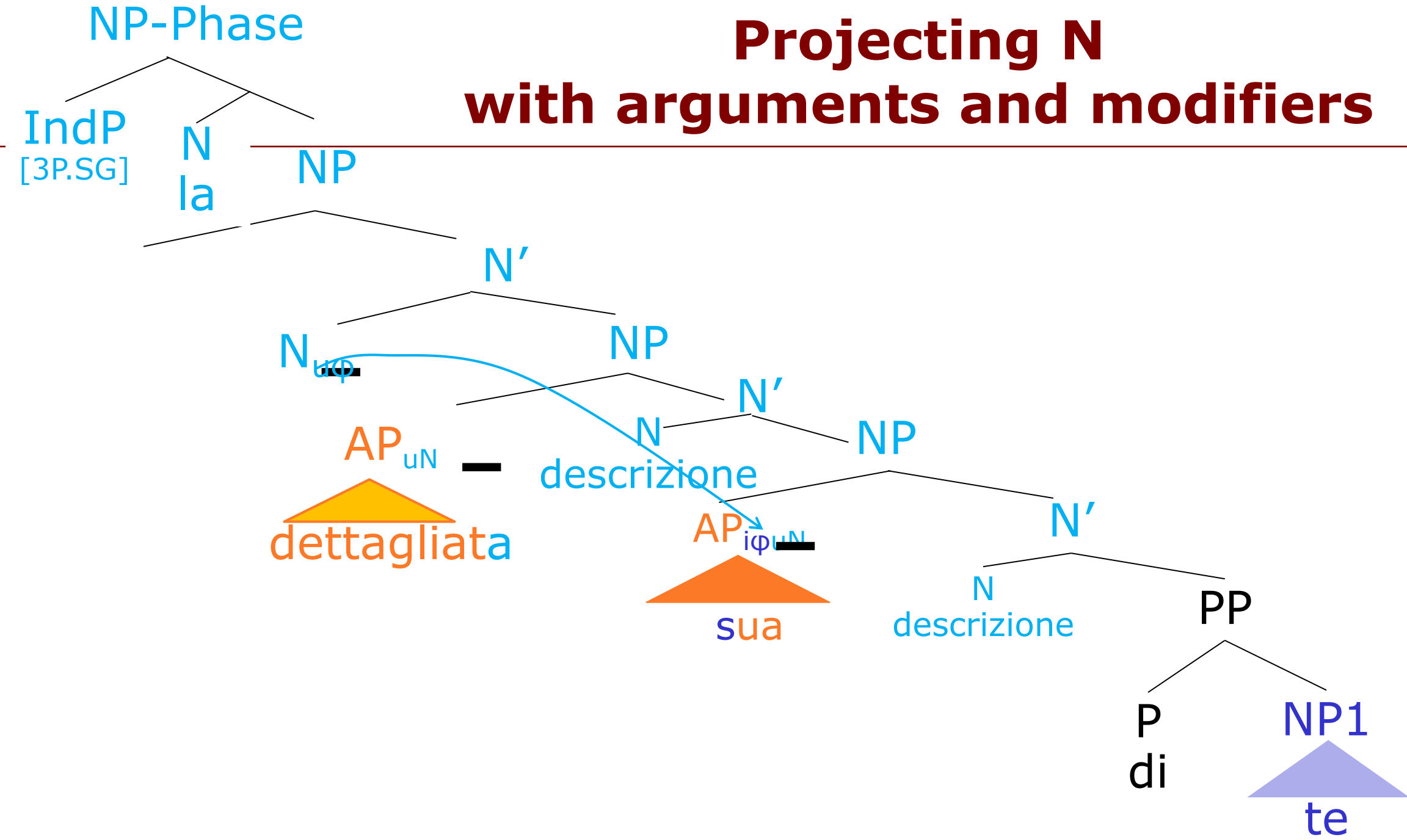
**N[+def]** is realized as a single head



# Projecting N with arguments and modifiers



# Projecting N with arguments and modifiers







# Hierarchy of the functional features of N (second approximation)

***u*Pred (Case)**

**<ref.index>**

**(probe)**

**Number**

**Gender**

**(<arg2>)**

**(<arg1>)**

**Noun**



# Agreement

- is triggered by a  $uF$  associated with a phasal head (the probe)
- is inherited by a non-phasal head (Richards 2007);
- results in case assignment (satisfaction of a  $uF$  on the goal, **bidirectional** Pesetsky and Torrego 2001, 2004, 2007);
- targets **person-features** of the goal (IndP).
- it targets the IndP of an independent Phase, **argument** of the lexical head.
- The targeted IndP **reemerges** covertly or pied-pipes the whole possessor Phase.



# Possessive Adjectives vs relational Adjectives



- (10) a. il nostro insensato intervento in Albania  
the our insane intervention in Albania  
b. ?l'insensato intervento nostro in Albania  
the insane intervention our in Albania
- (11) a. \*l'italiano insensato intervento in Albania  
the Italian insane intervention in Albania  
b. l'insensato intervento italiano in Albania  
the insane Italian intervention in Albania
- (12) a. \*\*il dell'Italia insensato intervento in Albania  
the of Italy insane intervention in Albania  
b. l'insensato intervento dell'Italia in Albania  
the insane interventions of Italy in Albania

- Possessive adjectives are generally «high» but may also be «low»
- Relational adjectives are always «low»
- The low position of relational adjectives is shared by full-DP (PP) possessives



# Relational As do not have Ind Possessive adjectives do



- (19) a. La loro<sub>i</sub> rappresentazione di se stessi<sub>i</sub> è distorta.  
Their representation of themselves is distorted.  
b. La loro<sub>i</sub> invasione li<sub>i</sub> ha resi invisibili alla popolazione.  
Their invasion made them [be] hated by the people
- (20) a. \*La rappresentazione italiana<sub>i</sub> di se stessi<sub>i</sub> è distorta.  
“The Italian representation ~~of themselves~~ is distorted.”  
b. \*L’invasione italiana<sub>i</sub> dell’Albania li<sub>i</sub> ha resi invisibili al mondo.  
“The Italian invasion of Albania made them hated by the world.”
- (i) a. La nostra opinione su noi stessi non è migliore.  
b. Our opinion of ourselves is no better
- (ii) a. La nostra crudele invasione ci ha resi invisibili alla popolazione  
b. Our cruel invasion made us hated by the people.

- Relational adjectives cannot be the antecedent of an anaphor or a pronoun
- Possessive pronouns and possessive adjectives can

# Denominal As can have Ind



- (21) a. Tvoje predstava sebe sama je zkreslená.  
Your image of yourself is distorted.  
b. Tvoje invaze te učinila dost nepopulárními.  
Your invasion CL.2.P.SG made rather unpopular.
- (22) a. Děkanova reprezentace sebe sama je dost zkreslená.  
[The] dean's representation of himself is rather distorted.  
b. Děkanovo opatření ho učinilo dost nepopulárním.  
[The] dean's measure CL.3.SG. made rather unpopular.
- (23) a. \*Italská reprezentace sebe samých je zkreslená.  
[The] italian representation of themselves is distorted.  
b. \*Italská invaze je učinila dost nepopulárními  
[The] italian invasion CL.3.P.PL. made rather unpopular.

- Possessive As and denominal As can bind an anaphor or pronoun
- Relational As cannot

# Agreement targets Ind



- (24) a. jejich strasna invaze  
their terrible invasion  
b. #strasna jejich invaze  
terrible their invasion

- (25) a. naše strasna invaze  
our terrible invasion  
d. #strasna naše invaze  
terrible our invasion

- (27) a. děkanovo strasne rozhodnuti  
dean's terrible decision  
b. strasne děkanovo rozhodnuti  
terrible dean's decision

- (26) a. #italská strasna invaze  
[the] Italian terrible invasion  
b. strasna italská invaze  
[the] terrible Italian invasion

- Possessive pronouns and adjectives are pied-piped
- Denominal adjectives may be pied-piped
- Relational adjectives are not targeted



# Ind is associated / not associated with denominal As

- (27) a. děkanovo strasne rozhodnuti  
dean's terrible decision  
b. strasne děkanovo rozhodnuti  
terrible dean's decision

➤ In **Czech**,  
denominal  
adjectives may  
be pied-piped.

- (28) a. novata šekspirova kniga  
new-the Shakespeare.GEN.ADJ book  
b. \*šekspirovata nova kniga  
Shakespeare.GEN.ADJ -the new book

➤ In **Bulgarian**,  
denominal  
adjectives do not

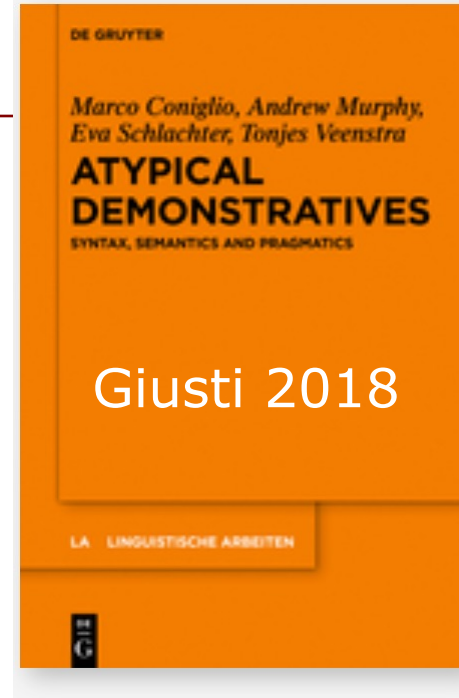


# Agreement in the NP

- Possessive As It. *nostra*, Cz. *naše* are of category A. → They concord (unlike It. *loro*, Cz. *jejih* which are pronouns and display genitive case)
- Possessive As and pronouns are endowed with a person feature (Ind). → They are independent Phases. They must agree to be sent to interpretation before the end of the nominal phase.
- Thematic adjectives may be semantically interpreted as Agents, but do not not have Ind → They are not independent phases and do not agree (they only concord).
- Denominal adjectives in Czech have IndP in Bulgarian do not.



# Ind as the higher argument of N



(27) a. Mary fatally slipped [V'' [V' [AdvP fatally <1, 2>] [v' slipped <1, E>]]]

b. Mary's fatal slip [N'' [N' [AP fatal <1, 2>] [N' slip <1, E>]]]

(28) a. Mary walked. →(Ee) walked (Mary, e)

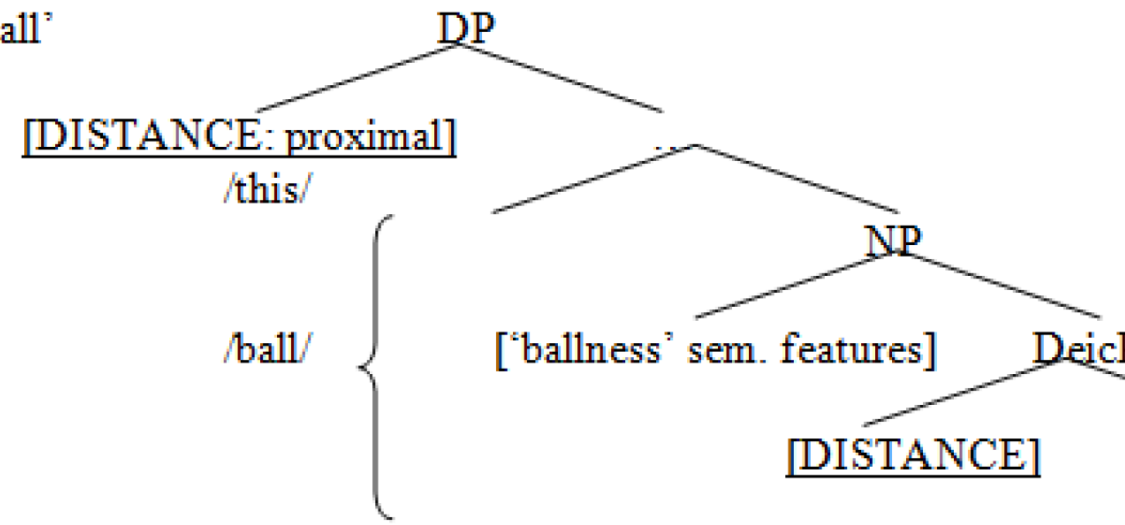
b. the dog → (the x) dog (x)

(29)

Higginbotham 1985, 1987

Arsenjevic 2007, 2015

'this ball'



(13) a. Dem Num A N (very many languages)

b. N A Num Dem

Greenberg's Universal 20,  
Cinque 2005

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(14) a. Dem Num N A (many languages)

b. Dem N A Num

(15) a. N Dem Num A (few languages)

b. N A Dem Num

c. N Num A Dem

(16) a. Dem N Num A (very few languages)

b. A N Dem Num

c. N Dem A Num

d. A N Num Dem

- (13),(14), (15c) straightforwardly edgers
- (15a), (16c) highest realization of N
- (15b), (16b) residual

**Demonstratives are edgers**



# Demonstratives may have multiple positions

- |   |  |   |   |   |
|---|--|---|---|---|
| <p>(17) a. acest băiat frumos (Romanian)<br/>this boy nice<br/>Dem N A</p> <p>b. acest frumos băiat<br/>this nice boy<br/>Dem A N</p> <p>c. băiatul acesta frumos<br/>boy-the this.a nice<br/>N+art Dem A</p> <p>d. frumosul (*acesta) băiat<br/>A+art *Dem N</p> <p>e. frumosul băiat (*acesta)<br/>A+art N *Dem</p> <p>f. băiatul frumos (*acesta)<br/>N+art A *Dem</p> | <p>(18) a. este chico hermoso (Spanish)<br/>this boy nice<br/>Dem N A</p> <p>b. este hermoso chico<br/>this nice boy<br/>Dem A N</p> <p>c. el hermoso chico este<br/>the nice boy this<br/>art A N Dem</p> <p>d. el chico hermoso este<br/>the nice boy this<br/>art N A Dem</p> <p>e. el chico (*este) hermoso<br/>the nice boy this<br/>art N *Dem A</p> <p>f. el hermoso (*este) chico<br/>the nice boy this<br/>art A *Dem N</p> | <p>(19) a. A N *<i>hic</i> / *<i>iste</i> / *<i>ille</i></p> <p>b. N A *<i>hic</i> / *<i>iste</i> / *<i>ille</i></p> <p>c. N *<i>hic</i> / *<i>iste</i> / <b><i>ille</i></b> A (6%)</p> | <p>(20) a. <i>hic</i> / <i>iste</i> / <i>ille</i> A N (54%)</p> <p>b. <i>hic</i> / <i>iste</i> / <i>ille</i> N A (21%)</p> <p>c. A <i>hic</i> / <i>iste</i> / <i>ille</i> N (19%)</p> | <p>(21) a. afti i glossologi (“these linguists”)<br/>these/they the linguists</p> <p>b. emis i glossologi (“we linguists”)<br/>we the linguists</p> |
|---|--|---|---|---|



# Hierarchy of the functional features of N (final)

**$u$ Pred (Case)**

**Edge**

**(probe <sub>$u\phi$</sub> )**

**Number**

**Gender**

**$\langle \text{Ind}_{u\text{Edge}} \rangle$**

**$\langle \text{arg}_j \rangle$**

**$\langle \text{arg}_i \rangle$**

**Noun**



# Hierarchy of arguments and modifiers

**$u$ Pred (Case)**

Greek: IndP in the highest SpecNP

**Edge**

**(probe <sub>$u\phi$</sub> )**

Romanian IndP immediately following the highest SpecNP

**Indirect modification**

**Direct modification**

**<Ind <sub>$u$ Edge</sub>>**

**(<arg <sub>$j$</sub> >)**

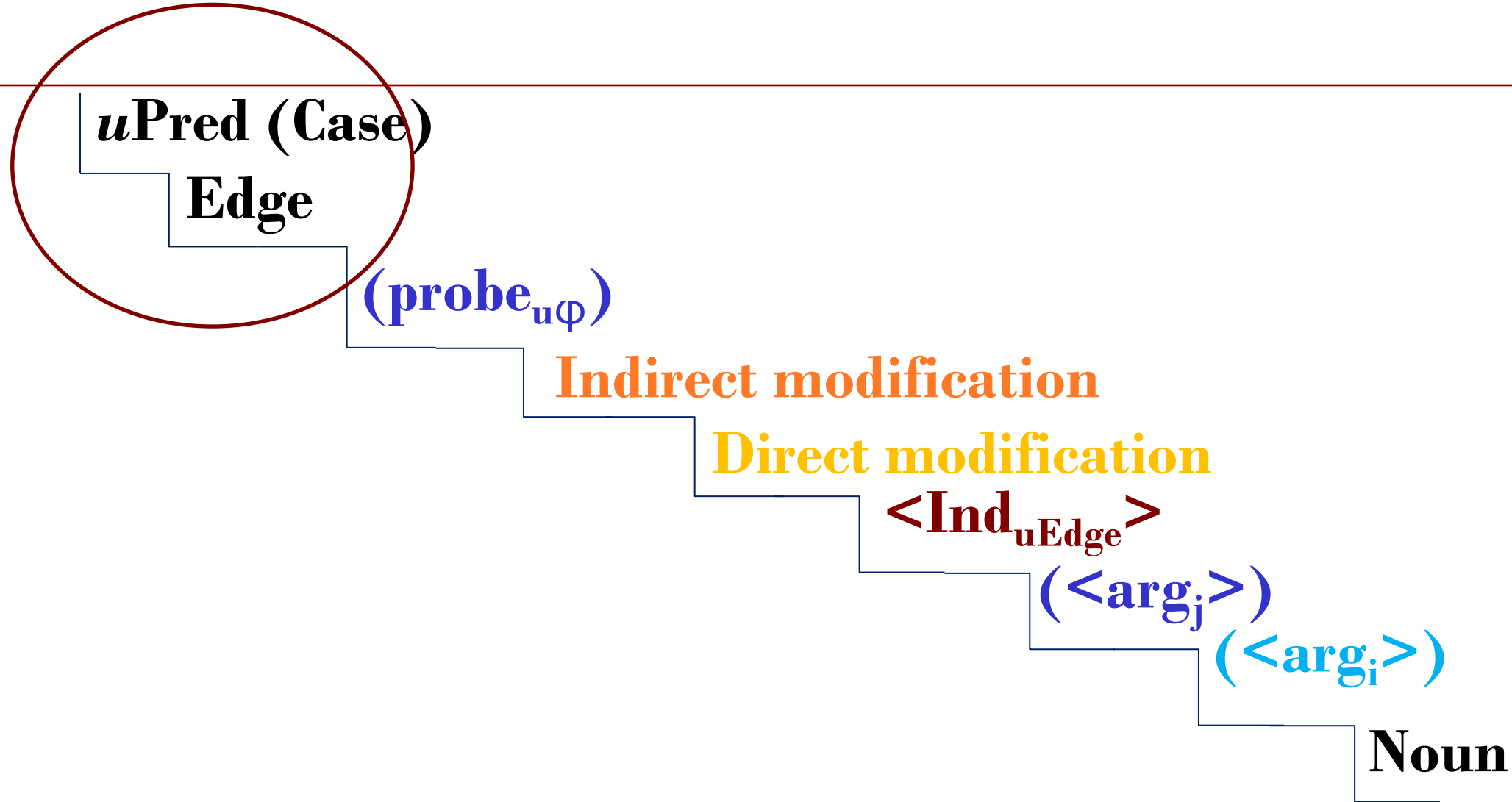
Spanish: IndP lower than direct modification, higher than postnominal possessives

**(<arg <sub>$i$</sub> >)**

**Noun**



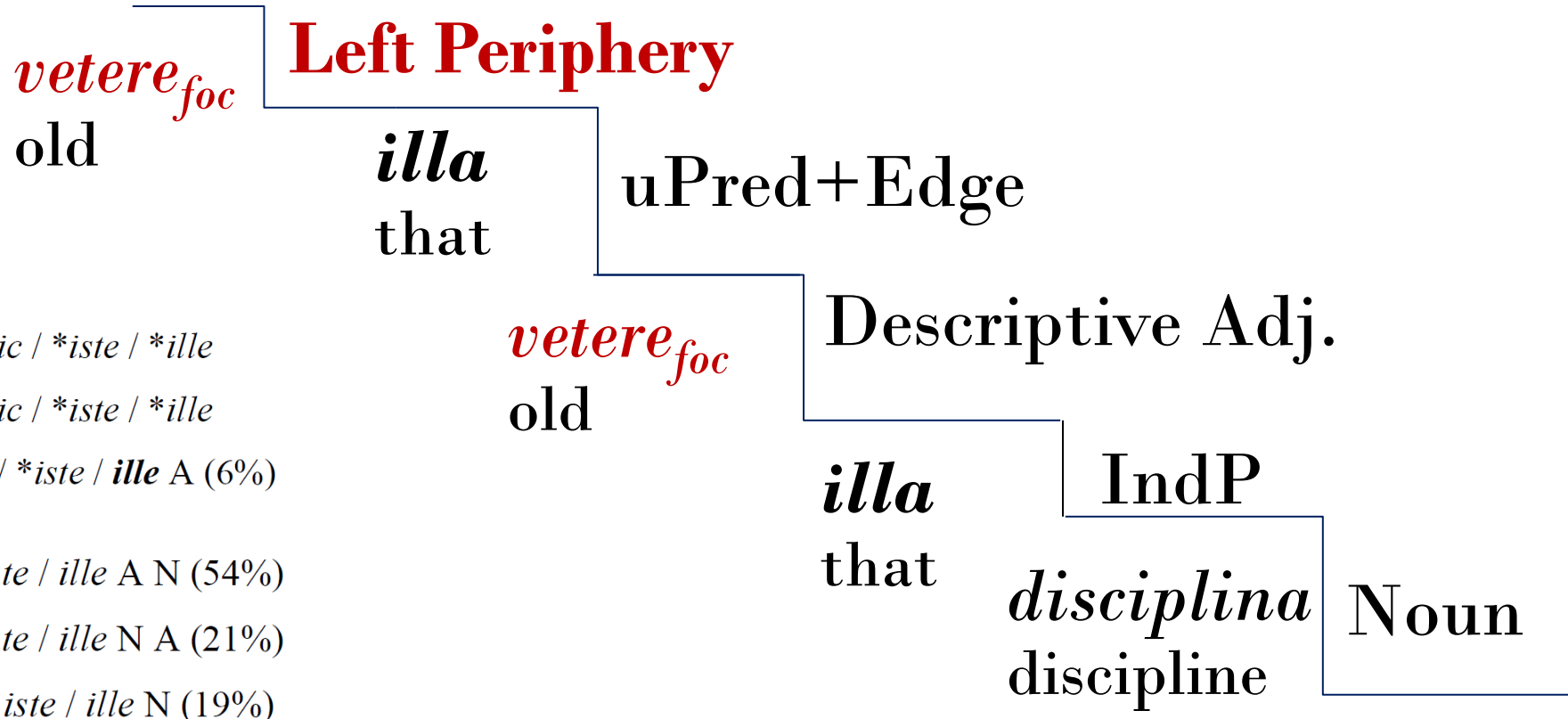
# The Split left edge (Left Periphery) of NP





# Latin split DP

Giusti & Iovino 2014, 2016  
Cic. *Cluent* 76



- (19) a. A N \**hic* / \**iste* / \**ille*  
b. N A \**hic* / \**iste* / \**ille*  
c. N \**hic* / \**iste* / *ille* A (6%)
- (20) a. *hic* / *iste* / *ille* A N (54%)  
b. *hic* / *iste* / *ille* N A (21%)  
c. A *hic* / *iste* / *ille* N (19%)

# Extraction from the Latin Left Periphery

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Sed abiit [<sub>LPP</sub> **huius**<sub>j</sub> [<sub>DP<sub>i</sub></sub> tempus [<sub>DP<sub>j</sub></sub> ~~huius~~ querellae]]]  
but is-far this.GEN.F.SG time.NOM.N.SG regret.GEN.F.SG

“But the time of this regret is far away” (Cic. *Cael.* 74)

[**pristinæ** [<sub>VP<sub>1</sub></sub> residere [<sub>DP<sub>i</sub></sub> ~~p~~ [<sub>DP<sub>j</sub></sub> ~~pristinæ~~ virtutis] memoria]] videtur]  
old.GEN.F.SG dwell.INF.PRES virtue.GEN.F.SG memory.NOM.F.SG [it]-seems

“the memory of the old virtue seems to dwell ...” (Caes. *Gall.* 7,77,4)



# Old Italian

[co]-l  
with-the

uPred+Edge

*tuo*  
your

probe

*corno*  
horn

Noun

*sinistro*  
left

classificatory

*tuo*  
your

<arg>

*corno* Noun  
horn

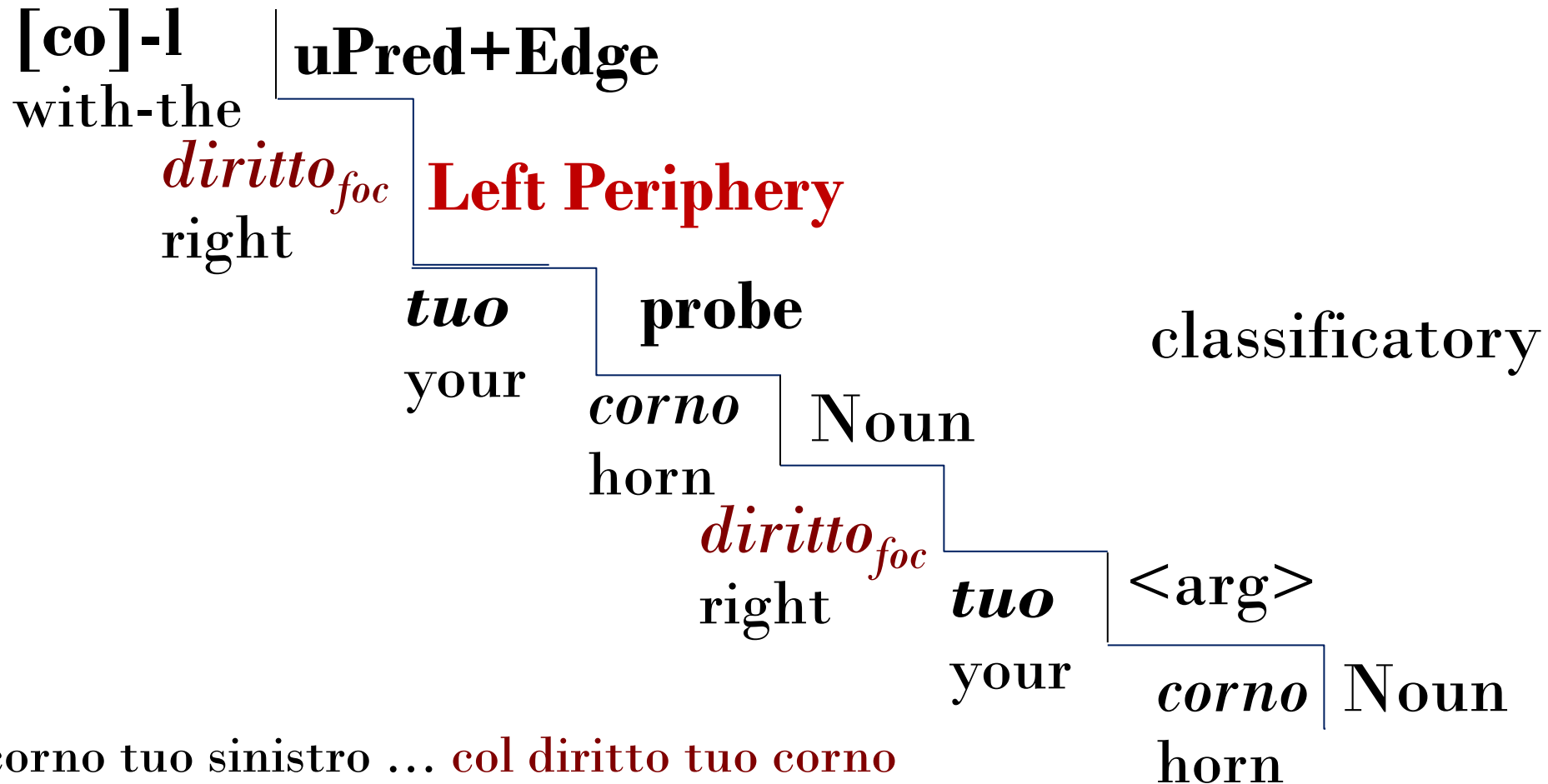
... **col corno tuo sinistro** ... col diritto tuo corno

“ ... **with your left horn** ... with your **RIGHT** horn”

(Bono Giamboni, *Vegezio*, book 3, ch.20), Giusti 2010.



# Old Italian



... col corno tuo sinistro ... **col diritto tuo corno**  
“ ... with your left horn ... **with your RIGHT horn**”  
(Bono Giamboni, *Vegezio*, book 3, ch.20)



# Parameter Change

In Latin and Romance uPred and Edge are bundled

In **Latin**, uPred, Edge, Number, and Gender are realized on N

- N is freely realized along the spine
- uPred, Number and Gender are shared on A
- The left periphery is higher than uPred+Edge

In **Romance**, uPred+Edge is split from N. Number and Gender are redundantly realized on both

- IndP is in the specifier of an overt scattered head (the article)
- Ns and As are only inflected for number and gender
- The left periphery is lower than uPred+Edge



# Summary

- Interpretable and uninterpretable functional features are hierarchically bundled with the lexical head (in the spirit of the «extended projection» Grimshaw 1991) and satisfied by cyclical applications of Merge.
- Arguments are merged one at a time to satisfy open positions present in the bundle, obeying the hierarchy of the bundle (Higginbotham 1985, 1987). N has an open position to be saturated by an individual index (also, Arsenijević 2007, 2015)
- Modifiers are merged one at a time according to the universal hierarchy of modifiers (direct and indirect modification, Cinque 2010)
- Possessors are independent Phases that must be sent to the interfaces before the NP-Phase is completed (Richards 2007)
- Demonstratives are edgers. They are first merged in the lower layer but must reach the Edge
- Case is the result of Agreement with the next Phase, it is the valuation of a uPred feature along the Category of the selector.



# General Advantages

Functional features are associated to a lexical category / subcategory / item.

- This accounts for the different parametric dimensions (Biberauer and Roberts 2012)
- It makes the NP/DP debate vanish.
- It makes Cartography and Minimalism come closer.
- It naturally derives head-movement
- It limits Agreement to phases endowed with Ind
- It explains NP-internal movements
- It explains discontinuous NPs



# Conclusions

- Are nominal functional categories justified?  
→ Yes, but they are not independent heads. They are features bundled with N.
- Is the category D universal?  
→ There is no category «D» in the proper sense.
- Are determiners heads or phrases?  
→ «Determiner» is a spurious category: articles are high segments of N, in languages that have such segmentation; possessives are phrasal, demonstratives are a special type of IndP.



# Conclusions

- Why is there such crosslinguistic variation in the position and co-occurrence of possessors, demonstratives, articles?
  - Articles are scattered N heads
  - Demonstratives provide the IndP of the NP-Phase
  - Possessors are independent phases



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