# Case government vs Case agreement: modelling Modern Greek case attraction phenomena in LFG

Dr. Kakia Chatsiou, University of Essex
achats at essex.ac.uk
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## 1 Nominal Modern Greek Free Relative Clauses (FRCs)

(1) Kerases [ *ópjon* irthe ]
treated.$_{2SG}$ whoever.$_{MSG\cdot ACC}$ came.$_{3SG}$
*'You treated whoever came.'*

Nominal Modern Greek Free Relative Clauses:

- are introduced by a free relative pronoun such as *ópjos* (whoever.$_{MSG\cdot NOM}$) or *ósos* (as much as.$_{MSG\cdot NOM}$), or their compounds with *-dipote*[1]
- fill in argument positions and hence do not take an antecedent
- internal word order is relatively free: the free relative pronoun obligatorily introduces the FRC; the rest of the constituents may follow in any order (VSO is the unmarked order)
- FRCs can precede or follow the main clause. When they precede it, they function as topicalised/Clitic Left Dislocated elements (Alexopoulou & Kolliakou 2002)
- the free relative pronoun is declinable for **gender** (e.g. *ópjos, ópja, ópjo*), **number** (e.g. *ópjos, ópjii*) and **case** (*ópjos, ópju, etc*)[2]

## 2 Gender and Number Agreement in Nominal MG FRCs

- the free relative pronoun *ópjos* agrees in gender and number with any coreferrent pronouns or clitics in the matrix or the free relative clause

(2) Zilepses [ *ópjon*$_i$ i Maria *tu*$_i$ edose ena fili ]
were.jealous.$_{2SG}$ whoever.$_{MSG\cdot ACC}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss
*'You were jealous of whoever Mary gave a kiss to.'*

(3) Tha tu$_i$ doso sokolata [ *ópju*$_i$ katsi kala ]
will him.$_{MSG\cdot GEN}$ give.$_{1SG}$ chocolate whoever.$_{MSG\cdot GEN}$ sits.$_{3SG}$ well
*'I will give chocolate to whoever is a good boy.'*

[1] Here, we focus on (Nominal) opjos-FRCs, but similar observations apply to FRCs introduced by declinable relativisers other than *ópjos*.

[2] Full declension table of the *ópjos* free relative pronoun is provided below for your reference:

| | | M | F | N |
|---|---|---|---|---|
| SG | NOM | ópjos | ópja | ópjo |
| | GEN | ópju | ópjas | ópju |
| | ACC | ópjon | ópja | ópjo |
| PL | NOM | ópjii | ópjes | ópja |
| | GEN | ópjon | ópjon | ópjon |
| | ACC | ópjus | ópjes | ópja |

# 3 Case Government in non-fronted MG FRCs

- when the FRC is not fronted/topicalised the free relative pronoun's case is governed by the matrix clause verb (e.g. in (2), *ópjon* an object of *zilepses* hence in accusative), as shown by the ungrammaticality of (4)

(4) Zilepses [ ***ópju***$_i$ i Maria *tu*$_i$ edose ena fili ]
were.jealous.$_{2SG}$ whoever.$_{MSG\cdot GEN}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss
*'You were jealous of whoever Mary gave a kiss to.'*

- the case of any resumptive pronouns in the FRC is governed by the verb of the FRC and take their case accordingly e.g. in (2), *tu* is an indirect object and hence in genitive), as shown by the ungrammaticality of (5)

(5) Zilepses [ *ópjon*$_i$ i Maria ***ton***$_i$ edose ena fili ]
were.jealous.$_{2SG}$ whoever.$_{MSG\cdot ACC}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot ACC}$ gave.$_{3SG}$ a kiss
*'You were jealous of whoever Mary gave a kiss to.'* (in standard Modern Greek; acceptable in some dialects)

# 4 Case Attraction in topicalised MG FRCs

- when the FRC is topicalised/fronted (and a doubling clitic is present in the matrix clause), the free relative pronoun can also be governed by the verb of the FRC clause. This observation has also been referred to in the literature as *forward attraction of case* (Tzartzanos, 1996: 169), *case mismatching effects* or simply *case attraction*.

- The presence of the doubling clitic for the attracted case to occur is of essence, as demonstrated by the ungrammaticality of (7):

(6) [ *Ópju*$_i$/*Ópjon*$_i$ i Maria *tu*$_i$ edose ena fili ], **ton**$_i$
whoever.$_{MSG\cdot GEN}$/.$_{ACC}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss , him.$_{MSG\cdot ACC}$ zilepses.
were.jealous.$_{2SG}$

(7) [ **Ópju*$_i$/*Ópjon*$_i$ i Maria *tu*$_i$ edose ena fili ], _$_i$ zilepses.
whoever.$_{MSG\cdot GEN}$/.$_{ACC}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss , were.jealous.$_{2SG}$
*'You were jealous of whoever Mary gave a kiss to.'*

- case attraction in MG nominal FRCs is quite robust and seems independent of the thematic role of the free relative pronoun in the matrix or the FRC clause, as shown in (8):

(8) a. I Maria edose ena fili [ *ópju/*ópjos* irthe ].
the.$_{FSG\cdot NOM}$ Mary gave.$_{3SG}$ a kiss whoever.$_{MSG\cdot GEN}$/.$_{NOM}$ came.$_{3SG}$
b. [ *Ópju/Ópjos* irthe ], i Maria tu edose ena fili.
whoever.$_{MSG\cdot GEN}$/.$_{NOM}$ came.$_{3SG}$ , the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss
c. [ **Ópju/Ópjos* irthe ], i Maria ___ edose ena fili.
whoever.$_{MSG\cdot GEN}$/.$_{NOM}$ came.$_{3SG}$ , the.$_{FSG\cdot NOM}$ Mary gave.$_{3SG}$ a kiss
*'Mary gave a kiss to whoever came.'*

# 5 About Lexical Functional Grammar

LFG is :

- *lexical*, as the lexicon plays an active role when accounting for linguistic phenomena
- *functional*, as it uses grammatical functions like SUBJ(ect), OBJ(ect) and OBL(ique) to account for the grammatical role of each element
- a *grammar*, as its purpose is to descriptively account for individual languages as well as aiming at a universal grammar

The basic mechanism behind the LFG formalism is the existence of different levels of projection and several of them have been proposed to account for different levels of linguistic representation. In their initial paper Kaplan & Bresnan (1982) defined the following two levels of representation that we will be using here:

1. the *constituent structure* (or c-structure), which includes the dominance and precedence relations between constituents and is schematically represented via a phrase structure tree as in (11), and
2. the *functional structure* (or f-structure), which includes information on the grammatical relations between the elements of the c-structure and is represented through an attribute value matrix (AVM), as in (12).

   These two are mapped onto one another by means of *projection mapping functions*, noted with the $_{f1,\ldots,fn}$ symbols. in (11) and (12).

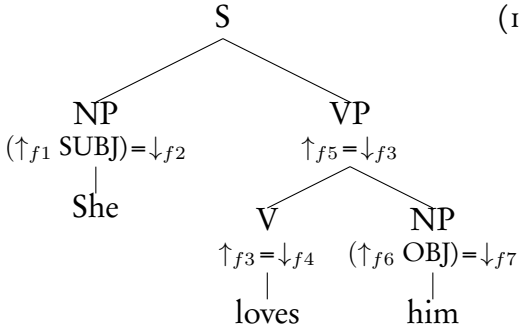
(9) Rules with f-structure projection equations:

| | | | |
|---|---|---|---|
| S | → | NP | VP |
| | | (↑SUBJ)=↓ | ↑=↓ |
| VP | → | V | NP |
| | | ↑=↓ | (↑OBJ)=↓ |
| NP | → | NP | |
| | | ↑=↓ | |

(10) Lexical entries:

| | | | | | |
|---|---|---|---|---|---|
| she | NP | (↑PRED)='pro' | him | NP | (↑PRED)='pro' |
| | | (↑PERS)=3 | | | (↑PERS)=3 |
| | | (↑NUM)=sg | | | (↑NUM)=sg |
| | | (↑GEND)=f | | | (↑GEND)=m |
| | | (↑CASE)=nom | | | (↑CASE)=acc |
| loves | V | (↑PRED)='love<SUBJ,OBJ>' | | | |
| | | (↑SUBJ PERS)=3 | | | |
| | | (↑SUBJ NUM)=sg | | | |
| | | (↑SUBJ CASE)=nom | | | |
| | | (↑OBJ CASE)=acc | | | |

(11)




(12)

$$\begin{bmatrix} \text{PRED} & \text{'love}\langle \text{SUBJ , OBJ} \rangle\text{'} \\ \text{SUBJ}_{f2} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 3 \\ \text{GEND} & \text{f} \\ \text{CASE} & \text{nom} \end{bmatrix} \\ \text{OBJ}_{f7} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 3 \\ \text{GEND} & \text{m} \\ \text{CASE} & \text{acc} \end{bmatrix} \end{bmatrix}_{f1,f2,f3,f4,f5,f6}$$

Note that:

- basic LFG treatment of agreement (e.g. number agreement) is done using the mechanism of **unification**: when we resolve the equations and build the f-structure using the f-structure annotaitons on the phrase structure rules and the lexical entries, we *unify* the values of the f-structure for each attribute
- basic LFG treatment of government of case can be done **lexically**, as an equation or constraint on the verb and resolved via unification too

# 6 Modelling Gender and Number agreement in Nominal MG FRCs

- the free relative pronoun must agree in gender and number with its coreferrent clitics/pronouns where they occur
- in constraint-based, unification-based frameworks like LFG, agreement between the free relative pronoun and its coreferrent elements, the within-FRC resumptive pronoun or the matrix clause doubling clitic can be accounted for quite straightforwardly using the mechanisms described in the previous section

(13)
1 (↑ PRONTYPE) = (%ANTECEDENT)
2 (%ANTECEDENT) = $_c$ *frcrelpro*
3 ( GF CLITIC (%ANTECEDENT)) = (%DOUBLINGCLITIC)
4 (%ANTECEDENT ADJ ∈ GF ) = (%RESUMPTIVE)

5 (%ANTECEDENT GEND) = ( %DOUBLINGCLITIC GEND)
6 (%ANTECEDENT GEND) = ( %RESUMPTIVE GEND)

7 (%ANTECEDENT NUM) = ( %DOUBLINGCLITIC NUM)
8 (%ANTECEDENT NUM) = ( %RESUMPTIVE NUM)

- these additional constraints will appear on the free relative pronoun c-structure node, alongside any other equations.
- to point at the same attribute within an f-structure across all constraints under a node, we have used the local variable notation e.g. *%ANTECEDENT*, which does exactly that: once a path has been defined under a node then we can use the *%ANTECEDENT* notation to refer to that exact path across different constraints. For more information for the use of Local Variables, see Dalrymple (2001)

# 7 Modelling government in case

- in non-topicalised FRCs the free relative pronoun's case is governed by the verb of the matrix

(14) Zilepses [ *ópjon*$_i$/**ópju*$_i$ i Maria *tu*$_i$ edose ena fili ]
were.jealous.$_{2SG}$ whoever.$_{MSG\cdot ACC}$/$_{\cdot GEN}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss
*'You were jealous of whoever Mary gave a kiss to.'*

(15) (matrix clause verb)
zilepses V (↑PRED)='wasjealousof<SUBJ,OBJ>'
(↑SUBJ PERS)=2
(↑SUBJ NUM)=sg
(↑SUBJ CASE)=nom
(↑OBJ CASE)=acc
...

(16) (FRC verb)

edose V (↑PRED)='gave<SUBJ,OBJ,OBL>'
(↑SUBJ PERS)=3
(↑SUBJ NUM)=sg
(↑SUBJ CASE)=nom
(↑OBJ CASE)=acc
(↑OBL CASE)=gen
...

(17) (well-formed f-structure; OBJ case is accusative)

$$\begin{bmatrix} \text{PRED} & \text{`wasjealousof}\langle \text{SUBJ , OBJ}\rangle\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`pro'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 2 \\ \text{CASE} & \text{nom} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`pro'} \\ \text{NUM} & \text{sg} \\ \dots & \\ \text{CASE} & \text{acc} \end{bmatrix} \end{bmatrix}$$

(18) (ill-formed f-structure; OBJ case verb says accusative; free relative pronoun says genitive)

$$\begin{bmatrix} \text{PRED} & \text{`wasjealousof}\langle \text{SUBJ , OBJ}\rangle\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`pro'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 2 \\ \text{CASE} & \text{nom} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`pro'} \\ \text{NUM} & \text{sg} \\ \dots & \\ \text{CASE} & \text{acc}\neq\text{gen} \end{bmatrix} \end{bmatrix}$$

# 8 Modelling case attraction

- when the FRC is topicalised and a (doubling) clitic is present in the matrix clause, the free relative pronoun can also be governed by the verb of the FRC

(19) [ *Ópju/Ópjon* i Maria *tu* edose ena fili ], **ton**
whoever.$_{\text{MSG·GEN}}$/.$_{\text{ACC}}$ the.$_{\text{FSG·NOM}}$ Mary him.$_{\text{MSG·GEN}}$ gave.$_{\text{3SG}}$ a kiss , him.$_{\text{MSG·ACC}}$
zilepses.
were.jealous.$_{\text{2SG}}$
*'You were jealous of whoever Mary gave a kiss to.'*

- potentially challenging data for unification based frameworks like LFG. In these environments the value of the CASE feature of a single f-structure can alternatively be governed by the verb of the matrix or the verb of the FRC

## 8.1 LFG Analyses of case attraction in German FRCs

## 8.2 Indeterminacy - (Dalrymple & Kaplan, 2000)

(Dalrymple & Kaplan, 2000) have proposed the use of *feature indeterminacy* and *feature checking* for case resolution in German Free Relative Clauses.

In German, the Free Relative Pronoun *was* is indeterminant for case (NOM or ACC) and thus can fulfill the requirements of both the matrix and the free relative clause verb, as in (20):

(20) Ich habe gegessen was übrig war
I have eaten$_{(ACC\in OBJCASE)}$ what$_{\{NOM,ACC\}}$ was left$_{(NOM\in SUBJCASE)}$
*'I have eaten what was left.'*

Dalrymple & Kaplan (2000) propose that the value of the CASE feature is not an atom, but rather a *set* whose elements are atomic symbols, i.e. $\begin{bmatrix}\text{CASE} & \{\text{NOM}\}\end{bmatrix}$ instead of $\begin{bmatrix}\text{CASE} & \text{nom}\end{bmatrix}$.

(21) *wer* : $\begin{bmatrix}\text{CASE} & \{\text{NOM}\}\end{bmatrix}$ (nom case only)

(22) *was* : $\left[\text{CASE} \ \{\text{NOM,ACC}\}\right]$ (indeterminate - nom or acc case)

- can have 1 element fulfilling 2 different case requirements without violating the *uniqueness* or the *extended coherence condition*.

$$\begin{bmatrix} \text{PRED} & \text{'eat}\langle \text{SUBJ,OBJ} \rangle\text{'} \\ \text{TENSE} & \text{past} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \text{sg} \\ \text{PERSON} & 1 \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'what'} \ \boxed{1} \\ \text{CASE} & \{\text{NOM,ACC}\} \boxed{2} \\ \text{RELMOD} & \begin{bmatrix} \text{PRED} & \text{'left'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \boxed{1} \\ \text{CASE} & \boxed{2} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(Dalrymple & Kaplan, 2000)

## 8.3 Indeterminacy by Underspecification (Dalrymple, King & Sadler 2009)

Problems with the Dalrymple & Kaplan's (2000) set analysis:

- it does not make the right predictions when modifiers and governing predicates both place agreement requirements on the same noun (where the requirements must be compatible, contrary to the predictions of the set-based analysis *(the transitivity problem)*

They propose:

- Grammatical case is treated as an f-structure with attributes corresponding to each of the cases available for the language, e.g. atom, but rather a *set* whose elements are atomic symbols, i.e. $\begin{bmatrix} \text{CASE} & \begin{bmatrix} \text{NOM} & - \\ \text{ACC} & - \end{bmatrix} \end{bmatrix}$
- *Nouns* and *modifiers* specify negative values for the cases they do not express e.g. an accusative noun: $\begin{bmatrix} \text{CASE} & \begin{bmatrix} \text{NOM} & - \\ \text{GEN} & - \\ \text{VOC} & - \end{bmatrix} \end{bmatrix}$
- *Verbs* specify a positive value for the case of their argument e.g. for an accusative object $\left[\text{CASE} \ \left[\text{ACC} \ +\right]\right]$

Here is (20) reproduced here as (23):

(23) Ich habe gegessen was übrig war
I have eaten$_{(ACC \in OBJCASE)}$ what$_{\{NOM,ACC\}}$ was left$_{(NOM \in SUBJCASE)}$
*'I have eaten what was left.'*

The lexical entry for *was*, the indeterminate free relative pronoun, will have the following negative constraints on case:

(24) *was* C (↑ CASE GEN) = -
(↑ CASE DAT) = -

and the lexical entries of the verbs would specify case requirements as follows:

(25) *gegessen* C (↑ SUBJ CASE NOM) = +
(↑ OBJ CASE ACC) = +

so, the f-structure of (23) following this analysis looks as in (26):

(26)
$$\begin{bmatrix} \text{PRED} & \text{'eat}\langle \text{SUBJ,OBJ} \rangle\text{'} \\ \text{TENSE} & \text{past} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \text{sg} \\ \text{PERSON} & 1 \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'what'}\ \boxed{1} \\ \text{CASE} & \begin{bmatrix} \text{NOM} & - \\ \text{ACC} & + \\ \text{GEN} & - \\ \text{VOC} & - \end{bmatrix} \boxed{2} \\ \text{RELMOD} & \begin{bmatrix} \text{PRED} & \text{'left'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \boxed{1} \\ \text{CASE} & \boxed{2} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

Using the indeterminacy by underspecification analysis solves the problems of the Dalrymple and Kaplan (1997, 2000) analysis, without making very different claims with respect to the case system mechanism of languages.

## 8.4 Our proposal

- none of the solutions proposed for the german data can be used to account for the modern greek data - *was* is an indeterminate form for both the accusative and the nominative case, whereas in greek we have distinct forms that can occur alternatively.
- we propose an LFG analysis which treats the free relative pronoun as the head of the FRC's f-structure and the rest of the relative clause as an adjunct to the free relative pronoun, a treatment similar to that of restrictive and non-restrictive relative clauses.
- building on Echevarría and Ralli's (2000) observations on the role of the doubling clitic in facilitating case alternation in clitic left dislocated constructions, we propose an alternative solution that uses anaphoric binding and relies on the use of an INDEX feature on the f-structures of the doubling clitic and the free relative pronoun. This feature is used to constrain case alternation on the free relative pronoun introducing a fronted FRC and to either matrix or FRC within-clause case is allowed.

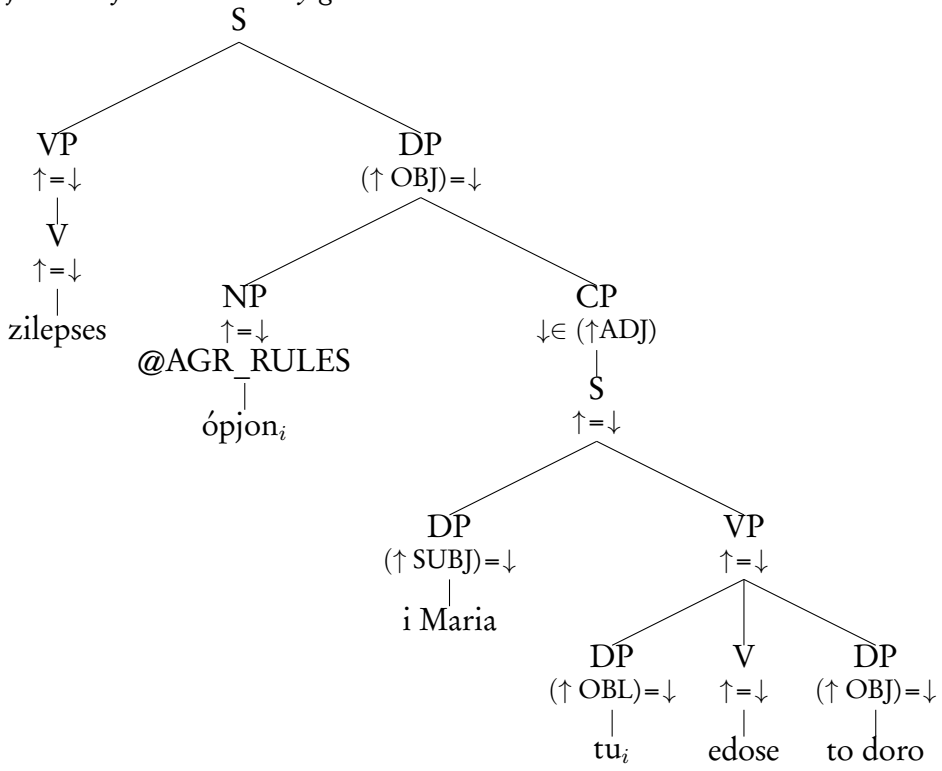
Note that:

@AGR_RULES≡
(↑GF PRONTYPE) = (%ANTECEDENT)
(%ANTECEDENT) =$_c$ *frcrelpro*
( GF CLITIC (%ANTECEDENT)) = (%DOUBLINGCLITIC)
(%ANTECEDENT ADJ ∈ GF ) = (%RESUMPTIVE)

(%ANTECEDENT GEND) = ( %DOUBLINGCLITIC GEND)
(%ANTECEDENT GEND) = ( %RESUMPTIVE GEND)

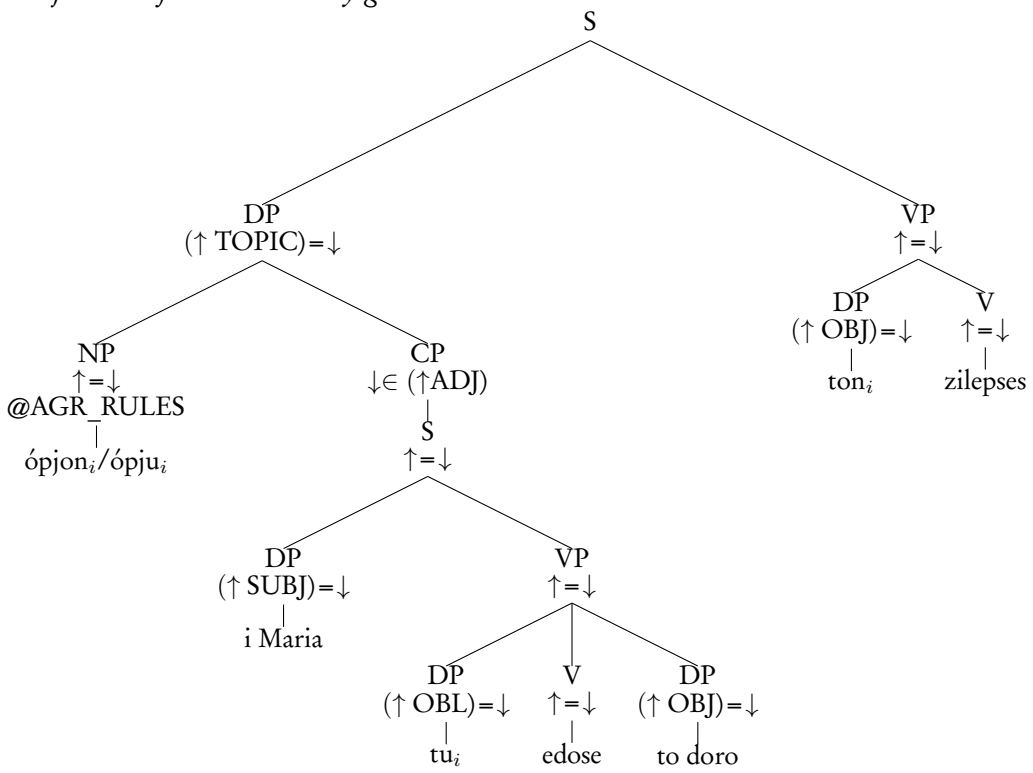
(%ANTECEDENT NUM) = ( %DOUBLINGCLITIC NUM)
(%ANTECEDENT NUM) = ( %RESUMPTIVE NUM)

(27) Zilepses [ *ópjon* i Maria *tu* edose ena fili ]
were.jealous.$_{2SG}$ whoever.$_{MSG\cdot ACC}$ the.$_{FSG\cdot NOM}$ Mary him.$_{MSG\cdot GEN}$ gave.$_{3SG}$ a kiss
*'You were jealous of whoever Mary gave a kiss to.'*




$$
\begin{bmatrix}
\text{PRED} & \text{'wasjealousof}\langle \text{SUBJ , OBJ} \rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 2 \\ \text{CASE} & \text{nom} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix}
\text{PRED} & \text{'pro'} \\
\text{CASE} & \text{acc} \\
\text{INDEX} & \text{i} \\
\text{PRONTYPE} & \text{frcrelpro} \\
\text{GENDER} & \text{m} \\
\text{NUM} & \text{sg} \\
\text{PERS} & 3 \\
\text{ADJ} & \left\{ \begin{bmatrix}
\text{PRED} & \text{'give}\langle \text{SUBJ , OBJ , OBL} \rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Maria'} \\ \text{CASE} & \text{nom} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'doro'} \\ \text{CASE} & \text{acc} \end{bmatrix} \\
\text{OBL} & \begin{bmatrix}
\text{PRED} & \text{'pro'} \\
\text{PRONTYPE} & \text{rp} \\
\text{CASE} & \text{gen} \\
\text{GEND} & \text{m} \\
\text{NUM} & \text{sg} \\
\text{PERS} & 3 \\
\text{INDEX} & \text{i}
\end{bmatrix}
\end{bmatrix} \right\}
\end{bmatrix}
\end{bmatrix}
$$

(28) [ *Ópju/Ópjon* i Maria *tu* edose ena fili ], **ton**
whoever.$_{\text{MSG·GEN}}$/.$_{\text{ACC}}$ the.$_{\text{FSG·NOM}}$ Mary him.$_{\text{MSG·GEN}}$ gave.$_{\text{3SG}}$ a kiss , him.$_{\text{MSG·ACC}}$
zilepses.
were.jealous.$_{\text{2SG}}$
*'You were jealous of whoever Mary gave a kiss to.'*




$$
\begin{bmatrix}
\text{PRED} & \text{'wasjealousof}\langle \text{SUBJ , OBJ}\rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'}\text{, NUM} & \text{sg} \\ \text{PERS} & \text{2, CASE} & \text{nom} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{PRONTYPE} & \text{dcl} \\ \text{CASE} & \text{gen} \\ \text{GEND} & \text{m, NUM} \quad \text{sg, PERS} \quad \text{3} \\ \text{INDEX} & \text{i} \end{bmatrix} \\
\text{TOPIC} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{GENDER} & \text{m} \\ \text{NUM} & \text{sg} \\ \text{PERS} & \text{3} \\ \text{CASE} & \text{acc/gen} \\ \text{INDEX} & \text{i} \\ \text{PRONTYPE} & \text{frcrelpro} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'give}\langle \text{SUBJ , OBJ , OBL}\rangle\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Maria'} \\ \text{CASE} & \text{nom} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'doro'} \\ \text{CASE} & \text{acc} \end{bmatrix} \\ \text{OBL} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{PRONTYPE} & \text{rp} \\ \text{CASE} & \text{gen} \\ \text{GEND} & \text{m, NUM} \quad \text{sg, PERS} \quad \text{3} \\ \text{INDEX} & \text{i} \end{bmatrix} \end{bmatrix} \right\} \end{bmatrix}
\end{bmatrix}
$$

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