

Information Structure of the Sentence, Its Semantic Relevance and Its Representation in PDT

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Overview



1. Two dimensions of the tree structure
2. Topic-Focus Articulation of the Sentence
 - o Semantic Relevance
 - o Formal Means: Morphology, Syntax, Prosody
 - o Operational tests
3. Representation of TFA in the PDT Annotation
4. One Possible Outlook: From Topic-Focus Articulation to an Analysis of Discourse Structure
5. Concluding Remarks

1. Two Dimensions of the Tree Structure:

- * top-down – dependency relations
- * left-to-right – “aboutness” relation

“topic”: what is the sentence about

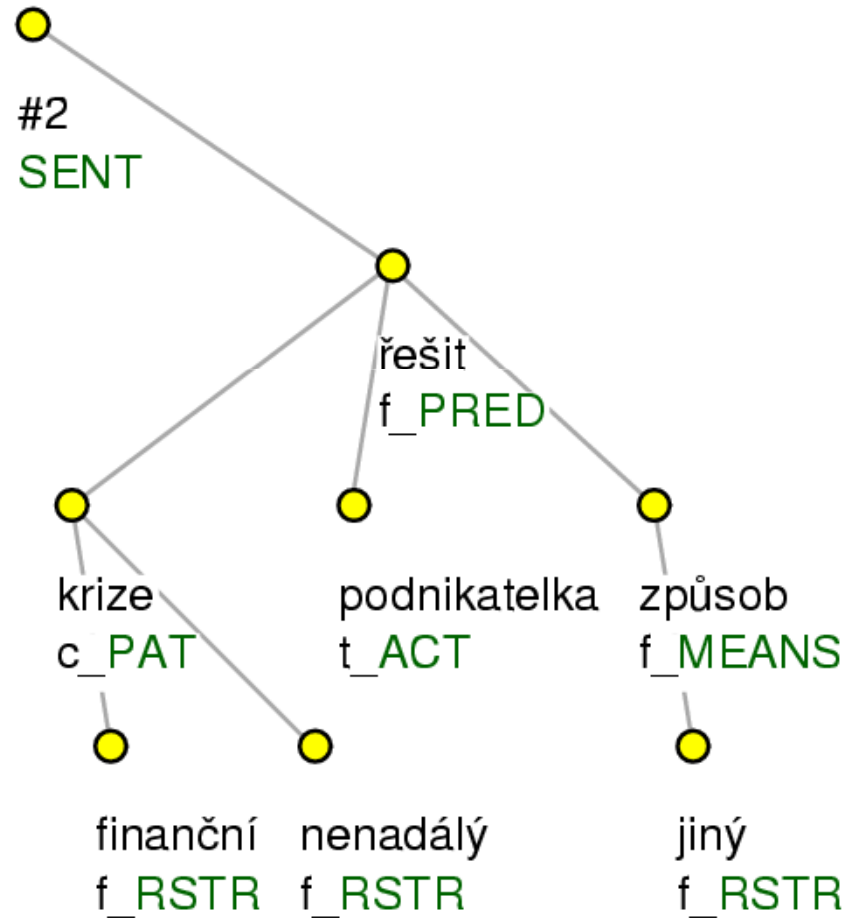
“focus”: what the sentence says about
topic

$F(T)$

EXAMPLE

Nenadálou finanční krizi podnikatelka řešila jiným způsobem

Lit.: (The) sudden financial crisis-Acc. (the) entrepreneur- Nom.
solved by other means.



2. Topic-Focus Articulation of the sentence

- **Interactivity of communication** – directly present in the utterance (sentence occurrence), reflected in the structure of a sentence as a type
- **Topic-Focus Articulation (TFA)**
 - Reflects the ‘given’ – ‘new’ strategy but differs from it in belonging to the **systems of individual languages** rather than to the domain of cognition
 - It concerns **not only the contextual appropriateness**, but the truth conditions (see examples below)
- **Different terminology:** Information structure of the sentence, theme/rheme, topic/comment, background/focus, ...

Semantic Relevance

- (1)(a) I read linguistic journals on the weekends.
(b) On the weekends I read linguistic journals.
- (2)(a) Kurit' zdes'.
(b) Zdes' kurit'.
- (3)(a) Staff behind the counter.
(b) STAFF behind the counter.
- (4)(a) John has introduced Bill only to Sue.
(b) John has introduced only BILL to Sue. (Rooth 1984)
(c) Only JOHN has introduced Bill to Sue.
(d) John has only INTRODUCED Bill to Sue.
- (5) John has only introduced Bill to Sue.
 - (i) = (4)(a),
 - (ii) ... but not Tom to Mary
 - (iii) ... but he did not speak with Tom and Mary



Search for a common denominator (1)

- Common denominator: articulation of the sentence into TOPIC and FOCUS
- Rendered in the surface shape of the sentence by different means:
 - Word order
 - Prosody
 - Specific morphemic means
 - Specific syntactic constructions

Search for a common denominator (2)

- (6)(a) Everybody in this room knows at least two languages.
(b) At least two languages are known by everybody in this room.
(Chomsky 1965)

Active vs. passive?

- (7)(a) Many men read few books.
(b) Few books are read by many men. (Lakoff 1969)

Order of quantifiers?

- (8)(a) English is spoken in the Shetlands.
(b) In the Shetlands, one speaks English.

Difference in order, but without quantifiers!

- (9)(a) Dogs must be carried.
(b) DOGS must be carried. (Carry DOGS.) (Halliday 1970)

Order the same, difference in the placement of intonation center

Dogs must be carried?



Basic opposition

- F(ocus) asserted **about** T(opic):

F(T)

non-F(T)

- (10) During the weekend, **there was a military exercise in the area of Ralsko.**

What happened during the weekend?

T: during the weekend

F: was a military exercise in the area of Ralsko

- (11) After that, the squad of soldiers **cleaned** the area **from munition.**

What did the squad of soldiers do after that in the area?

T: after that in the area the squad of soldiers

F: cleaned from munition

Contextual Boundness



The basic opposition of **contextual boundness**:

- **Contextually bound (cb)**: presented by the speaker as referring to entities assumed to be easily accessible by the hearer ('predictable')
- **Non-bound items (nb)**: presented as not directly predictable

(12) (Tom entered together with his friends.) My mother recognized only HIM. (= but no one from his company)

From contextual boundness to Topic/Focus

- Topic/Focus distinction exhibits – from a certain viewpoint – some **recursive** properties
 - Topic/Focus distinction cannot be drawn on the basis of an articulation of the sentence into constituents
- ➔ **Primitive notion: contextual boundness**

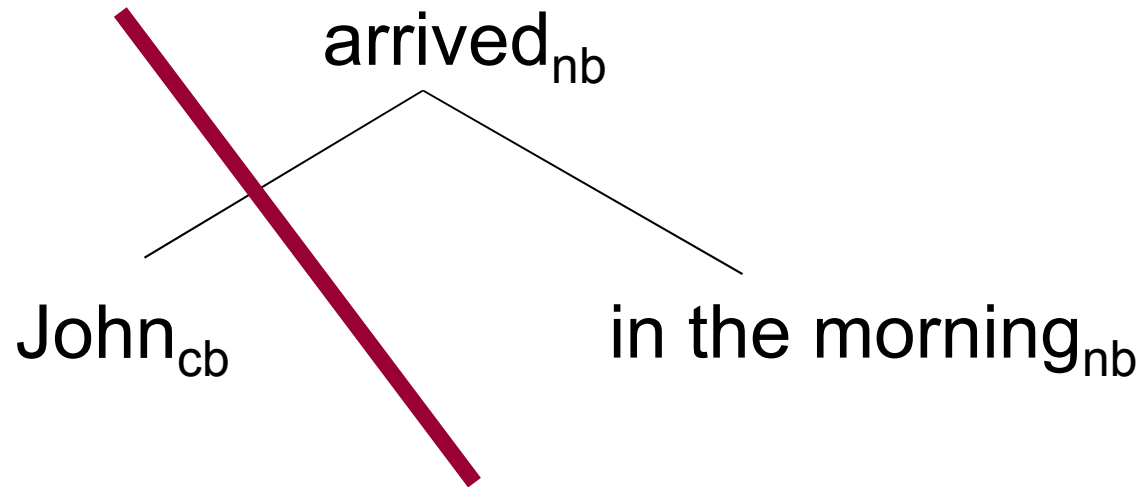
Rules for the T/F determination

- a) the main verb: cb \rightarrow topic, nb \rightarrow focus
- b) direct dependents on the verb:
cb \rightarrow topic, nb \rightarrow focus
- c) elements subordinated to an nb element
in F \rightarrow focus
- d) if the main verb and its direct elements
are all cb: \rightarrow follow the rightmost edge,
find the first nb element \rightarrow focus

Example

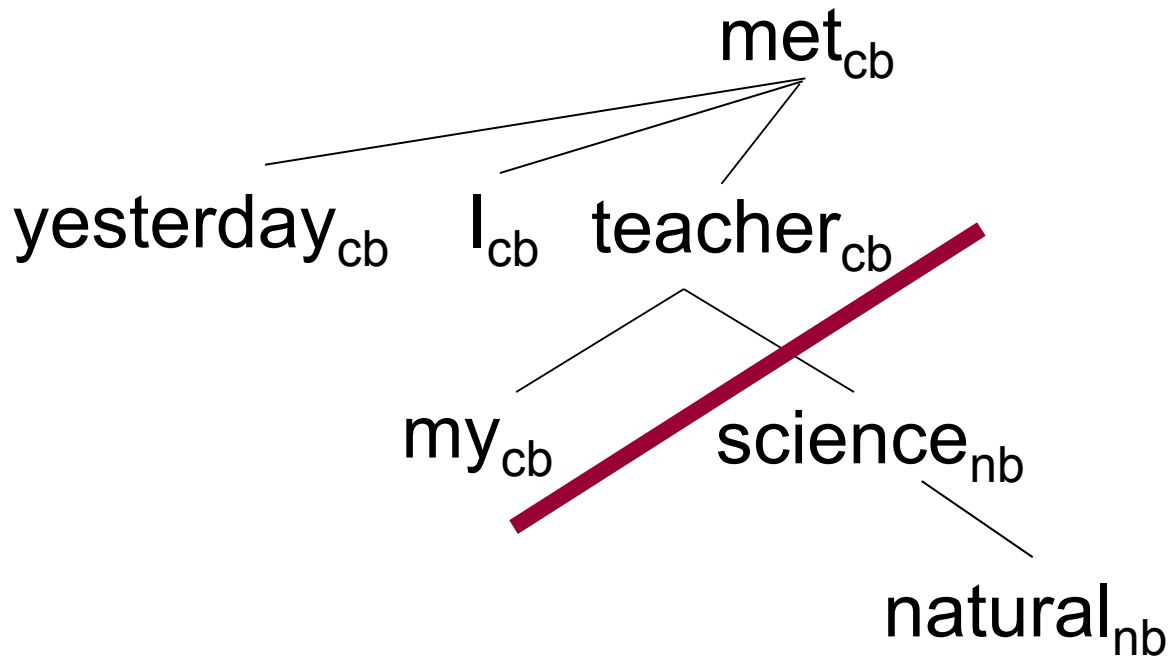
(13) (Yesterday, John's mother had her birthday.)

John_{cb} arrived_{nb} in the morning_{nb}.



Example

(14) (Which of your teachers did you meet yesterday?) Yesterday_{cb}, I_{cb} met_{cb} my_{cb} teacher_{cb} of natural_{nb} science_{nb}.



Specific cases (1): coordination

- Each of the clauses has a TFA structure of its own

(15) Without him it is unthinkable but at the same time it includes many dangers.

Specific cases (2) : **complex sentences**

- The dependent clause (embedded) functions as a sentence part → the whole structure has a **recursive character**

(16) In politics you can achieve some aim **if you have a corresponding support.**

(Under which condition can you achieve some aim in politics?)

(17) When Jim met Richard, he invited him **to his summer house.**

(Where did Jim invite Richard when he met him?)

Operational Tests



- Question test

(18) John wanted to stay at home.

= ambiguous:

Where did John want to stay?

What did John want to do?

*** Who wanted to stay at home? (JOHN ...)**

- Negative response test (Chomsky)

(19) John did not want stay at home.

... he wanted to go to school;

... he went to the cinema.



Related issues and notions (1)

- Local focus

(20) While the market with radio signal is saturated, the television still may use a regional and local transmission.

Related issues and notions (2)

- Contrastive topic

(21) (She called him a Republican.) Then
he insulted HER.

- a contrastive stress on “he”,
- “her” pronounced with a typical final falling stress contour

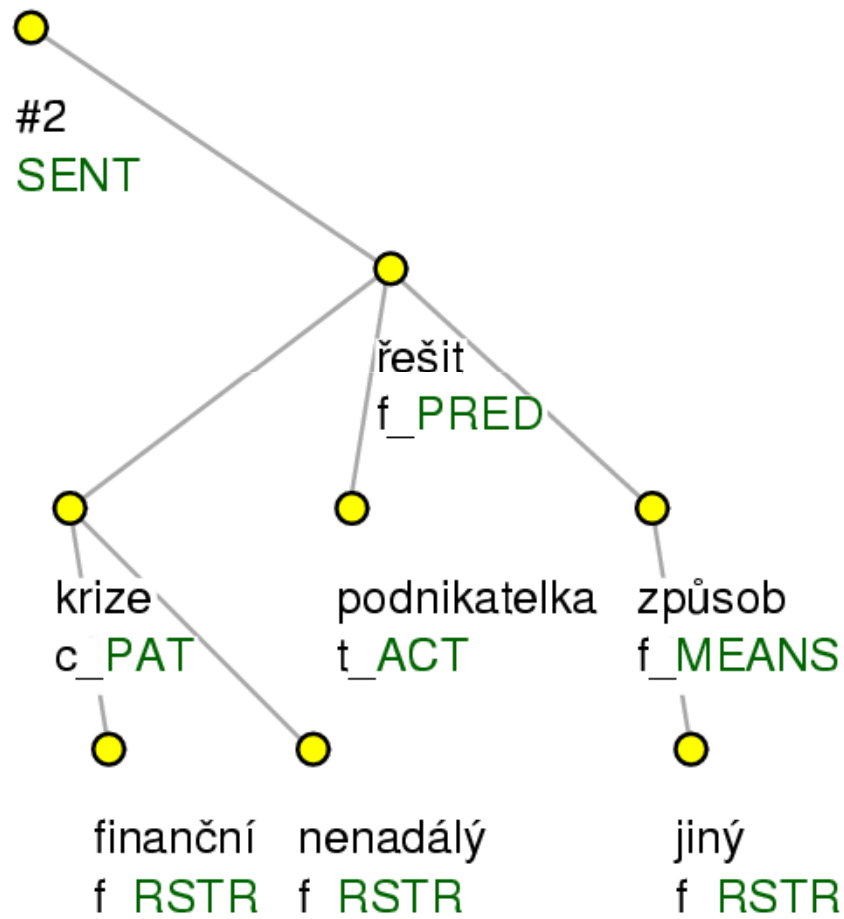
Annotation of Topic and Focus in PDT

- TFA attribute
- Three possible values:
- **t**: contextually bound non-contrastive (cb)
- **c**: contextually bound contrastive (cb)
- **f**: contextually non-bound (nb)
- **Claim**: if every node is described as **cb** or **nb**, then the concepts of **Topic** and **Focus** can be defined on the basis of this elementary opposition

Example:

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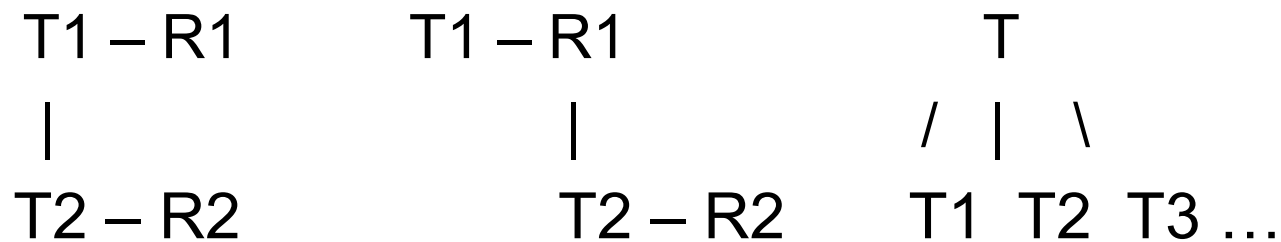


State-of-the-Art

- The **algorithm** formulated on the basis of the hypothesis
 - **Implementation** of the algorithm on the whole of PDT
 - **Results**: Results of the implementation
- | | |
|-------------------------------------|-------|
| ● F: V + subtrees | 85,7% |
| ● F: right-attached subtrees of V.t | 8,58% |
| ● Quasi-focus | 4,41% |
| ● F interrupted by c-node | 0,06% |
| ● Ambiguous partition | 1,14% |
| ● No focus indentified | 0,11% |
- **In progress**: comparison of human annotation of a sample of sentences from PDT and the results of the implemented system & **evaluation**

3. From TFA to an analysis of discourse structure

a) thematic progressions



b) degrees of activation of the items of the stock of knowledge assumed by the speaker to be shared by him and the hearer



The stock of shared knowledge

- Language as an **interactive system** serving human communication
- Sentence occurrences anchored in context and represent an **update operation** on the hearer's memory
- **Development of the degrees of activation** during the discourse
- A **finite mechanism** a hearer uses **to identify the referents** of the referring expressions in the utterance

Heuristics for the assignment of the degrees of salience

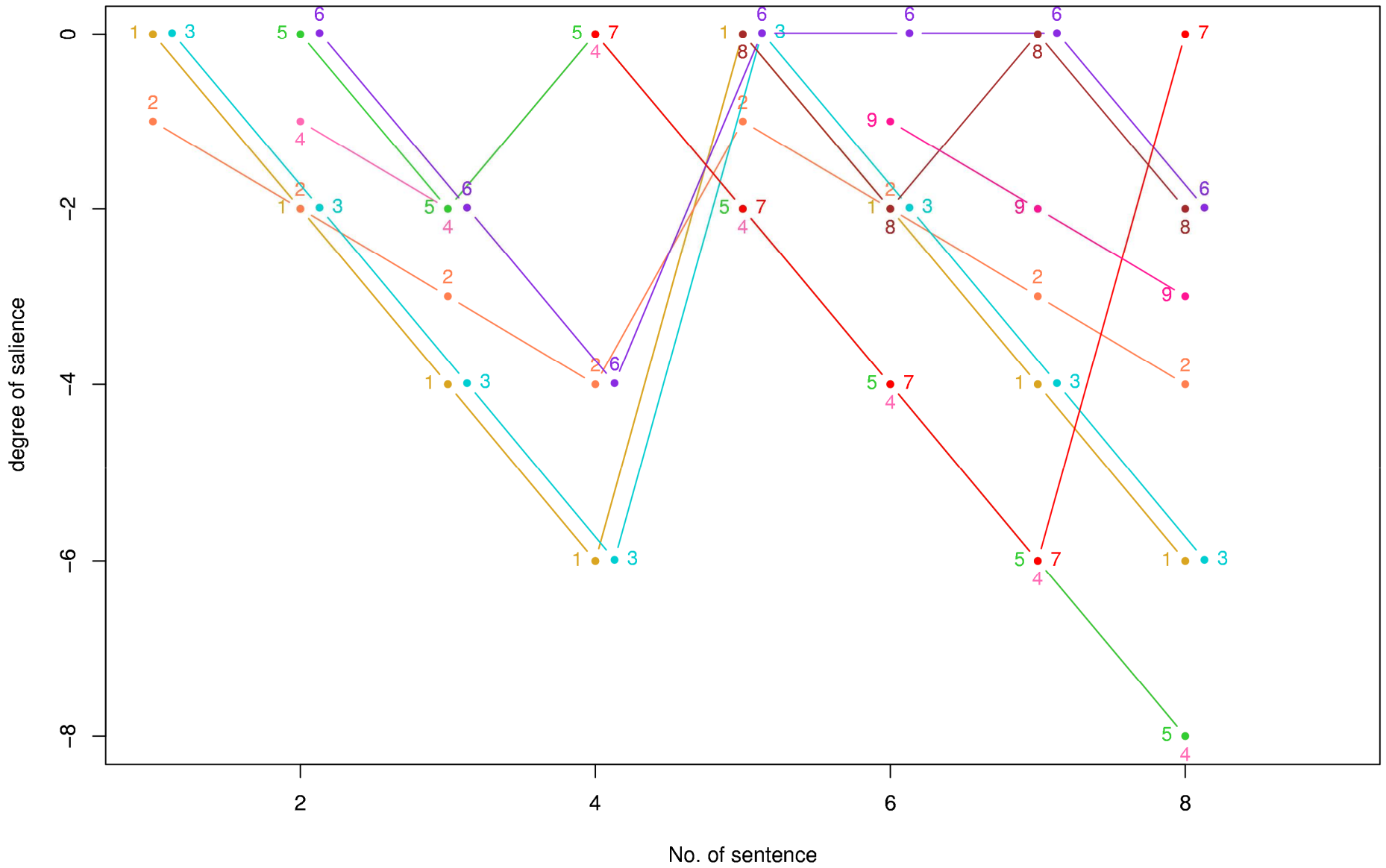
- A **new** discourse referent: **highest degree**
- Further items referring to the same entity are **cb: preserve their degree**
- Non-mentioned items **fade away**
- **Associated** items “follow” in activation the mentioned ones



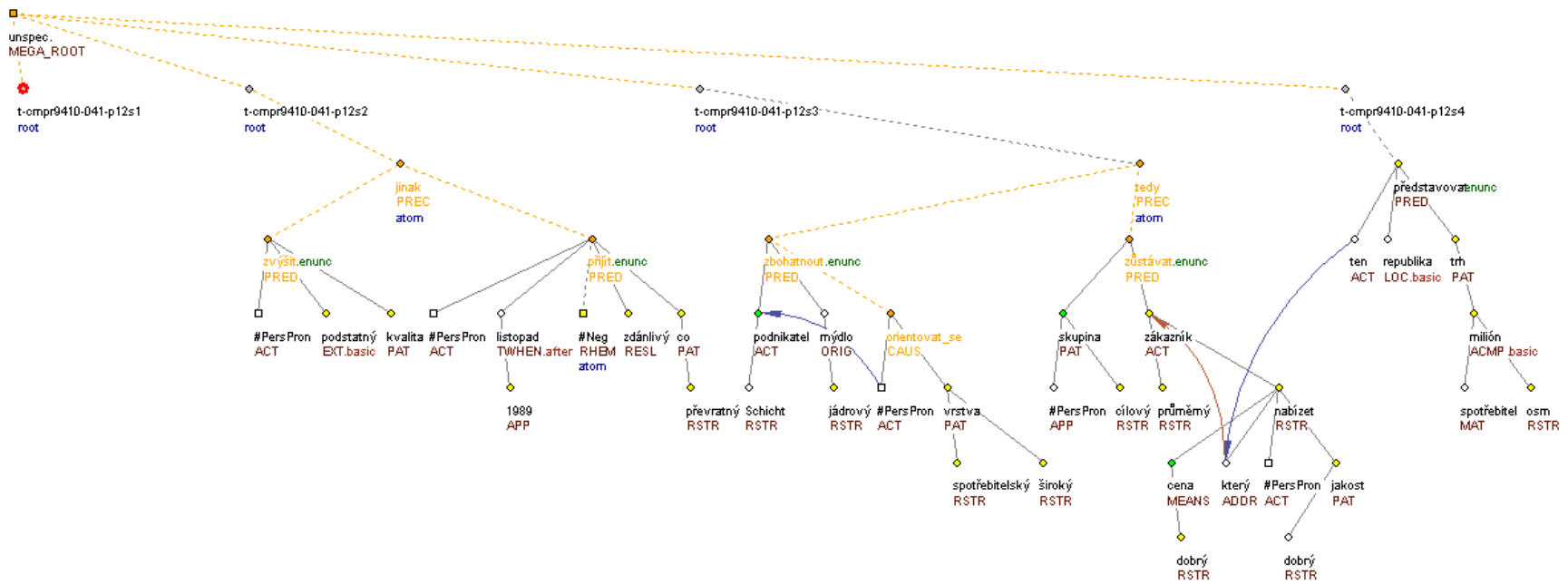
Patternings of discourse

- A change of regular groupings of items on the top of the stock → segmentation of the discourse
- Possible identification of the “topics” of the discourse
- Reference potential of referring expressions

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Sentence and discourse – more than trees



4. Concluding remarks

- Two reliable starting points for the interpretation of sentences:
 - i. **underlying sentence pattern** (classical European linguistics: dependency)
 - ii. **topic-focus articulation** as one aspect of the underlying structure of sentences
- Linguistics should not be weakened by losing its cumulative character