Towards a Discourse Corpus of Czech

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Outline

- Groundwork in the Area of Discourse Structure
- Methods for the Prague Discourse Annotation
- Present State of the Art

From Syntactic Structure to Discourse Structure

- Condition relation in the syntactic point of view (within a sentence):
  - *If you don't like your meal, don't eat it.*
  - *I will cook pancakes, if you buy eggs.*
  - *If he had married, he wouldn't be such a killjoy now.*
- Condition relation across the sentence boundary:
  - *You don't like your meal? Then don't eat it!!*
  - *I will cook pancakes. But you must buy eggs first.*
  - *He should have married. He wouln't be such a killjoy now.*
- Pragmatic meanings: cause and "pragmatic cause"
  - *John is home because he is sick.*
  - *John is home because the lights are on in the house.*

The Goal: Capturing Discourse Structure

- Connecting of discourse units (clauses, sentences) into a coherent, meaningful sequence of information

How:

- Marking anaphoric chains (textual coreference) and brigding relations
- Marking semantically related text spans - connective properties of certain discourse markers
- Other discourse-relevant information: style of the text, attribution to the speaker/writer, salience, topic-focus articulation, etc.

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Why:

- Large-scale database for:
  - linguistic research grounded on language corpora (the first "discourse corpus" for Czech!)
- NLP applications such as:
  - Automatic text summarization
  - Information retrieval
  - Dialog systems
  - Question answering tasks
  - Automatic annotation of further data

Semantics in Discourse

- Inter-sentential semantic relations (between separate trees) marked by discourse connectives (DCs)
  - *She never stayed at home in the evenings. She often went out with friends, for example.* Instantiation
  - *The method is up to you. Just do it your own way.* Equivalence
- A difficult task: relations represented by implicit connectives (not present on the surface)
  - *He takes bends with great care. He always slows down.* Specification

Resources for Prague Discourse Annotation

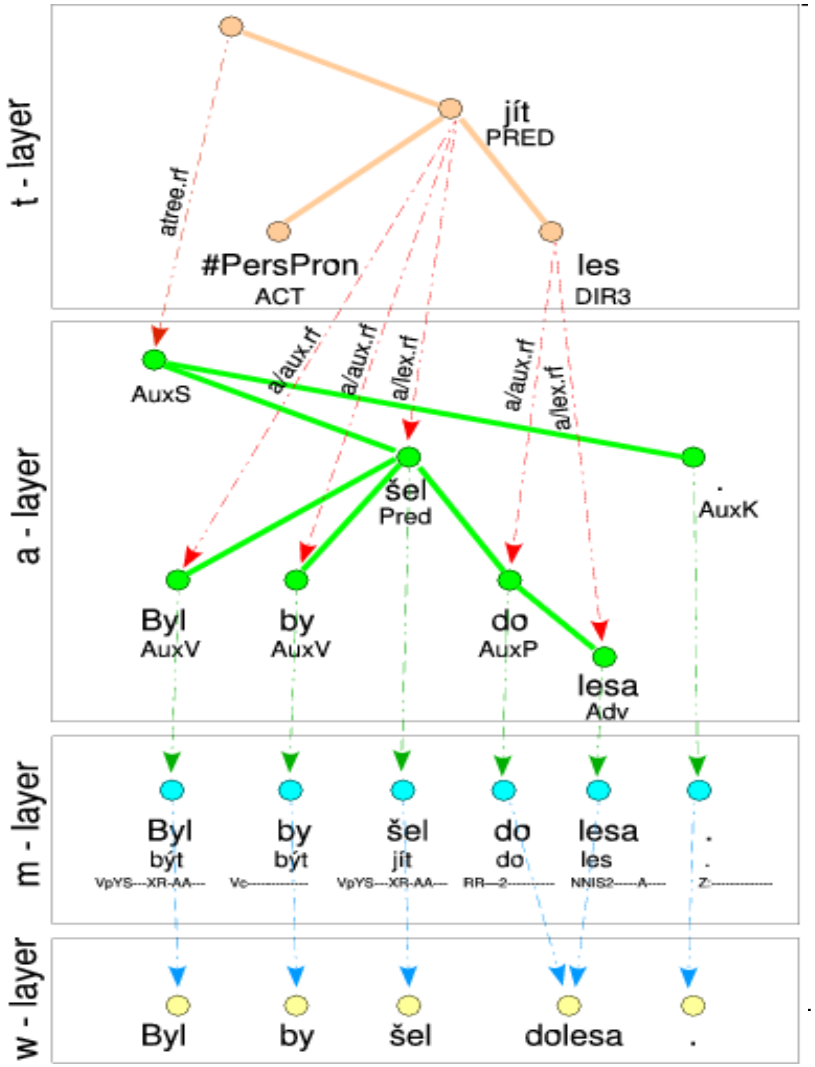
- Present-day syntactico-semantic (i.e. tectogrammatic) annotation in Prague Dependency Treebank 2.0 (PDT) for Czech

- Penn Discourse Treebank 2.0 (PDTB) approach – identifying discourse connectives and their arguments for English

  (Joshi et al. 2008)

→ Prague set of discourse relations inspired by both Prague (syntactico-semantic) and Penn (lexical) approach

Existing Annotation Layers in the Prague Dependency Treebank (PDT 2.0)



4 layers (3 annotation layers + plain text (w-layer))

T-layer (deep syntax or tectogrammar) contains some discourse relations already:

1. coordinations
2. subordinate (dependent) clauses
3. no inter-sentential marking

BUT

some of the discourse connectives are marked by the label PREC (reference to PREceding Context)

Practical Decisions for the Annotation

- Automatically:
  - Extraction of relevant discourse information from the present PDT 2.0, event. automatic preannotation
- Manually:
  - Subset of texts with rich connective property
  - Only explicit DCs in the first step
  - Only those with clausal arguments
  - Mainly PREC-labeled, but checking for other possible DCs

Discourse Sense Tags

- TEMPORAL
  - precedence-succession
  - simultaneity
- CONTRAST
  - confrontation
  - opposition
  - restrictive opposition
  - concession
  - correction
  - gradation
- CONTINGENCY
  - reason-result
  - textual condition
  - purpose
  - explication
- EXPANSION
  - conjunction
  - instantiation
  - specification
  - equivalence
  - generalization
  - conjunctive alternative
  - disjunctive alternative

Annotation example

I will cook pancakes. *But you must buy eggs first.*

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I will cook pancakes. ***But*** *you must buy eggs first.*

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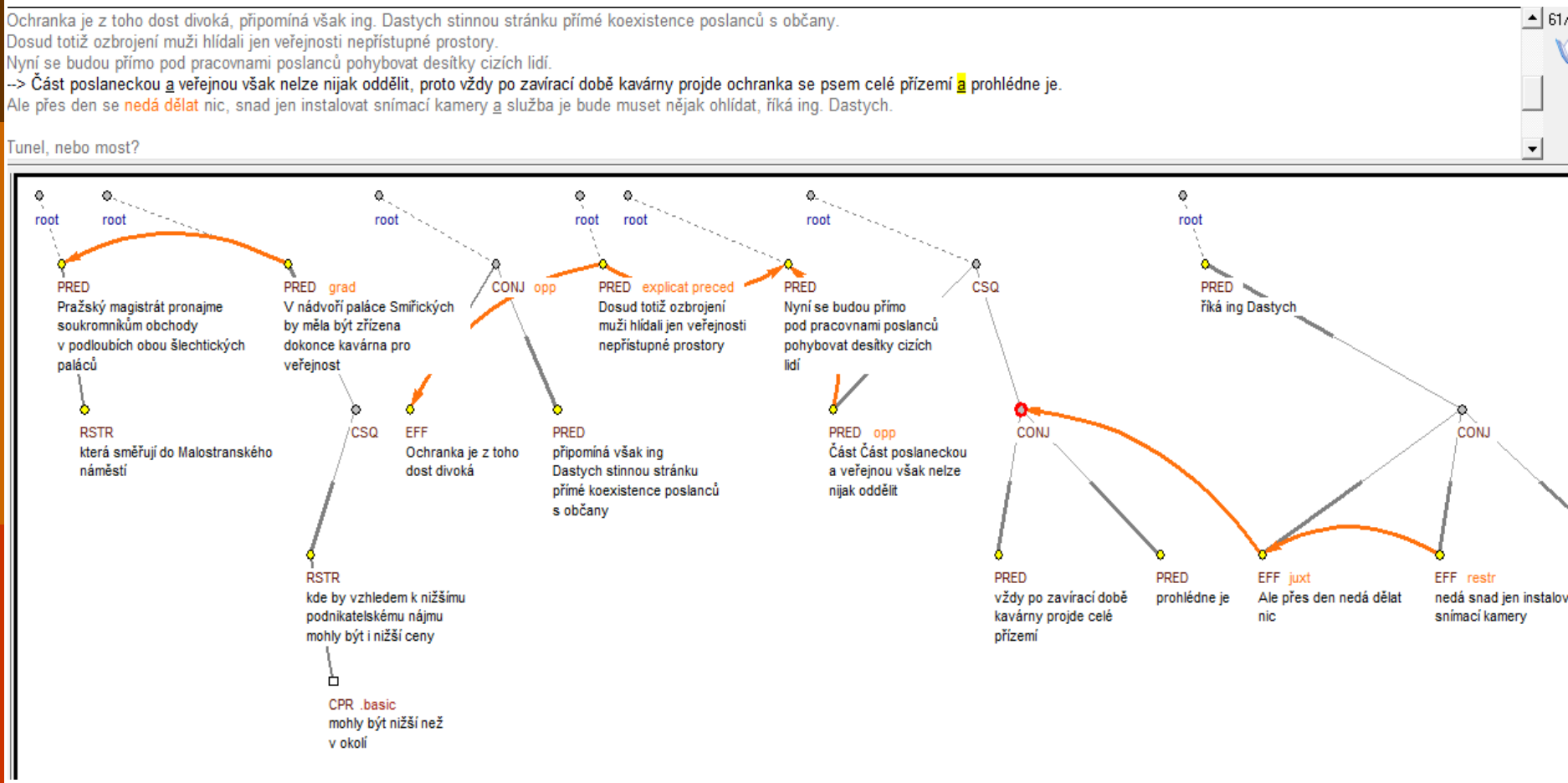
I will cook pancakes. ***But*** *you must buy eggs first.*

condition

He takes bends with great care. *He always slows down.*

specification

Annotation on the Trees (TrEd Tool)



Present State of the Art

- Methodology and tool preparations completed
- Evaluate preliminary annotations for IAA (3 annotators) in:
  1. identifying discourse connectives
  2. identifying their arguments
  3. assigning discourse-semantic label to the relation
- Initiate full manual annotations (demo version app. 5000 Czech discourse-annotated sentences in spring 2010)
- Verify the linguistic decisions made on a bigger amount of annotated data
- 2011/2012: The PDT 2.0 (app. 50 000 sentences) with a new annotation layer (discourse structure, coreference)

Thank you for your attention!

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