AMR at JHU Summer Workshop
Abstract Meaning Representation vs. Tectogrammatics

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ASR Machines That Know When They Do Not Know; led by Hynek Heřmanský

PRELIM Probabilistic Representations of Linguistic Meaning, led by Jason Eisner and Ben Van Durme

CLAMR Cross-Lingual Abstract Meaning Representations for Machine Translation; led by Martha Palmer

- Graph-theoretic team (Dan Gildea, David Chiang, Adam Lopez, Giorgio Satta, Naomi Saphra,...)
- AMR Parsing team (Jeff Flanigan, Xiaochang Peng, Chuan Wang, Yuchen Zhang, Wei-te Chen,...)
- Tecto-to-AMR team (Tim O’Gorman, Ondřej Bojar, Ondřej Dušek, Roman Sudarikov, Zdeňka Urešová, Silvie Cinková, Martin Popel,...)
Motivation for Tecto-to-AMR

- convert PCEDT and CzEng to AMR
- (yet another) pipeline for AMR parsing
- explore the differences between
  - AMR and Tecto
  - Czech and English AMR
The boy wants the girl to believe him.
The boy wants to be believed by the girl.
The boy has a desire to be believed by the girl.
The boy’s desire is for the girl to believe him.
The boy is desirous of the girl believing him.
The boy wants the girl to believe him.
The boy wants to be believed by the girl.
The boy has a desire to be believed by the girl.
The boy’s desire is for the girl to believe him.
The boy is desirous of the girl believing him.
AMR basics

Penman format

(w / want-01
  :ARG0 (b / boy)
  :ARG1 (b2 / believe-01
    :ARG0 (g / girl)
    :ARG1 b))

Triples format

instance(w, want-01)
instance(b, boy)
instance(b2, believe-01)
instance(g, girl)
ARG0(w, b)
ARG1(w, b2)
ARG0(b2, g)
ARG1(b2, b)
AMR basics – inverse roles and re-focusing

- The boy saw the girl. The girl wants the boy.
- The boy saw the girl who wanted him.
- The boy saw the girl who he was wanted by.
- The girl who wanted the boy was seen by him.
AMR basics – inverse roles and re-focusing

- The boy saw the girl who wanted him.
- The boy saw the girl who he was wanted by.
- The girl who wanted the boy was seen by him.

(s / see-01
  :ARG0 (b / boy)
  :ARG1 (g / girl
    :ARG0-of (w / want-01
      :ARG1 b))))
AMR basics – inverse roles and re-focusing

- The girl who was seen by the boy wants him.
- The boy is wanted by the girl he saw.
- The girl wanted the boy who saw her.

(w / want-01
 :ARG0 (g / girl
   :ARG1-of (s / see-01
     :ARG0 (b / boy)))
 :ARG1 b)
AMR (v1.2) relations

Core  :ARG0, :ARG1, :ARG2, :ARG3, :ARG4, :ARG5 (OntoNotes)
Coord :op1, :op2, :op3, :op4, ...

For details see http://amr.isi.edu/ and AMR guidelines.
What’s done

- 100 Czech sentences manually annotated with AMR
- Treex support (Read::Amr, TrEd visualization of t-amr layer)
- Tecto-to-AMR transformation using PML-TQ
- Tecto-to-AMR transformation using Tsurgeon
- NameTag trained for English (by Milan Straka, on BBN)
- feedback for Martha Palmer (light verb constructions)
- complex predications list (\textit{give blessing} $\rightarrow$ \textit{bless})
- verbalization list
  \textit{(beekeeper} $\rightarrow$ person :ARG0-of keep-01 :ARG1 bee)
- ...
Tecto-to-AMR: “Peter is eager to please”
Tecto-to-AMR: 1. Merging of Coreferent Nodes
Tecto-to-AMR: 2. Elimination of semantically light words
Tecto-to-AMR: 3. Semantic Roles and Senses
Tecto-to-AMR: 4. Add Named Entities

Peter

eager-41

please-01

arg0

arg1

Peter

person

name

name

op1

Peter
PML-TQ rules

- Based on AMR guidelines (generalized)
- For copula, attributes, non-core roles ...
- PML-TQ is for querying, not for transformation

A PML-TQ rule

LHS (PML-TQ Query)

- t-node $b_{DEL}$
  - t_lemma in \{"be", "become", "remain"\}
- t-node $b2$
  - functor = "ACT"
  - formeme ~ "n::*
- t-node $w$
  - functor = "PAT"
  - formeme = "adj:compl"
- a-node
  - tag = "IN"

RHS (AMR Subtree)

conditions on a t-subtree

Guidelines example:
The boy is responsible for the work.
Matching t-tree:

Matching sentence:
Ondrej was nervous about the presentation.
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Results of EN t-to-AMR Conv
You may say I’m a dreamer, but I’m not the only one.