Subcategorizing Adverbials in Universal Conceptual Cognitive Annotation

LAW-DMR 2021
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Introduction

- UCCA (Abend & Rappoport, 2013): Coarse multilayer predicate-argument graph structure
  - Scene structure: Certain words evoke Process or State units
  - Other words and phrases denote event participants, modifiers, and relations
  - Cross-linguistically applicable: grounded in Basic Linguistic Theory (Dixon, 2010)
  - Annotated over tokenized text for a diverse set of languages
- Scene-level modifiers are called Adverbials
  - Semantically and syntactically extremely heterogeneous
  - Difficult to annotate and maintain as a single category
  - Questionable how useful such a coarse grouping is for downstream applications

Analyzing Adverbials in UCCA

Foundational layer categories: State, Process, pParticipant, aDverbial, Elaborator, Relator, Function, Ground, ...

We propose to refine UCCA Adverbials with 7 subcategories.

Multiple categories may be assigned whenever a complex Adverbial unit signal different semantic nuances at once.

Examples

1. I [would D-Possibility] [in't D-Negation] [go P] there [again D-Aspectual].
3. [It had not been for D-Causal] [the shouts of crewmen P]...
4. I can [do P] [no better D-Comparison+Description+Negation] than to compare him with it.
5. The ability to see in the dark [increased P] their chances [by fifty percent D-Degree].
6. Now it was [no longer D-Negation+Aspectual] [an issue of a scientific problem S] to solve.

Table 4: Inter-annotator agreement results for Sets 1 & 2. Since Cohen’s k does not support multi-label input, we provide average across the categories for it (macro-average) whereas for F1 score we provide micro-average across the instances rather than the categories. For Krippendorff’s α we provide macro-average.

Table 3: Subcategory counts for annotations set 1 & 2. Annotation 3 did not participate in Set 1 annotation. N/A refers to a judgment that the unit should not have been considered an Adverbial in the foundational layer.

Observations

- Overlap exists between our Adverbial and UCCA’s foundational layer (Time, Ground).
- Some existing overlap with MR schemes, such as non-core roles in AMR, as well as prepositional labels in SNACS.

References

- John will [come P] (regularly T).
- John will [come P] (for the second time D-Aspectual).
- Some existing overlap with MR schemes, such as non-core roles in AMR, as well as prepositional labels in SNACS.

Pilot inventory and guidelines draft

Revisions to the inventory

Observations

Clarification of the inventory

Revisions to the inventory

Guidelines draft

Set 1

- 2 annotators
- 167 targets (100 sent)
- k = 0.74

Set 2

- 3 annotators
- 122 targets (100 sent)
- k = 0.82

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