PRED values, non-verbal predicates, discourse status (“definiteness”)

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Overview

- tdl details:
  - Grammar files, instances v. types
  - PRED values
  - Tdl style
- Non-verbal predicates
- Discourse status
- Lab 7 overview

Grammar files

- matrix.tdl, head-types.tdl: Type files (core grammar)
- my_language.tdl: Type file (language specific)
- rules.tdl: Instance file for phrase structure rules
- irules.tdl: Instance file for spelling changing lexical rules
- lrules.tdl: Instance file for non-spelling changing (no affix) lexical rules
- lexicon.tdl: Instance file for lexical entries
- roots.tdl: Instance file for root condition(s)
- labels.tdl: Instance file for node labels
- trigger.mtr: Instance file for trigger rules for generation
- my_langauge-pet.tdl: Grammar spec file for compilation with ‘flop’
- lkb/, ace/, pet/: Directories of files for lkb/ace/pet interaction

Roots, Labels

- Why do we sometimes see ADJ or CP as the label on the root node?

```
adj-label := label &
            [ SYNSEM.LOCAL[ CAT.HEAD adj,
                            COORD-STRAT "" ],
              LABEL-NAME "ADJ" ].


cp-label := label &
           [ SYNSEM.LOCAL.CAT [ HEAD comp,
                                VAL.COMPS < > ],
             LABEL-NAME "CP"].
```

Types v. instances

- Types define the feature geometry, possibilities for unification, and constraints inherited by instances.

- Instances are what the LKB actually uses to parse and generate.

- Types can have multiple supertypes.

- Instances can only inherit from one type.

- Types and instances exist in separate name spaces.

Features and types

- Features can only be “declared” for one type. Any type mentioning that feature must inherit from the declaring supertype.

- Features can only be “declared” at the outermost level.

- Good:

```
type1 := supertype &
  [ FEATURE BOOL ].

type2 := type1 &
  [ FEATURE + ].
```

- Bad:

```
type2 := supertype &
  [ FEATURE + ].

type3 := type1 &
  [ PATH.NEW-FEAT + ].
```

PRED values

- For the MT exercise, we need to coordinate on pred values.
- Convention is _English+lemma_pos_rel, where pos is drawn from {n, v, q, a, p}
- Abstract (grammatical) preds don’t have leading underscore:
  - exist_q_rel
  - pron_rel
- Featural information isn’t replicated in PRED values: *_went_v_rel, *_the_q_rel

Tdl style: Bad

```
demonstrative-determiner-lex := determiner-lex-supertype &
  [ SYNSEM.LOCAL.CONT.RELS
        <!
          [ PRED "exist_q_rel" ],
            #altkeyrel & arg1-ev-relation &
           [ LBL  #lbl,
             ARG1 #index ]
        !>,
    SYNSEM.LKEYS.ALTKEYREL #altkeyrel,
    SYNSEM.LOCAL.CAT.VAL.SPEC.FIRST.LOCAL.CONT.HOOK[ INDEX #index &
                                                      [ COG-ST acti+fam ]
                                                    LTOP #lbl] ].
```

Tdl style: Good

```
demonstrative-determiner-lex := determiner-lex-supertype &
   [ SYNSEM [ LOCAL [ CONT.RELS <! [ PRED "exist_q_rel" ],
                                   #altkeyrel & arg1-ev-relation &
                                   [ LBL  #lbl,
                                     ARG1 #index ] !>,
              CAT.VAL.SPEC.FIRST.LOCAL.CONT.HOOK [ INDEX #index &
                                                   [ COG-ST activ+fam ],
                                                    LTOP #lbl ]],
            LKEYS.ALTKEYREL #altkeyrel ]].
```

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- Trigger rules

Non-verbal predicates

- This section deals with sentences that have a “copula” verb in some languages and no verb at all in others.

- APs/PPs have a semantic role available

    - Required copula: Treat it as a raising verb

    - No copula: Let the APs/PPs be heads in the head-subj rule

- NPs are semantically saturated

    - Required copula: Different lex entry that introduces _be_v_id_rel

    - No copula: Non-branching rule that introduces _be_v_id_rel and the subject requirement

Non-verbal predicates

- Some languages have a copula variably:
    - Across all contexts
    - Only with NPs, but not APs/PPs (etc)
    - Only in certain tenses
- First two can be handled with just appropriate combinations of the strategies discussed
- To get restriction to certain tenses, need to add constraints to the copula and/or the lexical or phrase structure rules involved in licensing verbless clauses.

Non-verbal predicates

- Locative NPs
  - Some languages use NPs inflected with a particular case where others use PPs (as both modifiers and predicates)
- The strategy we'll take involves a non-headed unary rule that builds a PP out of a [CASE loc] NP.
  - Why non-headed?
  - Why not do this with a lexical rule?

Discourse status: What's that?

- A property of referents, describing their relationship to the common ground of a conversation

- Tends to be reflected syntactically in markers of "definiteness" as well as demonstratives and constraints on the availability of types of NPs in particular constructions.

- Closely related to (but distinct from) information structure

- The binary distinction "definite"/"indefinite" is not sufficient

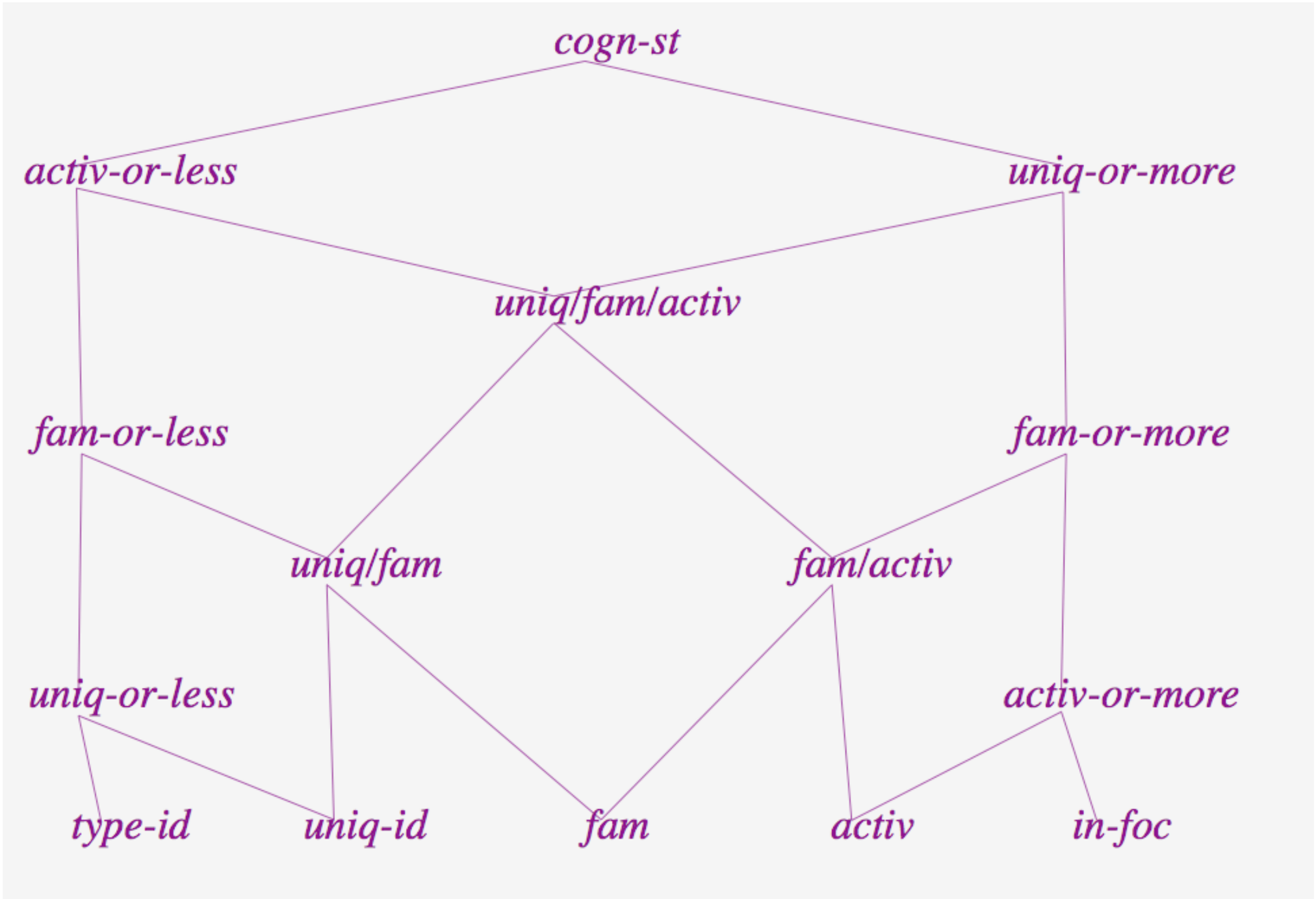
- Furthermore, discourse status can be broken down into hearer-oriented "cognitive status" and speaker-oriented "specificity"

Givenness hierarchy (Gundel et al 1993, Prince 1981)

Type id <	Referential <	Uniq. id. <	Familiar <	Activated <	In focus
a N	indefinite *this N*	*the N*	*that N*	*that, this* *this N*	*it*

NB: “In focus” != focus

Borthen & Haugereid's proposal



Borthen & Haugereid's proposal

$$\begin{bmatrix} \text{SYNSEM.LOC.CONT.REF-PROP} & \begin{bmatrix} \textit{ref-prop} & \\ \text{INDEX} & \begin{bmatrix} \textit{ref} & \\ \text{PER} & \textit{per} \\ \text{NUM} & \textit{num} \\ \text{GEND} & \textit{gend} \end{bmatrix} \\ \text{COGN-ST} & \textit{cogn-st} \\ \text{SPECI} & \textit{bool} \\ \text{PART} & \textit{bool} \\ \text{UNIV} & \textit{bool} \end{bmatrix} \end{bmatrix}$$

Borthen & Haugereid's proposal

- SPECI indicates specificity (speaker-oriented)
- Compatible with both "definite" and "indefinite" NPs:
    - *The fastest runner won*.
    - *The next customer will receive a reward*.
    - *I'm looking for a book*.
- Corresponds to overt syntactic phenomena in at least Norwegian (specificity adjectives) and Turkish (accusative case precludes specific interpretation)

Matrix-based proposal

$$
\begin{bmatrix}
\text{HOOK.INDEX} & \begin{bmatrix}
\text{PNG} & \begin{bmatrix} \text{PER} & \textit{person} \\ \text{NUM} & \textit{number} \\ \text{GEND} & \textit{gender} \end{bmatrix} \\
\text{COG-ST} & \textit{cog-st} \\
\text{SPECI} & \textit{bool}
\end{bmatrix}
\end{bmatrix}
$$

Lab 7 tasks