

Grammar Engineering

May 22, 2006

Raising, Control, Argument Composition

Sentential Negation

Reflections

Overview

- Raising v. Control in the Matrix
- Embedded messages in raising/control constructions
- Argument composition
- Embedded messages in argument composition constructions
- Sentential negation
- Reflections

Raising v. Control: Review (1/2)

- Embedded clause is missing its subject.
- Subject or object (or PP-obj) of matrix clause (controller) is interpreted as subject of embedded clause.
- Controller not a semantic argument of matrix verb = raising
- Controller is a semantic argument of matrix verb = control

Raising v. Control: Review

- Raising correlates with syntactic restrictions of embedded verb being passed up to matrix controller
- Only subjects can be controllees (but cf argument composition)

Raising v. control in the Matrix

- Both mediated through HOOK feature XARG
- Controller linked or not to matrix verb's key relation, as appropriate
- ERG: Expletive matching handled via subtypes of *index*; idioms handled separately.
- Icelandic-style case-matching constraints could be added.

A raising type in the matrix

```
ditrans-second-arg-raising-lex-item :=  
    basic-three-arg &  
[ ARG-ST < [ LOCAL.CONT.HOOK.INDEX ref-ind &  
                                                    #ind1 ],  
    [ LOCAL.CONT.HOOK.INDEX #ind2 ],  
    [ LOCAL.CONT.HOOK [ XARG #ind2,  
                        LTOP #ltop ] ] >  
    SYNSEM.LKEYS.KEYREL [ ARG1 #ind1,  
                          ARG2 #ltop ] ].
```

A control type in the matrix

```
trans-first-arg-control-lex-item :=  
    basic-two-arg &  
[ ARG-ST < [ LOCAL.CONT.HOOK.INDEX ref-ind &  
                                                    #ind ],  
    [ LOCAL.CONT.HOOK [ XARG #ind,  
                                                                LTOP #ltop ] ] >  
    SYNSEM.LKEYS.KEYREL [ ARG1 #ind,  
                          ARG2 #ltop ] ].
```

- NB: Neither of these specify the CAT of the complement.

Embedded messages in raising/control constructions

- ERG: VP and to-VP embedded under raising/control main verbs have messages associated with them.
- ERG: VP and to-VP embedded under auxiliaries don't.
- Embedded proposition_m_rel contributed by *to* or by the matrix verb.
- Our strategy (probably): have matrix verbs do the introduction.
- But what about control with embedded interrogatives?

Argument composition

- Sometimes, the matrix verb seems to ‘take over’ all of the arguments of the embedded complement.
- Case in point: Basque auxiliaries, which agree with up to three arguments of the verb.
- Another case in point: Subj Obj Aux V in Dutch embedded clauses.
- Word order consequences: Dependents are ordered with respect to matrix verb.

Argument composition in the matrix

```
aux-verb-lex := basic-verb-lex &
  trans-first-arg-raising-lex-item &
[ SYNSEM.LOCAL [ CAT [ HEAD.MOD < >,
  VAL [ SPR < >,
  COMPS < #comps . #vcomps >,
  SUBJ < #subj >, SPEC < > ] ] ],
ARG-ST < #subj, #comps &
  [ LOCAL [ CONT.MSG no-msg,
  CAT [ HEAD verb,
  VAL [ COMPS #vcomps,
  SUBJ cons ]]]]> ].
```

Embedded message in argument composition

- None for “auxiliaries” (for now)
- For argument composition with matrix main verbs, have the verb introduce.
- Cases of embedded questions?

Sentential negation

- Semantically, a scopal adverb.
- ARG1 of the neg_r_rel qeqs the LBL of the verb
- Syntactically: V, VP, S adverb, verbal inflection, selected complement (of aux/main verb), ...?
- All possibilities I'm aware of are taken care of in the customization script

What you'll need to do

- Check the syntax and semantics of what's currently in your grammar.
- Understand how that part of your grammar works.
- If negation is broken, fix it (in consultation with me).

Overview

- Raising v. Control in the Matrix
- Embedded messages in raising/control constructions
- Argument composition
- Embedded messages in argument composition constructions
- Sentential negation
- Reflections

Reflections

- Where have the analyses provided/suggested by the Matrix seemed a good fit?
- Where have they been awkward?
- What have you learned in this class about syntax?
- What have you learned in this class about knowledge engineering for NLP?

Looking ahead

- More modules, better customization UI
- Systematic regression testing of Matrix+Modules
- Potential uses of Matrix starts in contexts requiring robustness

Ex: In place of hand-built heuristics for extracting modification/verb-argument patterns, parse with a customized Matrix grammar, but strip away all but head words first.

... based on some understanding of the lexicon, maybe just default entries from POS tags.

Rest of this class

- Wed 5/24: Discussion for Lab 9
- Mon 5/29: Holiday, deadline for Lab 9 (and ODIN files)
- Wed 5/31: MT extravaganza