Control and Raising

Carl Pollard

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One of the central topics in syntactic theory since its beginnings has been the analysis of what traditional grammar referred to as "understood subjects". That is: how should we account for the interpretation of (at least seemingly) subjectless verbal or predicative complements? As early as the 1960's, it was realized that predicates[1] with such complements could be cross-classified on two dimensions: (a) subject vs. object control, and (2) equi vs. raising.

Subject vs. Oject Control

Intutively, to say that a verbal/predicative complement is **controlled** by the matrix subject (object) is to say that it is semantically interpreted as if it had a subject which is "identical" (in a sense which remains to be made precise) with the matrix subject (object). Predicates with such complements are called **control** predicates, and the matrix argument (subject or object)[2] on which the understood subject of the complement depends for its interpretation is called the **controller**.

(1)   Subject Control

    a. i. Kim tried/hoped/managed/aimed to be optimistic.

        ii. Kim promised (Sandy) to be optimistic.

        iii. Kim was eager/reluctant/willing/inclined to be optimistic.

    b. i. Kim tended/continued to be optimistic.

        ii. Kim seemed/appeared (to Sandy) to be optimistic.

        iii. Kim struck/impressed Sandy as (being) optimistic.

        iv. Kim was likely to be optimistic.

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[1]Here and henceforth, we adopt the term '*(syntactic) predicate*' for any expression whose final result's semantic type is Prop. In our examples, we will mostly consider verbs (e.g. *try, seem, persuade, promise, believe*), but there are analogous examples where the matrix predicate is a predicative adjective (e.g. *eager, likely*) or preposition (e.g. *under (an obligation), in (no condition)*).

[2]For certain predicates, the controller can be a nonpredicative PP complement (e.g. *appeal to*).

(2) Object Control

    a. i. Kim persuaded Sandy to be optimistic.

       ii. Kim appealed to Sandy to be optimistic.

    b. i. Kim believed/knew/considered Sandy to be optimistic.

       ii. Circumstances prevented/prohibited Sandy from being optimistic.

      iii. Kim made/let/had/saw/heard Sandy mow the lawn.

There are a number of diagnostics for distinguishing subject and object control. First, if the complement verb is transitive and has a reflexive (respectively, nonreflexive) pronoun as its object, then the complement object must (respectively, must not) have the controller as its antecedent:

(3) Subject Control with Pronoun Complement Objects

    a. i. $John_i$ tried//managed/aimed to shave $himself_i$/$*him_i$.

       ii. $John_i$ hoped/wanted/expected to shave $himself_i$/$*him_i$.

      iii. $John_i$ promised (Sandy) to shave $himself_i$/$*him_i$.

      iv. $John_i$ was eager/reluctant/willing/inclined to shave $himself_i$/$*him_i$.

    b. i. $John_i$ tended/continued shave $himself_i$/$*him_i$.

       ii. $John_i$ seemed/appeared (to Mary) to be shaving $himself_i$/$*him_i$.

      iii. $John_i$ struck/impressed Mary as (being) overly fond of $himself_i$/$*him_i$.

      iv. $John_i$ was likely to shave $himself_i$/$*him_i$.

(4) Object Control with Pronoun Complement Objects

    a. i. Mary persuaded $John_i$ to shave $himself_i$/$*him_i$.

       ii. Mary appealed to John $_i$ to shave $himself_i$/$*him_i$.

    b. i. Mary believed/knew/considered $John_i$ to be overly fond of $himself_i$/$*him_i$..

       ii. Circumstances prevented/prohibited $John_i$ from shaving $himself_i$/$*him_i$.

      iii. Mary made/let/had/saw/heard $John_i$ shave $himself_i$/$*him_i$.

Second, for many control predicates, there are "alternative subcategorizations"' (i.e. different lexical entries for the "same word") with a sentential complement instead of a VP or predicative complement. In such cases,

a sentence with a control predicate can be (nearly) paraphrased by a sentence with a sentential complement whose (complement) subject is "identical with" the controller of the control predicate:

(5) Pronominal Subjects of Sentential Complements in Paraphrases of Sentences with Subject-Control Predicates

    a. i. John promised Mary/hoped/expected/ to win.

       ii. $John_i$ promised Mary/hoped/expected that he_i would win.

    b. i. John appeared/was likely to be a vegan.

       ii. It appeared/was likely that John was a vegan

(6) Pronominal Subjects of Sentential Complements in Paraphrases of Sentences with Object-Control Predicates

    a. i. Mary persuaded/convinced/advised John to be optimistic.

       ii. Mary persuaded/convinced/advised $John_i$ that he_i should be optimistic.

    b. i. Mary saw John mow the lawn.

       ii. Mary saw that John was mowing the lawn.

    c. i. Mary believed/expected John to be optimistic.

       ii. Mary believed/expecetd that John was/would be optimistic.

And third, many object-controlled predicates have passive counterparts (or pseudopassive ones, if the controller is a nonpredicative PP); but no subject-controlled predicates do, even if they have an NP object or a nonpredicative PP complement (this observation is known as **Visser's Generalization**):

(7) Visser's Generalization

    a. i. Kim was persuaded to mow the lawn.

       ii. *Kim was promised to mow the lawn.

    b. i. Kim was appealed to to be reasonable.

       ii. *Kim was appeared to to be reasonable.

    c. i. Kim was viewed/described/regarded as inconsequential.

       ii. *Kim was impressed/struck as inconsequential.

Raising vs. Equi

Crosscutting the distinction between subject and object control is another, orthogonal distinction referred to by syntacticians as **raising** vs. **equi**. The names originate with early transformational grammar: sentences with raising predicates were analyzed in terms of a **raising** transformation that literally raised the complement subject to the matrix subject or object position, while equi predicates were analyzed in terms of a different transformation, **equi-NP deletion**, that deleted the subject of the complement if it was "identical" with the matrix subject or object (depending on the matrix predicate). In the examples (1) and (2) above, the (a) sentences have equi matrix predicates and the (b) sentences have equi matrix predicates.

We have already mentioned some 'raising-to-subject' (**RTS**) predicates, namely the auxiliaries (*have*,*be*, and modals) and noted how the determination of the type of the matrix subject is captured using schematic lexical entries each of which contains two occurrences of a category metavariable:

(8) Auxiliaries as RTS Predicates

$$\vdash \lambda st.t \circ \mathrm{HAVE} \circ s : (A \multimap \mathrm{Psp}) \multimap A \multimap \mathrm{Bse}$$

This analytic technique generalizes to nonauxiliary RTS predicates and to 'raising-to-object' (**RTO**) predicates. By contrast, equi predicates are simply analyzed as taking NP or nonpredicative PP controllers, and complements that seek an NP subject.[3] This difference in the analyses explains why predicates like the ones in in (1b) and (2b), but not the ones in (1a) and (2a) can all have dummy controllers, as long as the controlled complement itself selects the same dummy subject.[4]

However, there are many other differences between equi and raising predicates (some of which we will perhaps revisit in a problem set) that are not so easily explained. First, for some RTS predicates, there are alternative lexical

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[3]Semantically, the controlled complements of equi predicates can be analyzed as either properties (type Ind $\supset$ Prop), or—through judicious use of lambdas—as propositions that predicate a property of the individual denoted by the controller. Both approaches have their advocates.

[4]The same holds true with "idiom fragment" in place of "dummy":

(1) a. The fix seemed/*tried to be in.

b. The shit is likely/*eager to hit the fan.

c. We believed/*persuaded Kim's goose to be cooked.

entries of the 'same word' with just a sentential subject and no complement, or else a dummy *it* subject and a sentential complement:

(9) a. i. Kim seems to be optimistic.
     ii. It seems that Kim is optimistic.
  b. i. Kim is unlikely to help.
     ii. That Kim will help is unlikely.
    iii. It is unlikely that Kim will help.

But no subject equi lexemes have this property:

(10) a. i. Kim tries to be optimistic.
     ii. *It tries that Kim is optimistic.
    iii. *That Kim is optimistic tries.
   b. i. Kim is eager to help.
     ii. *It is eager that Kim will help.
    iii. *That Kim will help is eager.

Similarly, for some RTO predicates, but no object equi predicates, there are alternative lexical entries that take just an NP subject and a single sentential complement (but no NP object):

(11) a. Kim believed/expected Sandy to have mowed the lawn.
   b. *Kim believed/expected Sandy that he would mow the lawn.
   c. Kim believed/expected that Sandy would mow the lawn.

(12) a. Kim persuaded/convinced Sandy to mow the lawn.
   b. Kim persuaded/convinced Sandy that he should mow the lawn.
   c. *Kim persuaded/convinced that Sandy should mow the lawn.

Second, raising predicates, but not equi predicates, preserve entailment under passivization of the complement verb if the controller is exchanged with the complement object:

(13) a. Kim is likely to fire Sandy.
   b. Sandy is likely to be fired by Kim.
   [(a) and (b) are truth-conditionally equivalent.]

(14)　a. Kim is eager to fire Sandy.

　　　b. Sandy is eager to be fired by Kim.

　　　[(a) and (b) are not truth-conditionally equivalent.]

(15)　a. Kim believed Chris to have fired Sandy.

　　　b. Kim believed Sandy to have been fired by Chris.

　　　[(a) and (b) are truth-conditionally equivalent.]

(16)　a. Kim persuaded Chris to fire Sandy.

　　　b. Kim persuaded Sandy to be fired by Chris.

　　　[(a) and (b) are not truth-conditionally equivalent.]

And finally, raising predicates, but not equi predicates, exhibit certain ambiguities as to whether a quantified NP controller takes its semantic scope in the matrix or in the complement::

(17)　a. A cop tended/was likely to stop there for doughnuts at 6:00 a.m. [Ambiguous.]

　　　b. A cop tried/was eager to stop there for doughnuts at 6:00 a.m. [Unambiguous.]

(18)　a. Kim expected a cop to come at 6:00 a.m. [Ambiguous.]

　　　b. Kim persuaded a cop to come by at 6:00 a.m. [Unambiguous.]