The semantics of *much*-support

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• Two syntactic tests, the ability to occur as a fragment answer, and degree-inversion, diagnose the head/adjunct status of a degree modifier.

• Sometimes, the function of *much* in non-adjectival environments ("*much*-support"), is to introduce a degree argument (see Wellwood et al. (2012); Wellwood (2012)).

• The degree modifier *very*—whether or not it occurs with *much* (*"much*-support")—diagnoses whether or not a given syntactic environment makes use of degrees.

1 Introduction: Degree modifiers and constituency

• Many previous analyses of degree words (Bresnan, 1973; Corver, 1997; Kennedy, 1999; Solt, 2010, 2013, a.o.) assume a more-or-less uniform analysis in terms of phrasal status.
  – Bresnan (1973): Maximal projections; selected by QP.
  – Corver (1997): Heads; select QP.
  – Solt (2010, 2013): Maximal projections: selected by AP, but not NP, VP, etc.

• However, different degree modifiers contrast in their syntactic properties: some require *much*-support when not modifying AP (3), while others do not (4).

(1) a. John is [too, so, this, that] (*much) tall.
   b. John is as (*much) tall as Bill.

(2) a. John is [somewhat, a little, a bit] (*much) tall.
   b. John is [more, less] (*much) tall than Bill.

(3) a. Mary is [too, so, this, that] (*much) under scrutiny.
   b. Mary is [too, so, this, that] (*much) older than John.
   c. Mary is as (*much) [under scrutiny, older than John,...] as Bill.

(4) a. Mary is [somewhat, a little, a bit] (*much) [under scrutiny, older than John,...].
   b. Mary is [more, less] (*much) [under scrutiny, older than John,...] than Bill.

• Bresnan (1973) and Corver (1997) account for the different behaviors in terms of morphological rules and categorial differences, respectively.
  – Bresnan (1973): much + er → 'more'
  – Corver (1997): [DegP too [QP much [AP so]]] versus [QP more [AP so]]

• Another possibility is to not posit new categories and morphological rules, but to make the difference a selectional one—this is pursued in Neeleman et al. (2004).

      DegP                             XP
      |         DegP                  | XP
      |         Deg                    | AP
      | (Class I)                      |

      DegP                             XP
      |         DegP                  | XP
      |         Deg                    | AP
      | (Class II)                     |

(5) a. Class I (selects for A): too, so, this, that, as, how, very

b. Class II (doesn’t select): somewhat, a little, a bit, more, less, enough, a good deal, deadjectival adverbs

• Neeleman et al. (2004) bring several syntactic tests to bear on the classification of a given degree word, and to support the structures given in (5).
  – Primary among these is *much*-support: (3) versus (4), above.
  – Constituency tests:
    6) It is inadvisable to be [PP [DegP too [AP much]]] or [DegP very [AP much]] into syntax. (Neeleman et al., 2004, p. 14, ex. 33)

  – Complex internal syntax: consider a little, a bit, which are analyzed as adjuncts.

  – Variable order of modifier and adjective:
    7) a. *John is fond of Mary too for his own good. (p. 17, ex. 42a)
   b. John—indebted to his colleagues a good deal—was being over-polite. (p. 17, ex. 43e)
   c. John—a good deal indebted to his colleagues—was being over-polite. (ex. 43e')

  – Omission of the adjective
    8) a. *Too is inadvisable. (p. 18, ex. 47a)
   b. More is not always better. (p. 19, ex. 48a)

  – Topicalization (Dutch)
• Plan: adopt the Neeleman et al. (2004) story, but claim that very is an adjunct.

• Claim: very, rather than tracking the adjective-hood of the phrase modified, tracks the availability of degree arguments within the syntax.

2 Test 1: Fragment answers

• Question-answer paradigms like (9) support the classification proposed by Neeleman et al. (2004).

(9) A: How tall is John? B:
   a. Very.
   b. Somewhat.
   c. A little.
   d. A bit.
   e. A good deal.
   f. Incredibly.

• Assuming only maximal projections constitute licit fragment answers.

• An implicit question makes the same case for more and less.

(10) Is John [more, less] interesting than Mary?
   a. No, [less, more].

• Except for very, all degree modifiers above fall into Class II via the tests in Neeleman et al. (2004).

• What about Class I modifiers? These are all bad (except, as diagnosed in Neeleman et al. (2004), very).

(11) A: How tall is John? B:
   a. Too *(tall).
   b. So *(tall).
   c. This *(tall).
   d. That *(tall).

(12) Mary is tall. How tall is John?
   a. As *(tall).

• Explained under the account of fragment answers proposed in Merchant (2004) (or any account predicting that fragments are limited to maximal projections).

• Fragment answers involve movement of the fragment, followed by ellipsis of the source clause.

  – Movement ⇒ Phrasehood

• That movement is the source of the contrast is supported by an answer’s sensitivity to island effects. (See Merchant (2004) for tests diagnosing movement.)

(14) A: Do you wonder who is tall? B:
   b. * Somewhat.
   c. * A little.
   d. * A bit.
   e. * Incredibly.
   f. * So tall.
   g. * Too tall.
   h. * This tall.
   i. * That tall.

• Compare (15), involving extraction out of an embedded clause (as illustrated by the antecedent).

(15) A: Do you think John is tall? B:
   a. Very.
   b. Somewhat.
   c. A little.
   d. A bit.
   e. Incredibly.
   f. So tall.
g. Too tall.
h. This tall.
i. That tall.

• Binding Principles A and B, when the adjective is present.

\(16\) A: How proud does John think Bill is? B:
  a. Too proud of himself. \((\text{himself} = \text{Bill}; *= \text{John})\)
  b. Too proud of him. \((\text{him} *= \text{Bill}; = \text{John})\)

• Conclusions:
  – Fragment answers with degree modifiers involve movement.
  – There are two classes of degree modifiers w.r.t. selection (as in Neeleman et al. (2004)).
  – *very* is a Class II adjunct (contra Neeleman et al. (2004)).
  – Note that the explanation could not be due to ellipsis of the adjectival complement of *very*. This ellipsis would have to be restricted to only occur with fragment answers.

\(17\) John is somewhat tall, but Mary is very *(tall).

3 Test 2: Degree inversion

• Many studies have addressed the phenomenon illustrated in (18) (Bresnan, 1973; Bowers, 1975, 1987; Hendrick, 1990; Kennedy and Merchant, 2000; Matsushansky, 2002, a.o.).

\(18\) a. Sam drives \{too, so, this, that\} cramped (of) a car.
   b. * Sam drives a \{too, so, this, that\} cramped car.

• Inverting modifiers: \textit{too}, \textit{so}, \textit{this}, \textit{that}, \textit{as}, \textit{how}

• Insofar as they can appear attributively, modifiers Neeleman et al. (2004) diagnose as Class II don’t invert.

\(19\) Sam drives a somewhat cramped car.

• Non-(obligatorily-)inverting modifiers: \textit{very, somewhat, more, less, enough, deadjectival adverbs}

• Neither (cannot be used attributively): \textit{a little, a bit, a good deal}, any complex modifier...

• (17) explained by a generally active constraint in English, and crosslinguistically (see (Grosu et al., 2007; Sheehan, 2012, a.o.)): the Head-Final Filter. Pre-nominal modifiers must be head-final.

• German example from Williams (1982) (21). Compare with English (20).

\(20\) a. the proud man
   b. * the proud of his children man

\(21\) a. der seine Pfeife rauchende Mann
   b. the his pipe smoking man
   c. * the man smoking his pipe

• (18a) violates the same filter if the structure of the DP is as in (22).

\(22\)

\[
\text{DP} \quad \text{FP}
\]

\[
\text{D} \quad *\text{NP}
\]

\[
\text{DegP} \quad \text{NP}
\]

\[
\text{too} \quad \text{so} \quad \text{AP}
\]

\[
\text{etc.}
\]

\(23\)

• Inversion rescues the violation. Structure for inverted elements proposed in Kennedy and Merchant (2000):
On this test, *very* is diagnosed as a Class II adjunct.

(24) Mike drives a very cramped car.
(Compare *Mike drives very cramped a car*.)

Conclusions:
- Obligatory degree-inversion provides yet another test of a degree modifier’s selectional properties.
- Neeleman et al. (2004)’s classification is, again, generally supported.
- *very* is, again, diagnosed as a Class II adjunct (contra Neeleman et al. (2004)).

4 much-support as a semantic phenomenon

4.1 very and much-support

Recall: Patterning with Class I modifiers, *very* requires much-support.

(25)

a. He is very *(much) under scrutiny.
b. Mary isn’t very *(much) older than John.
c. Bill is fond of Mary—in fact, very *(much) so.
d. He very *(much) likes chicken.

Proposal: (25) is explained by *very*’s need to modify a phrase with a degree argument (e.g., Kennedy and McNally (2005a)).

- \[ \text{[pos]} = \lambda G_{d,(s,t)} \lambda x \exists d \text{[standard]}(d)G(C) \land G(d)(x) \]
- \[ \text{[very]} = \lambda G_{d,(s,t)} \lambda x \exists d \text{[standard]}(d)(\lambda y \text{[pos]}[(G)(y)]) \land G(d)(x) \]

This is consistent with proposals that give semantic content to “dummy”-much (see, e.g., Schwarzschild (2006); Wellwood et al. (2012); Wellwood (2012)), but not with those that don’t (see, e.g., Corver (1997); Kennedy and McNally (2005b); Solt (2010, 2013)).

This explanation appears to run counter to proposals for degree semantics in non-adjectival domains (e.g., Kennedy and Levin (2008)).

(26) The soup cooled {completely, slightly, very *(much)}.

Open question: Why is much-support required in (26) if it is not for selectional reasons and *cool* makes use of a degree argument?

4.2 Other modifiers

- What about degree modifiers that don’t make use of much-support: *somewhat, a little, a bit, a good deal, enough*? (Assuming more and less involve suppletion with much/little.)
  - Such modifiers must not make use of a degree argument in the modified phrase. Otherwise, they would be ungrammatical, like *very* is.
- Prediction:Modifiers that don’t make use of much-support should compose with the positive form of gradable adjectives.
- Consider the following entailments with relative adjective *tall*.

(27)

a. John is somewhat tall. \( \Rightarrow \) John is tall.
b. John is a little tall. \( \Rightarrow \) John is tall.
c. John is a bit tall. \( \Rightarrow \) John is tall.
d. John is a good deal tall. \( \Rightarrow \) John is tall.

- These entailments can be explained if the modifiers don’t make use of a degree argument—instead, the only true “degree morphology” is the positive morpheme (Kennedy, 1999; Kennedy and McNally, 2005a; Kennedy, 2007).

(28) \[
\begin{array}{cc}
\text{DegP} & \text{DegP} \\
\text{somewhat} & \text{pos} \\
\end{array}
\]

Then somewhat in (27a) makes use of a vague property, rather than a gradable one.
- For the most part, these entailments do not go through with modifiers requiring much-support.

(29)

a. John is too tall (to fit through that tiny door). \( \Rightarrow \) John is tall.
b. John is so tall that he can’t fit through that tiny door. \( \Rightarrow \) John is tall.
c. John is [this, that] tall. \( \Rightarrow \) John is tall.
d. John is as tall as Mary. \( \Rightarrow \) John is tall.
4.3 Potential counterexample: enough

- It does not require much-support (e.g., likes chicken enough), so it must be an adjunct (Neeleman et al., 2004) and must not require a degree argument.
- But, it does not entail positive form: John is tall enough ⇒ John is tall
- However, there is evidence from fragment answers that enough is a head.


- And, it is not a violation of the head-final filter because of its inverted order with the adjective.
- Conclusion: The fact that enough doesn’t require much-support is probably independent of its semantic status.

5 Conclusions

5.1 Neeleman et al. (2004) classification supported

- The classification scheme proposed by Neeleman et al. (2004) is generally supported by two further syntactic tests.
  - Fragment answers
  - Degree inversion
- These differences are not explained by analyses giving degree words a uniform head/phrasal status.

5.2 very and much-support

- very is a Class II adjunct.
- much-support is therefore not syntactically motivated. Hypothesis: it is semantically motivated; much introduces the necessary degree argument.

5.3 Other modifiers

- Modifiers without much-support—somewhat, a little, a bit, a good deal—simply do not make use of a degree argument.
- This is why they entail the positive form when they occur with relative adjectives.

References


Grosu, Julia Horvath, and Helen Trugman. 2007. DegPs as adjuncts and the head final filter. In Bucharest working papers in linguistics viii.


