

# Experimental evidence for granularity shifting in the adjectival domain

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## Theory of adjectives

(Kennedy and McNally 2005)

Adjectives like *clean*, *closed*, *healthy* refer to objects with a maximum amount of a property (max Adj), whereas adjectives like *dirty*, *open*, *sick* refer to objects with a minimum amount of a property (min Adj).

### Adverbial modification

Minimizers *slightly/a bit/somewhat* + ✓ min Adj / \*max Adj;

Maximizers *completely/entirely/perfectly* + ✓ max Adj / \*min Adj.

## Semantic relations: entailments or implicatures?

We want to learn whether *completely clean*  $\subset$  *clean*; *dirty*  $\subset$  *slightly dirty*.



## Granularity shifting

(cf. Lewis 1979)

### Default (coarse) granularity

When using *The car is dirty/clean* it is normally appropriate to ignore almost invisible dirt.

### Pedantic (fine-grained) granularity

*The car is completely clean/slightly dirty* is normally appropriate iff the criterion for the application of the adjective is more pedantic: almost invisible dirt counts.

*The car is completely clean* is true iff the car is clean given this pedantic criterion.

*The car is slightly dirty* is true iff the car is dirty given a pedantic criterion.

## Goals and predictions of the experiment

### Goals:

➤ to clarify the nature of the relation between adjectives and their adverbial modifications.

Does *slightly dirty* have ‘at least’ reading (‘at least slightly dirty and possibly dirty’) or ‘at most’ reading (‘at most slightly dirty’)?

Does *clean* have ‘at least’ reading (‘at least clean and possibly completely clean’) or ‘at most’ reading (‘at most clean’)?

➤ to test Lewis’s 1979 hypothesis with min Adj and max Adj:

✓ shifting from loose (*dirty/clean*) to pedantic (*slightly dirty/completely clean*) granularity (C1 and C3).

✗ shifting from pedantic (*slightly dirty/completely clean*) to loose (*dirty/clean*) granularity (C2 and C4). Therefore, in C2 and C4 *dirty/clean* will be affected by the shift to pedantic granularity.

**Prediction:** more positive answers in C2 and C4 than in C1 and C3.

**Literature:** Kennedy, C. and L. McNally. 2005. Scale Structure and the Semantic Typology of Gradable Predicates. *Language* 81.2.  
Lewis, D. 1979. Scorekeeping in a language game. *Journal of Philosophical Logic* 8.

## Experiment

**Methodology:** Truth Value Judgment Task, 5-points Likert scale.

**Participants:** 25 native speakers of English per item.

**Targets:** *slightly/a bit/somewhat* + 17 min Adj; *completely/entirely/perfectly* + 17 max Adj.

**Examples of target items:**

(C1) *Nick says that the room is dirty. Nick's mother thinks that it's slightly dirty.*

*Would Nick agree that it's slightly dirty?*

○ ○ ○ ○ ○  
certainly not 1 2 3 4 5 certainly

(C2) *Nick says that the room is slightly dirty. Nick's mother thinks that it's dirty.*

*Would Nick agree that it's dirty?*

(C3) *Nick says that the table is clean. Nick's mother thinks that it's completely clean.*

*Would Nick agree that it's completely clean?*

(C4) *Nick says that the table is completely clean. Nick's mother thinks that it's clean.*

*Would Nick agree that it's clean?*

**Examples of fillers:**

(F1) *Nick says that the still-life is more beautiful and colorful than the landscape.*

*Nick's mother thinks that it is more colorful than the landscape.*

*Would Nick agree that it is more colorful than the landscape?*

(F2) *Nick says that the still-life is more beautiful and colorful than the landscape.*

*Nick's mother thinks that it is less colorful than the landscape.*

*Would Nick agree that it is less colorful than the landscape?*

All in all, we had 4 true fillers and 4 false fillers.

**Procedure:** 34 questionnaires counterbalanced using Latin square design (Adv1 + Adj1, Adj2 + Adv2, Adv3 + Adj3, etc.)

with 6 targets and 8 fillers. 25 participants were assigned to each questionnaire.

**Instructions:** \*\* Notice that this HIT is for English native speakers only! \*\* *Read a short text about Nick and his mother, and determine to what extent you think Nick agrees to a statement on a 1 (certainly not) to 5 (certainly yes) scale. For example, if the text says that Nick has 100 books and Nick's mother has 200 books, and you are asked whether Nick would agree that his mother has more books, you will probably think he will certainly agree (answer 5). However, if you are asked whether Nick would agree that his mother has fewer books, you will probably think he would certainly not agree (answer 1). Read the following 14 texts and for each one of them choose an answer between 1 and 5: [You need to answer all questions, in order to be rewarded for this HIT]*

## Analysis and interpretation



1-adjective+slightly,  
2-slightly+adjective,  
3-adjective+somewhat,  
4-somewhat+adjective,  
5-adjective+a bit,  
6-a bit+adjective

7-adjective+completely,  
8-completely+adjective,  
9-adjective+perfectly,  
10-perfectly+adjective,  
11-adjective+entirely,  
12-entirely+adjective

❖ All the answers were positive (more than “3”): implicatures (‘at most slightly dirty’, ‘at most clean’) are relatively minor.

❖ More positive answers for maximizers+max Adj ( $M=4.5$ ) than for minimizers+min Adj ( $M=4.1$ ):  $t=-17.7, p<.001$ .

Therefore, the interpretations of max Adj are more similar to those of maximizers+Adj than the interpretations of min Adj are to those of minimizers+Adj.

❖ More positive answers for C2 and C4 ( $M=3.9$ ) than for C1 and C3 ( $M=3.5$ ):  $t=-4.3, p<.001$ .

(C1) and (C3): shifting from loose (*dirty/clean*) to pedantic (*slightly dirty/completely dirty*) granularity.

(C2) and (C4): since shifting from pedantic to loose granularity is not acceptable, in C2 and C4 *dirty/clean* are affected by the shift to pedantic granularity.