

11 Adjectives and properties

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11.1 Overview

As discussed in chapter 7, adjectives typically denote PROPERTIES, many of which are gradable. In this chapter, we examine types of gradable and non-gradable adjectives and go into some detail about the use of dimensional scales (introduced in §6.2.4) to represent adjective meaning. We'll see how such scales can help to clarify aspects of the interpretation of gradable adjectives (e.g. why a *deep ocean* is deeper than a *deep bowl*) and the neutralization of some adjectives in some contexts (i.e. why we can say a child is *six years old* without committing ourselves to the proposition that the child is old). Before exploring these issues, we look at another source of variability in adjective meaning – why, for example, a *good knife* is sharp, but a *good chair* is not.

11.2 Adjectives and the nouns they modify

11.2.1 Selective binding

What adjectives can denote is notoriously fluid, since their interpretation is tied up with the interpretation of the nouns that they modify. This is because typical adjectives denote PROPERTIES, and PROPERTIES are properties of something. Adjective meanings can vary with respect to the nouns they modify in two ways. First, many adjectives describe measurements of some sort, that is, the degree to which something has a particular property. But the measurement values that an adjective can indicate depend on the nature of the thing being measured. For example, *tall* does not indicate a particular set of heights, since, for instance, a tall person falls into a different range of heights than a tall building does. *Tall* has the same sense in each case – meaning something like

'of great height.' But what counts as 'great' varies according to the type of thing being measured. We come back to this issue in §11.4.

The other way in which adjective and noun meanings interact is that PROPERTIES may apply in different ways to different kinds of THINGS. In this case, we would paraphrase the meaning of the adjective differently according to the type of noun it modifies. For example, a *fast runner* is someone who can run quickly, but a *fast game* is a game that finishes soon after it starts (Pustejovsky 1993). And *long* can have spatial or temporal interpretations:

- (1) a long snake = 'a snake that has a large measurement from head to tip-of-tail'
- (2) a long DVD = 'a DVD that takes a significant amount of time to play'

While many dictionaries would represent these as separate senses, another option would be to propose that *long* has one sense, which indicates 'a great extent,' and that the differences in interpreting *long* in (1) and (2) come from *long*'s interaction with the nouns and the kinds of extents that the nouns can have. This is the approach taken in Pustejovsky's Generative Lexicon approach (GL; see §4.3).

Pustejovsky (1995) proposes that these interactions come about because an adjective's lexical entry specifies which of a noun's QUALIA roles (or *quales*) it can modify. In GL, this is called **selective binding** as the adjective "selects" which QUALIA role(s) it "binds" to. Recall from §4.3.1 that QUALIA features give information about what a word's denotatum is made of, what it is for, where it comes from and how it differs from other items of the same type. In (1) and (2), *long* modifies the FORMAL and TELIC *quales*, respectively. The *snake* in (1) is judged to be *long* with respect to the FORMAL *quale*, that is, the physical form of the snake. DVDs, on the other hand, all have the same spatial dimensions (otherwise, they wouldn't fit into a DVD player), so we wouldn't have much reason to say that any particular DVD takes up a *long* amount of space. In this case we look for another way in which a *long DVD* can be long, and that is respect to its TELIC role – that is, its function. The function of a DVD is to be played and watched, and playing and watching are activities that happen over time. So a DVD is *long* if it takes a relatively large amount of time to play and watch.

Since the lexical entry for *long* says that it can modify the FORMAL and TELIC roles, it must be the case that if *long* modifies a noun that is variable and measurable in both its FORMAL and TELIC role specifications, then ambiguity should result. Indeed, *book*, as in (3), allows either interpretation of *long*, since nothing prevents us from applying *long* to either the FORMAL (books have physical forms that can be measured) or the TELIC (books are for reading, and reading takes time) *quale*:

- (3) a long book = 'a book that has a large measurement in one of its physical dimensions'
OR
= 'a book that would take a large amount of time to read'

GL thus takes a lexical-semantic route to solving the problem of adjective interpretation, by formalizing the notions of QUALIA and selective binding and

assuming that adjective senses are vague enough to apply to a number of different *quales* and types.

An alternative approach would be to hold that *long* is polysemous, in that it has separate spatial and temporal senses, and that it is a pragmatic matter to determine which sense of the adjective applies in which case. In that case, we would start from the notion that *long* can describe length in either minutes or inches and rely on our world knowledge of DVDs, rather than the lexical representation of *DVD*, to figure out that it must be the temporal sense that applies in that case.

11.2.2 Evaluating the selective binding solution

The GL selective binding solution works for some, but not all, variations in adjective meaning. In some cases of polysemy, the differences between the meanings cannot be reduced to the modification of different *quales*. For instance, a person can be *high*, meaning 'above the ground' or 'intoxicated.' In this case, the two meanings of *high* would have to be represented separately, as the difference between physical and metaphorical 'highness' consists of more than applying one notion ('being above') to more than one aspect of a person. Similarly, there is nothing in the representation of the noun *order* that could combine with the notion of 'great height' in order to give an interpretation for *a tall order*. In these metaphorical examples, we can see that there is a motivation for using the adjectives *high* and *tall* in these contexts – a person who is high ('intoxicated') may feel like they are floating high in the air, and *a tall order* is one that is difficult to meet, just as *a tall shelf* is difficult to reach. But the metaphorical reasoning needed to apply these spatial adjectives to abstract experiences is beyond what the mechanics of the GL approach allows, and so complementary approaches are needed to account for metaphorical applications of adjectives.

Puzzle 11-1

Substitute another adjective for *good* in each of the following sentences in order to demonstrate that *good* describes different qualities in each case. Is the interpretation of the adjective ambiguous in any of these sentences?

- Catch-22* is a good book.
- I wore my good shoes to the party.
- That child needs a good talking-to.

11.3 Absolute adjectives

Adjectives can be categorized in a number of ways. The first way that we'll discuss is whether or not the adjective applies to nouns in an all-or-nothing kind of way. An **absolute** adjective is one that denotes a **PROPERTY** that something either has or does not have. *Odd* (in reference to numbers),

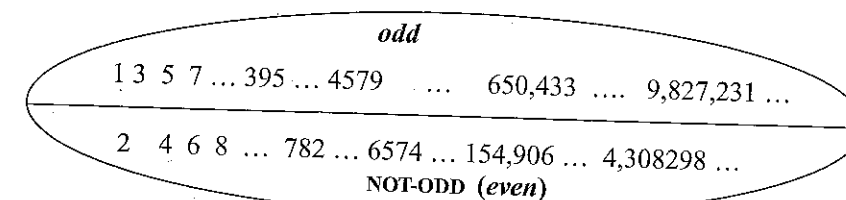


Figure 11.1 'Oddness' in the domain of numbers

perfect, and *headless* are all absolute adjectives, in that a number is either odd or it's not, a diamond is either perfect or it's not, and a horseman is either headless or he's not.

In other words, absolute adjectives entail a clear dividing line between the things that have the **PROPERTY** described by the adjective and those that do not. Let's look at this more closely for the case of *odd*. In the realm of mathematics, an *odd* number is an integer that cannot be evenly divided by two. Any integer can be unambiguously assigned to the category *odd* or *not-odd* – which is to say, *even*. Figure 11.1 illustrates the absolute status of numerical sense of *odd*. The oval is the domain of integers, which divides clearly into the **ODD** and the **NOT-ODD**. Some examples of *odd* and *not-odd* (or *even*) numbers are shown in the two sections of the oval, and no number can be on the dividing line between **ODD** and **NOT-ODD**.

Because it is clear which numbers belong to the *odd* category, all odd numbers have exactly the same level of **ODDNESS**. This means that we cannot say that one number is odder than another, as shown in (4). It also means that we cannot use **degree modifiers** with *odd*, since there are not different degrees of **ODDNESS** within the *odd* category, as in (5) and (6):

- (4) #Five is odder than three.
- (5) #The number five is very/somewhat/extremely odd.
- (6) #Three is completely/absolutely/totally odd.

Other absolute adjectives, like *perfect* and *dead*, are like *odd* in that they sound strange with degree **intensifiers** like *very* and *somewhat*, as shown in (7). But they differ from *odd* in that they can be modified by the types of degree modifiers in (8) and (9) that indicate completeness – we'll call these ones **totality modifiers** (Paradis 2001).

- (7) ??The diamond is very/somewhat perfect.
- (8) That diamond is absolutely perfect.
- (9) The phone line is completely dead.

Adjectives like *perfect* and *odd* are both absolute in that they describe **PROPERTIES** that a **THING** either has or doesn't have. What is different about them – and why it makes sense to use totality modifiers with one group but not the

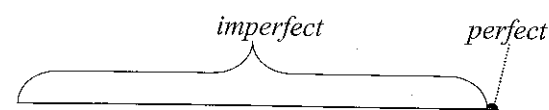


Figure 11.2 Scale of PERFECTION

other – is the status of things that do not have the property described by the adjective. Things that are not perfect vary in how close they are to perfect. Contrast this to numbers; no numbers that are not odd are closer to being odd than other numbers. This difference comes through when we use *almost* or *nearly* with the adjectives. *Almost* and *nearly* negate the adjective description, in that something that is *almost* or *nearly perfect* is not perfect. At the same time, they indicate a degree of closeness to the boundary of the PROPERTY denoted by the adjective. So, a diamond with one tiny flaw is *almost perfect*, but one with several big flaws is far from *perfect*. Adjectives like *odd* do not allow negation with *almost* or *nearly*. The number 2.999 is not *almost odd* just because it is nearly 3.

Figure 11.2 shows a way to visualize the meaning of *perfect*, which reflects how it differs from *odd* (compare figure 11.1). Here, 'perfection' is represented as being a particular point on a **scale** of measurements within the **domain** of PERFECTION. Kennedy (1999) refers to scalar adjective meanings as **measure functions** which map an object (the thing described by the adjective) to a measurement on a one-dimensional scale. These scales represent part of how we conceptualize the dimensions that the adjectives describe. In figure 11.2, the scale represents possible measures of how perfect versus imperfect something might be – from having no redeeming qualities to having some flaws to having no flaws at all: 'perfection.' *Perfect* only refers to the maximal value(s) on this scale, but other points on the scale vary in how close or far they are from the *perfect* point.

Thus we can divide the realm of absolute adjectives into two types: **non-scalar absolutes** like *odd*, which are not modifiable, and what we'll call **scalar absolutes**, like *perfect*, which indicate a bounded portion of a scale.

Puzzle 11-2

In chapter 6, we looked at different types of antonymy. Are any of these types particularly associated with absolute adjectives? Consider the absolute adjectives *odd*, *perfect*, *dead*, *square*, and *unique*.

11.3.1 Boundedness

In chapters 8 and 10, we saw that **boundedness** is a useful concept in describing the countability of nouns and the lexical aspect of verbs. Recall that a verb meaning is aspectually bounded [+b] if it is uninterruptible and that a noun

meaning is [+b] if it is not divisible. So, for example, if you only get halfway through remembering a fact, you have not remembered it, since remembering is a bounded EVENT. If you break a table in half, you no longer have a table – or even two tables – because tables are bounded objects. The case can be made that boundedness works similarly for adjective meanings. Following the logic of the noun and verb definitions of bounded, an adjective meaning is [+b] if there is a clear distinction between having the property and not having it. For example, *perfect* is bounded because there is a point at which something is perfect and if it is any less perfect than that, then it is no longer *perfect*. Compare this to *intelligent*. One can be *less intelligent* than someone else, but still be *intelligent*. Absolute adjectives are thus [+b]. The modifiers that can go with scalar absolutes, like *completely* and *absolutely*, are also [+b] in this case.

11.4 Gradable adjectives and semantic scales

Having looked at two varieties of absolute adjectives, let's now turn to adjectives like *tall*, *angry*, *green*, *pleasant*, and *boring*. These are called **gradable** adjectives. Gradable adjectives denote PROPERTIES that can be had at different strengths – which is to say that all tall people are not the same height, all boring people are not equally dull, and so forth. These are the adjectives that can be modified by intensifiers: some people are *somewhat tall*, some *very tall*, some *extremely tall*. And because different instances of TALLNESS involve different measurement values, *tall* (and other gradable adjectives) can also occur in **equative**, **comparative**, and **superlative** forms, as well as in the **positive** form, as shown in (10). (Some writers use *gradable* to mean the same thing as *scalar*, but note here that we are not including scalar absolutes in our use of the term.)

- (10) a. Wendy is **tall**. [positive]
 b. Mick is **as tall as** Jools. [equative]
 c. Perry is **taller than** Jools. [comparative]
 d. Wendy is the **tallest** person in the family. [superlative]

Non-scalar absolutes like *odd*, on the other hand, cannot be compared, since they do not have the possibility of different values.

- (11) #Three is odder than five.

Tall also differs from the scalar absolutes, in that it does not make sense to modify it with the same totality modifiers that are used with *perfect* and *dead*, as in (12).

- (12) #Morton is completely/absolutely tall.

Figure 11.3 illustrates the scale for the domain for height. From left to right, the points along the scale represent increasing heights. Three of those points have been labeled here with height measurements and initials, which indicate the

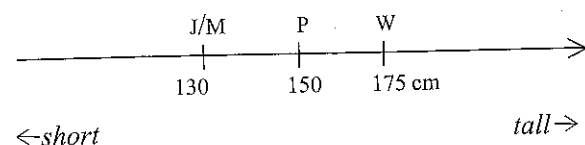


Figure 11.3 The examples in (10) plotted on the HEIGHT scale

relative placement of the family members mentioned in (10) on the *tall* scale. So Jools and Mick are as tall as each other, Wendy is the tallest, and so forth.

What figure 11.3 doesn't show is how tall is *tall*. Claiming that *tall* refers to a particular section of the scale – for example, from 175 centimeters up – would be a problem, since what counts as *tall* depends on what type of thing is being described as *tall*. For example, in (13)–(15), we would expect that the toddler, man, and giraffe have very different heights, even though each of them is described as *tall*.

(13) That toddler is tall.

(14) That man is tall.

(15) That giraffe is tall.

The measurement value for particular instances of *tall* can vary so much because gradable adjectives are scalar and inherently comparative. When we use gradable adjectives like *tall* in their positive form to describe a THING, we compare the height of the THING to a height value that serves as a **standard of comparison**. A man is *tall* if he is *taller than* some height that we consider to be “unremarkable” for some reference group. In the case of a *tall man*, we might be comparing the man to other men. In that case, we could paraphrase (14) as (16) or (17):

(16) That man is tall, for a man.

(17) That man is taller than typical men.

Note that we don't want to say that a tall man is taller than an average man, since that would entail that we measured all men and figured out their average height. The key is what we believe about “typical” or “unremarkable” men's height, rather than the reality of “average” height. Because judgments of TALLNESS are always made with reference to a contextually determined standard, *tall* is said to be a **relative** adjective, as opposed to an absolute one.

It's not the case that *That man is tall* (14) can always be paraphrased by (16) or (17). Given an appropriate context, we could be comparing the man to any number of standards besides ‘unremarkable height for a human male.’ For example, from the toddler's viewpoint, the man may be tall because her standard of comparison is based on her own toddler height. According to that standard, anyone above three and a half feet counts as *tall*. Similarly, when we say (15) *That giraffe is tall*, we may be comparing the giraffe to animals generally (in which case all giraffes might be considered to be tall) or specifically within the class of giraffes,

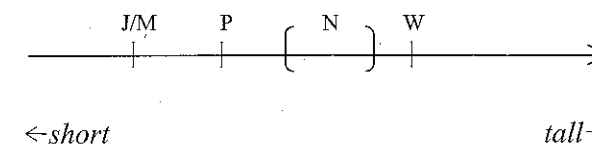


Figure 11.4 The HEIGHT scale, with neutral range

in which case the giraffe is tall for a giraffe. In any use of a gradable adjective, determining the standard of a comparison is a pragmatic matter, which requires attention to the context and world knowledge that contributes to deciding which possible standard of comparison is the relevant one in this context.

So in our scalar model, a positive (i.e. non-comparative) use of *tall* compares the value of an object's height and a ‘standard’ or ‘neutral’ range of heights for that type of object – marked in figure 11.4 as a bracketed area, labeled ‘N’ for *neutral*. The neutral range here is the set of heights that are neither *tall* nor *short*. According to figure 11.4, Jools and Perry are *short* – because their heights are shorter than ‘neutral’ heights. Wendy is *tall* since her height is greater than the set of neutral heights.

One way to approach such adjectives is to think of them as labeling **directions** on the scale, rather than points or sections of the scale. The reason for this becomes clear when thinking about comparison. In the representation of the comparison *Perry is taller than Jools* in figure 11.3, we plotted the values of Perry's height and Jools' height on a scale of TALLNESS, with Perry's height being further in the ‘taller’ direction on the scale than Jools'. But notice that this does not entail or presuppose that Perry is *tall*; according to figure 11.4, he is *short*, but still *taller* than Jools. Something is *tall* if its measured height is greater than the standard of comparison in the neutral range, but it is *taller* than something else if it has a greater height than the something else, without regard for the neutral standard of comparison. We can represent the meaning of *taller* as (18), where the two arguments of *taller* (the two items being compared) are on either side of the ‘greater than’ symbol. The subscripted HEIGHT tells us the dimension of the adjective. So, if X is *taller than* Y, then X has a greater height measurement than Y. (Another way of putting this is that *taller* describes a **vector** between X and Y – i.e. a direction on a part of a scale.)

(18) X is *taller* than Y: [HEIGHT X > Y]

The difference between the positive *tall* and comparative *taller* forms is that both of the arguments are explicitly stated in a comparative statement, but, grammatically speaking, a positive adjective does not have two slots in which to express the arguments of its comparison. Still, while *tall* has only one visible argument in a sentence like *Wendy is tall*, semantically it has two arguments: *Wendy* and the standard of comparison in the neutral range. This can be represented for the HEIGHT adjectives as (19) and (20) – *tall* means having a greater height than the neutral range, whereas *short* means having a lesser height than N. We can think

of argument N as a default argument, which is used when there are not enough explicit arguments to satisfy the comparative nature of the adjective.

(19) X is *tall*: [_{HEIGHT} X > N]

(20) X is *short*: [_{HEIGHT} X < N]

This type of representation can be used for any positive form of a gradable adjective. For example, substitute *WEIGHT* for *HEIGHT* in (19), and you have the meaning of *heavy*.

Puzzle 11-3

So far, we've said that the adjectives *tall* and *short* can be thought of as inherently comparative and directional, in that a comparative form of the adjective indicates a relation between two places on the scale. The point of comparison for a positive use of these adjectives, as in *I didn't expect him to be so tall*, is a contextually 'neutral' set of heights. Test the following adjective pairs in order to determine whether they too are understood in relation to a neutral set of heights. Is there anything different about these, as compared to *tall* and *short*?

tiny/huge

cold/hot

11.5 Properties of scales and types of scalar adjectives

The type of scale for *tall* and *short* in figure 11.4 works for a range of adjectives, like *heavy/light*, *wide/narrow*, and so forth. That scale extends indefinitely toward ever-increasing values – that is, there's no upper limit on how *tall* something can be. But the scale does not continue indefinitely in the opposite direction. Furthermore, the scale makes use of a neutral range and adjectives are associated with both of the directions on the scale. We have already seen one type of scale that looks different from the *HEIGHT* scale: the *perfect/imperfect* scale in figure 11.2. So, we can assume that scales may have different characteristics. These potential differences include the following, some of which we've already seen illustrated by the differences in figures 11.2 and 11.4:

- Different scales represent different *DIMENSIONS*.
- A scale may extend indefinitely at one, both, or neither of its ends.
- A scale may include a contextually defined standard of comparison (for a relative adjective) or not.
- Either one or both directions on the scale may be named; if both, then the two adjectives naming the opposite directions will be antonyms.
- Adjectives associated with the scale may involve the entirety of a scale or only a subpart of it.

Our next task is to look at some different type of scalar adjectives that display some of these variations. But how do we know the shape of any scale? In some cases, the denotata give us a clue. For instance, we know that there is no upper limit on how *tall* something can be because we know that, for instance, a stack of books can always be made *taller* by adding another book to it. There is no inherent limit to height. But adjectives may map onto these scales in different ways, so that we need to look at linguistic evidence, such as modification and comparability, which reflect scalar properties. In the following subsections, we see how such evidence can be used in determining the properties of dimensional scales, starting with the question of which end of the scale is 'up.'

11.5.1 Scales and directions

Different adjectives can label the same dimension with reference to scalar directions. It is conventional to represent scales as horizontal lines, so the directions in the illustrations are 'rightward' and 'leftward,' but it is also conventional to understand the right side of the scale illustration as the 'upper' end of the scale and the left side as the 'lower' end. In this case the rightward direction is 'more' and the leftward direction is 'less' of something. So, on a scale of physical measurement, such as *HEIGHT* (figures 11.3 and 11.4), the range of possible heights is ordered from the lowest heights at the left side to ever increasing measurements on the right side because the rightward direction is toward 'more height.' On a *TIME* scale, *late* is rightward and *early* is leftward because *later* signals 'more time passed.' Similarly, the 'upper' rightward direction is toward higher temperatures on a *TEMPERATURE* scale because it signals 'more heat'; this reflects an understanding of heat as a presence and cold as an absence of heat. In all of these cases, the measuring systems that we apply to those dimensions reflect this scalar structure, in that we use higher numbers to represent things that are *taller*, *later*, or *hotter* than others.

But what about more abstract dimensions, which do not have conventional, numerical systems of measurement? Which is the upper and which is the lower end in these cases? Think back to *perfect* and *imperfect* (fig. 11.2), was there a reason why I put *perfect* on the 'upper' end of the scale?

On first glance, one might be able to find some reasons to order the scale in the opposite way, with *imperfect* at the 'upper' end – after all, imperfection involves *more* flaws. But there are other clues that *perfect* is at the upper end of the scale. First, notice that we call it a scale of *PERFECTION*, rather than a scale of *IMPERFECTION*. So, just as the upper end of the *HEIGHT* scale is the end with 'more height' and the upper end of the *TIME* scale is the one in which 'more time' has passed, the upper end of the *PERFECTION* scale is the one with 'more perfection.'

Another clue is that *imperfect* is at the opposite end of the scale. In order to describe that end of the scale, we add the negative prefix *im-* to *perfect*. The fact that the opposite of *perfect* is presented with a negative morpheme (but *perfect*

itself is not) gives us a hint that *perfect* is the 'positive' quality of the two, and thus is associated with the 'positive' direction on the scale.

You probably didn't need me to point out the negative morpheme on *imperfect* in order to conclude that *perfect* is positive, since we almost always think that *perfect* things are better than *imperfect* things. The linguistic evidence regarding the nominalization and negation of *perfect* reflects the fact that we generally treat 'good' things as involving 'more' of something and 'bad' things as involving 'less' of that good thing – though it would be logically possible for us to do the opposite. It is just a fact of human nature that we tend to look toward 'goodness' and to value it more than 'badness.' So, in general, if one direction on a scale is toward a more positively valued PROPERTY, it will be the 'upper' end of the scale.

11.5.2 Open and closed scales





An end of a scale can be closed or open, in that there may or may not be absolute interpretations of an adjective on that scale. So far, we have seen the *tall* scale with an open upper end and the *perfect* scale with a closed upper end. Kennedy and McNally (2005) list the following possibilities configurations for scales:

- they can be closed on both ends
- they can be closed on the upper end but open on the lower end
- they can be closed on the lower end but open on the upper end
- they can be open on both ends

If a scale has a closed upper end, for instance, then there may be a scalar adjective that describes the maximal point on that scale. This is the case for *perfect* (figure 11.2); 'perfection' is limited at the upper end – once something can be accurately described as *completely perfect*, there is no room for it to be made more perfect. Notice, however, that the same is not true of the other end of the scale. If we have a very flawed diamond or a very messy piece of knitting, we can probably still make it worse. There is no point at which we would say that something is *completely imperfect*.

For a test of scalar closure, Kennedy and McNally (2005) look at whether the scale can be modified by an expression that indicates completeness (a totality modifier), such as *completely*, *fully*, or *100%*. (Note that these are scalar modifiers, as it would be strange to modify a non-scalar absolute description like *odd number* with them.) Even closed-scale adjectives vary in how "comfortable" they are when collocated with some of these modifiers – for example, we prefer to say *completely perfect* rather than *fully perfect*. But if an adjective can go with one of these modifiers, we can conclude that it has a sense that involves a closed scale. If both members of an antonym pair can go with at least one of these modifiers, then the scale is closed at both ends. Using this modification test, Kennedy

and McNally determined the scalar properties of the following sets of adjectival antonyms – in each case the ones with absolute interpretation are shown in bold:

- (21) CLOSED SCALE: *empty/full, closed/open, invisible/visible*

 a. The bottle was 100% **empty/full**.
 b. The door was fully **closed/open**.
 c. The image was completely **invisible/visible**.
- (22) LOWER CLOSED SCALE: *quiet/loud, unknown/famous*

 a. The classroom was 100% **quiet**/?loud.
 b. That artist was completely **unknown**/?famous.
- (23) UPPER CLOSED SCALE: *uncertain/certain, impure/pure, dangerous/safe*

 a. The water is 100% ?impure/**pure**.
 b. I am fully ?uncertain/**certain** that he'll come.
 c. The procedure is completely ?dangerous/**safe**.
- (24) OPEN SCALE: *short/tall, shallow/deep, uneager/eager*

 a. The president is 100% ?tall/?short.
 b. The pool is fully ?shallow/?deep.
 c. The teacher is completely ?uneager/?eager to help.

If two adjectives describe the opposite directions on a completely closed scale, then neither will apply to the middle of the scale in a simple, positive adjective use. So, for example, a one-liter bottle filled with just 300 milliliters of wine is not a *full bottle*, but neither is it an *empty bottle*.

- (25) [FALSE] The bottles in figure 11.5 are **empty/full**.

But we can still tell that these adjectives describe directions on the entire scale, rather than just the end-point of the scale, in that the points in the middle of the scale can be described with either adjective in the cases that (a) the adjective is in the equative, comparative, or superlative form, or (b) the adjective is used with a proportional measurement, such as *half* or *30 percent*. Figure 11.5 shows two one-liter bottles that are each filled with 300 milliliters of wine and scalar architecture that allows for the examples in (26) – with the (a), (b), and (c) meanings labeled.

- (26) a. The bottle of red wine is as full/empty as the bottle of white.
 b. The bottles are 30% full.
 c. The bottles are 70% empty.

In contrast, when we say simply that a bottle is *full*, we refer to the upper end of the scale – that is, the **maximum** value in that direction. Likewise, *the bottle is empty* invokes the **minimum** value on the scale. The linguistic paraphernalia

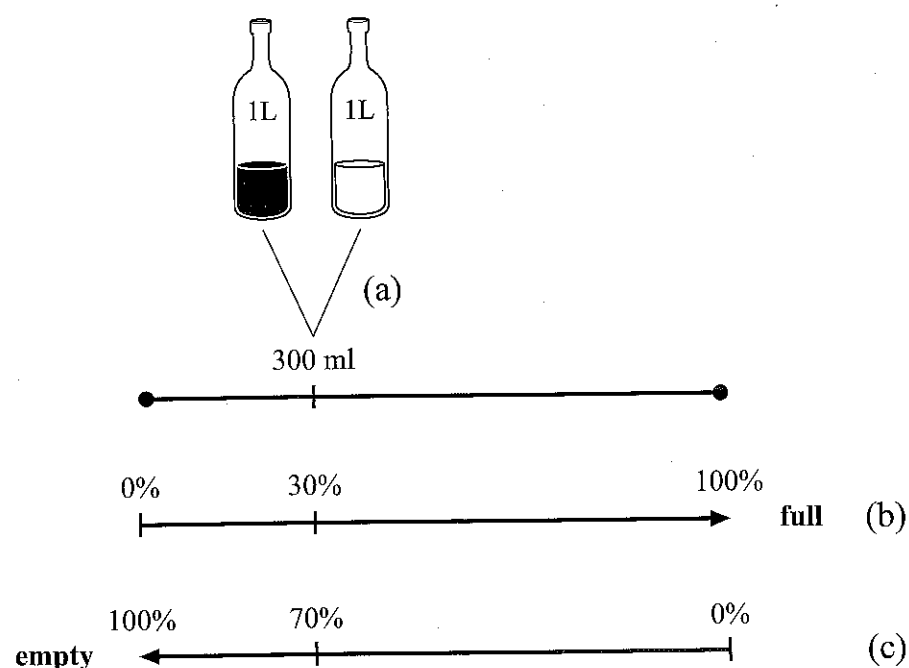


Figure 11.5 The full/empty scale

of comparisons and proportions in (26) signals that *full* and *empty* are to be understood in some way other than the maximal/minimal interpretation.

(There is a little wiggle room here for a range of maximum values. For instance, a bottle is considered to be *full* at some point before the contents reach the brim. How full any particular thing needs to be in order to be considered *full* is a pragmatic matter, dependent on world knowledge and contextual expectations.)

Thus, *full* and *empty* are scalar absolutes in that they describe an absolute condition in their positive forms and are not interpreted (unlike *tall*) with reference to a neutral standard of comparison. But they do not neatly bisect the domain of 'how full something can be' and they thus make reference to a scale. Note that the comparative or proportional uses in (26) would not have worked with the non-scalar absolute *odd (number)*.

The situation is different for scales that are closed on only one end. In that case, one of the antonyms is absolute and the other not, and proportional modification does not make sense since one needs a fixed start and finish for the scale in order to measure at which point *half* or *most* of the scale has been reached. So, on the upper-closed scale of *PERFECTION*, *perfect* is absolute, but it makes no sense to say that a diamond is 40% *perfect* because the lower end of the scale does not have an exact boundary. Having only one end closed also means that the antonym associated with the open end will have the properties of a gradable adjective. So, *perfect* is an absolute describing the maximum point on a scale, and *unknown* is an absolute on the describing the minimum point on its scale, and each has a complementary (§6.2.4) antonym that can describe any point on the rest of

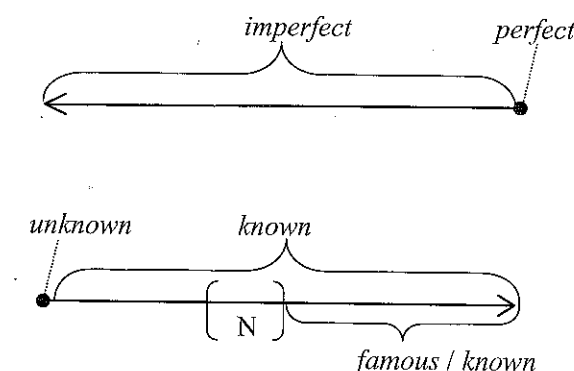


Figure 11.6 The PERFECTION and FAME scales

the scale. Unlike the complementary antonym of a non-scalar absolute, however, antonyms of scalar absolutes on a half-open scale can be modified with gradable modifiers like *very* rather than the absolute ones like *completely*:

- (27) a. That diamond is completely perfect/??imperfect.
b. That artist was completely unknown/??famous.
- (28) a. That diamond is very imperfect/??perfect.
b. That artist was very famous/??unknown.

Figure 11.6 shows how the FAME scale, being closed on the lower end, inverts the properties of the PERFECTION scale. In each case, most of the scale is covered by the gradable member of the antonym pair. The ability to interpret some of the open-ended antonyms as relative (relating to a neutral standard of comparison) gives us **gradable complementary** antonyms (see §6.2.4) *unknown/famous* or *unknown/known* (in the case where there is a minimal standard of fame to meet before something is described as *known*).

The notion of 'closed' and 'open' scales can be shown to correlate with other adjective facts. For example, Stephen Wessler (2005) has argued that resultative constructions of the form Verb–Noun Phrase–Adjective are sensitive to scale openness. Although a lot more goes on in these constructions than I have space to discuss, a quick observation is that durative verbs can take closed-scale adjective results as in (29), but not open-scale ones as in (30).

- (29) CLOSED-SCALE RESULTATIVES
a. Neil pushed the door closed/open.
b. Sarah hammered the metal flat/straight.
c. Arthur wiped the table clean/dry.
d. Beatrice shook Martin sober.
- (30) # OPEN-SCALE RESULTATIVES
a. #Sarah hammered the metal curved/bumpy.
b. #Arthur wiped the table dirty/wet.
c. #Beatrice served Martin drunk.

Viewing all of the above linguistic facts in terms of open and closed scales is not a completely uncontroversial approach – but it seems to at least describe the facts about adjective modification well.

11.5.3 Neutralization

Among the antonyms that describe measurements on the same scale, we can find differences in how some of those adjectives behave in various types of contexts. For instance, in chapter 1 I mentioned that some but not all adjectives can occur with measure phrases like *six miles* or *30 minutes*.

- (31) The lake is one mile wide.
 (32) #The lake is one mile narrow.
 (33) The concert was 30 minutes long.
 (34) #The concert was 30 minutes short.

Even if the concert lasts just five minutes, we still use the adjective for greater length in describing it as *five minutes long*.

Similarly, if you want to know when a concert will end, you ask a question using *long*, like (35), no matter whether you think the concert will be long or short. In other words, the question can have a **neutral interpretation** – it does not presuppose a particular length.

- (35) How long was the concert? [neutral or committed reading]

On the other hand, you would only ask question (36) in a context in which it has already been established that the concert is particularly short:

- (36) How short was the concert? [committed reading]

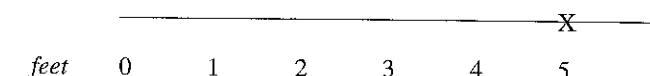
In other words, by using *how short* you **commit** yourself to the presupposition that the concert was short. It is also possible to get a committed reading for (35), making that sentence ambiguous between neutral and committed senses of *long*.

In each of these cases, we have two adjectives, one of which indicates the ‘upward’ direction on the scale – that is, the one with greater measurements – and the other the ‘downward’ direction. Examples (31)–(36) indicate that the meanings of some adjectives can be **neutralized** with measure phrase modification and in *how* questions.

We can use the ‘inherent comparison’ view of gradable adjective meaning to account for some aspects of neutralization. The single spatial/temporal dimensions like **HEIGHT**, **WIDTH**, and **LENGTH** are asymmetrical, in that one can measure indefinitely in one direction, but not the other. In other words, the lower end of each of these scales provides a starting point from which measurement can be plotted. In this case, when we use a measure phrase, we compare the value of the thing that is being described with that starting point. An adjective can be modified by a measure phrase, then, if it describes the direction from the starting

point to the measurement value of the thing. So, on the **HEIGHT** scale, if Steve is *five feet tall*, his height measures five feet from the starting point of the scale (‘zero’) in the *tall* direction on the scale. Since we are comparing Steve’s height to the starting point on the scale, no comparison is made to the neutral range of the scale, as shown in (37), where ‘0’ marks the scale’s starting point. We thus get a neutralized meaning of *tall*, which relates the height measurement only to the starting point and not to the neutral (i.e. ‘typical’) standard of comparison that is used in non-neutral, positive interpretations of *tall*.

- (37) X is *five feet tall*: [_{HEIGHT} (X = 5 feet) > 0]



We cannot measure Steve’s **HEIGHT** value from the opposite end of the scale and describe him as some number of *feet short* because that end is not fixed – it continues on indefinitely. Since there is no natural place on that end of the scale to start our measurement from, we do not, other than in jest, say that anything is *five feet short*. When we do jest in this way, we have to understand *short* as asserting that *five feet* is shorter than the neutral standard of comparison for **HEIGHT**.

All this works the same for the neutral *how* questions in (35), in that neutral *how* questions ask for a measurement from the starting point of a scale – i.e. ‘how far from 0 on the scale is the value of the measurement?’ Committed *how* questions like *How short is he?* ask for a point on the scale to be compared to the neutral range.

If we can say *five feet tall*, why not ??30 *kph fast*, ??30 *decibels loud*, or ??30 *kilos heavy*? It has been observed that the ‘zero’ points in dimensions like **HEIGHT** and **AGE** are not ‘real’ points on the scales, since there is nothing in the physical world that cannot be measured for its spatial extent, nor nothing that can exist without having an age (Kennedy 2001). On the other hand, the **SPEED**, **SOUND VOLUME**, and **WEIGHT** dimensions have zero points at which things can be measured – but the things with zero values on those scales cannot be described by either of the relevant antonyms. Something whose speed is zero kilometers-per-hour is not *slow* or *fast*; it is *still*. Similarly, **SOUND VOLUME** and **WEIGHT** have zero-values that are populated by *silent* and *weightless* things, respectively. So, perhaps one can use a starting point as a comparison point for a measurement only if that starting point is not describable by the adjective in question. This helps us to reconcile the evidence for an asymmetrical **HEIGHT** scale with a starting point with the evidence that the scale is open at both ends (§11.5.2). In this case, we can view the starting point on the **HEIGHT** scale as mostly irrelevant to *short/tall*, since those adjectives never describe that starting point. The problem with such attempts at explanation, however, is that the data are messier than this. Other languages, like Swedish and German, have no problem with ‘30 kilos heavy.’ And it is not unheard of to say things like *30 decibels loud*

in English (Murphy 2006), although most semanticists who have looked at the problem mark this as an impossible phrase.

Puzzle 11-4

There is no starting 'zero' point at either end of the scale of TIME, since our perception of TIME has it extending indefinitely into the past and the future. Nevertheless, it is possible to use measure phrases, like *five minutes*, with the temporal adjectives *early* and *late*:

The bus arrived five minutes early
The bus arrived five minutes late

How is the scale for *early/late* configured such that it is acceptable to use a measure phrase with these adjectives? Do *early* and *late* have neutralized interpretations when they co-occur with measure phrases?

11.5.4 One scale or two?

Many gradable adjectives fall into contrary antonym relations (see §6.2.4), in which there is a "middle ground" that neither adjective describes. For instance, if someone is *not tall*, it does not mean that they are *short*, since they could be neither short nor tall – that is, their height could fall in the neutral range. In a case like *tall/short*, the two opposites describe scalar relations in the HEIGHT dimension, in which some measurements are as *short* and others as *tall*, as compared to the contextually determined neutral range. We can tell that the two antonyms describe the same dimension because the relations between them are reciprocal – *X is taller than Y* entails *Y is taller than X*, and vice versa. In other words, (38) paraphrases (39):

(38) Jane is shorter than Tarzan.

(39) Tarzan is taller than Jane.

Not all antonym pairs work in this way, however. Take, for instance, *sweet*, which is used with various opposites: *bitter*, *sour*, *savory*. We can tell that *sweet* is gradable because it can be intensified (*very sweet*) and compared (*X is sweeter than Y*). Nevertheless, *sweet* does not act as if it is in the same dimension as *bitter* (or any of the other antonyms here – test them!), as we can tell from the fact that (40) does not entail (41).

(40) Hugh's cake is sweeter than Hilda's.

(41) Hilda's cake is more bitter than Hugh's.

This tells us that the scale of sweetness ranges from NOT-SWEET (or *tasteless*) to *sweet*, as in figure 11.7, rather than from *bitter* to *sweet*. So, in the case of *sweet* and *bitter*, the fact that they are (in some contexts) opposite does not mean that

sweet →

Figure 11.7 The SWEETNESS scale

they describe the same dimensional scale. Instead, each of the taste adjectives describes a distinct dimension of taste.

Puzzle 11-5

For each of the following pairs, determine whether the two opposite terms describe the same or different dimensions:

- red/green* (which are opposites on the color wheel)
- light/dark* (of colors)
- happy/sad*

11.6 Summary and conclusion

This chapter has concentrated on adjectives that are not derived from nouns or verbs, and has given special attention to scalar adjectives. In context, adjective interpretation is greatly affected by the noun that the adjective modifies – both because the adjective can modify different aspects of different noun meanings (e.g. *fast typist* vs. *fast game*) and because many adjectives rely on a pragmatically defined standard of comparison that determines which measurements in a dimension are within the adjective's denotational range. We looked at a range of properties of scales, which serve as ways of representing the semantic differences among adjective types, giving rise to different types of antonymy.

11.7 Further reading

Interest in formal aspects of adjective meaning has seen a boom in the past decade. For reasons of exposition, some aspects of the theoretical positions have been simplified, and so the interested reader is encouraged to consult the readings suggested for a full picture, particularly of the scale structures advocated by Christopher Kennedy and Louise McNally (2005). Scalar treatments of gradable meaning are proposed by Manfred Bierwisch (1989) and Kennedy (1999), with further development of Kennedy's position in the sources cited in §11.5.2. McNally and Kennedy's edited collection *Adjectives and Adverbs* (2008) includes a helpful introduction. Carmen Rotstein and Yoad Winter (2004) have looked in some detail at the semantics of the antonym pairs (developing

the notion of **partial** and **total** adjectives introduced by Yoon (1996)) that Cruse (1986; see chapter 6) labeled as gradable complementaries. Carita Paradis (2001) explores the application of **BOUNDEDNESS** to the adjective category and to the intensifiers and totality modifiers that can modify adjectives from a more cognitivist perspective.

Lehrer 1985 presents a thorough description of adjective neutralization as a symptom of the linguistic phenomenon of **markedness** (mentioned in §9.4.4) – but see also Haspelmath (2006), who disputes the relevance of markedness in explaining such phenomena.

11.8 Answers to puzzles

11-1

- a. A *good book* is typically an *interesting* book or a *well-written* book. This relates to the function of a book (to be read) and, in turn, the function of reading (either for information or for entertainment). But given a context like *That's a good book if you need to prop open a door*, another interpretation is available in which the physical form, rather than the content, of the book is relevant.
- b. There are at least two possible interpretations of *my good shoes*:
 - *my dressy/fancy/special shoes* (i.e. the ones I save for special, dressy occasions)
 - *my functional shoes* (i.e. the ones that don't have holes in them)
- c. A *good talking-to* is usually a *severe* or *thorough* talking-to. It is possible to imagine contexts in which it could mean 'an eloquent talking-to,' among other things, but since *a good talking-to* is an idiom meaning 'a scolding,' it is less likely than the other examples to be interpreted compositionally (and thus ambiguously).

11-2

Absolute adjectives typically have complementary antonyms, for example *odd/even*, *perfect/imperfect*, *dead/alive*. For those, the negation of one entails the assertion of the other, and vice versa. So, *I am perfect* entails *I am not imperfect*, and *I am imperfect* entails *I am not perfect*. Some non-gradable adjectives are part of larger contrast sets, rather than antonym pairs. For example, *square* is contrasted with *round*, *rectangular*, *triangular*, and so forth. These could be considered complementary sets (see example (19) in chapter 6). Some adjectives – absolute or not – do not have conventionalized antonyms, and *unique* seems to be in that group. However, one might propose various antonyms for it, including *non-unique* or *common*. *Unique* is not in a complementary relation with *common* since some things are *rare* rather than *unique* or *common*. In this case, *unique* is a scalar absolute (something can be *almost unique*) and so it could have either contrary antonyms that

are at the opposite end of the scale (*common*) or complementary antonyms (like *non-unique*) that cover all of the scale that is not described by *unique*.

11-3

Each of these adjectives is a relative adjective, interpreted with relation to a neutral point. We can know this because the size of *huge* or *tiny* things varies according to the type of things they are, and the temperature of *hot* or *cold* things varies in a similar way. For example, a *huge mouse* will not be as big as the minimal size requirements for a *huge mountain*, and a *hot stove* is probably a lot cooler than a *hot nuclear reaction*. These pairs are a bit different from *tall/short*, however, in that they denote extremes, rather than the whole scale. So, for example, in the **HEIGHT** dimension, something can be *taller* than something else while still being *short* (recall Perry and Jools in figure 11.4). It doesn't work, however, to say that one cold thing is *hotter* than another or one huge thing is *tinier* than another. *Hot/cold* and *tiny/huge* thus involve partial subscales of the **TEMPERATURE** and **SIZE** scales. In contrast, *cool/warm* and *little/big* or *small/large* describe the entirety of the **TEMPERATURE** and **SIZE** scales.

Despite its context-sensitivity, *huge* does not act like a gradable adjective, since it is odd with intensification or in the comparative form, while it is OK with the totality modifier *absolutely*:

- a. ?The elephant is very huge.
- b. ??The elephant is somewhat huge.
- c. ??The whale is more huge than the elephant.
- d. The elephant is absolutely huge.

I'll leave it to you to decide whether *tiny* follows the same pattern. (My own intuitions on it are mixed.) *Hot* and *cold*, by contrast, are happier with intensification (*very hot*) than with totality modification (*?absolutely hot*), and both can be compared (*hotter*, *colder*).

11-4

Late and *early* measure time from a particular point on the **TIME** scale, although that point is not at one end of the scale. Instead, they measure time from a contextually determined time somewhere along the **TIME** scale – in the examples here, the time at which the bus was scheduled to arrive.

11-5

In each of these cases, we want to test adjective 1 and adjective 2 by asking: 'If X is more *adjective-1* than Y, then is Y more *adjective-2* than X?' If the answer is 'yes,' then the two adjectives operate in the same dimension.

- a. If your shirt is *redder* than your hat, it doesn't mean that your hat is *greener* than your shirt. Thus, these must be on separate scales.
- b. If your green shirt is *lighter* than your green hat, then your green hat is *darker* than your green shirt. Thus, these are on the same scale.

- c. If Ruth is *happier* than Rachel, it does not necessarily mean that Rachel is *sadder* than Ruth – Rachel instead could be more angry or upset rather than sad. Thus, *happy* and *sad* are on separate scales.

11.9 Exercises

Adopt-a-word

If your word is an adjective, determine its properties using the diagnostics presented in this chapter (occurring with intensifiers or totality modifiers, comparison, interpretation in *how* questions and so forth). If it is a scalar adjective, sketch a scalar representation for it, paying particular attention to whether the scale is open-ended and whether the adjective shares its scale with its antonym (if it has one).

General

- Determine whether the following adjectives are absolute or relative (or both). Give evidence in favor of your answer.
 - frequent
 - daily
 - afraid
 - sober (in the sense 'not intoxicated')
 - purple
- For each of the following adverb + adjective combinations, determine