

A typology of multidimensional predicates

Galit W. Sassoon,
ILLC, University of Amsterdam*

*Adjectives often associate with multiple dimensions (for example, healthy and sick may be ordered by blood pressure, pulse, sugar, cancer, etc.) So are nouns (for example, birds are characterized as small, feathered, flying, etc.) This paper presents empirical support to a typology of multidimensional predicates based on differences in the role of the dimensions in determining entities' status in the predicates (Sassoon 2007, Chap. 7). Extensively supported cognitive concept-theories (for a review see Murphy 2002) analyze nouns as mean-based (an entity is classified under them iff, roughly, its mean degree in the dimensions reaches a standard.) While this analysis has already been applied to the semantics of predicates in general (Lakoff 1987), this paper provides corpus-based evidence to the effect that in adjectives, unlike nouns, the dimensions are not typically combined via averaging (mean operations). Rather, they combine through Boolean operations. The default interpretation of **conjunctive** adjectives like healthy involves implicit **universal** quantification over dimensions (dimension conjunction), while that of **disjunctive** adjectives like sick involves **existential** quantification (dimension disjunction). In **mixed** adjectives like intelligent, the force of quantification over dimensions is context relative (it is not determined semantically). Last but not least, the paper presents preliminary support to the hypotheses that antonym polarity and standard type guide our choice of quantifiers over dimensions in different adjectives. Thus, this research sheds new light on the nature of negative antonymy in multidimensional adjectives, as well as on the distribution of degree modifiers and exception phrases among multidimensional antonyms.*

1. Introduction

1.1 One dimensional versus multidimensional adjectival senses

Adjectives, such as *tall* and *bald* are often called *dimensional* for their interpretation is tightly dependent on entities' values along a scalar dimension, e.g., height for *tall* and hair (or its absence thereof) for *bald*. While issues pertaining to the semantics of dimensional adjectives still form a popular topic of research, there well exist many other, even more complicated adjectives. The latter are called *multidimensional* (cf. Kamp 1975; Klein 1980), since they are associated with multiple dimensions. Typical examples of multidimensionality include adjectives like *similar*, *identical*, *typical*,

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normal, good, clever, talented, happy, beautiful and *healthy*. An adjective like *healthy*, for example, may be associated with many different dimensions simultaneously, such as blood pressure, pulse, fever, cholesterol, cancer, lung functions, etc. Conversely, an adjective like *long* falls short of being truly multidimensional despite its having both a temporal and a spatial dimension, as it is only associated with one of these dimensions in each context, never with both simultaneously. This situation can be described as follows. While *long* has two related, yet different senses, each of which is one-dimensional, *healthy* has several different senses (as in *healthy boy, healthy plant, and healthy food*), each of which is multidimensional. While words generally admit multiple senses, not all word senses admit multiple dimensions.

A noun like *bird* may have a biological sense and a metaphorical sense. I call the two *senses*, rather than *dimensions* (or *respects*), because they tend to apply to two non overlapping domains (one is either literally or metaphorically a bird, rarely both). Same with most other count nouns (one is either a committee chair or a furniture chair, not both). Yet, one and the same individual may easily be physically sick and sick at heart. These two properties can, then, be seen as different respects of the same sense. Same with many other adjectives (two entities may easily be *identical* or *similar* with respect to both color and size, or in every contextually relevant respect, and so on.) Moreover, unlike the senses of a noun, adjectival dimensions typically function as arguments. Since, normally, on each context of use, none but one sense is relevant, we do not tend to say things like *Bill is a bird in every sense except in the sense that...* or *the chair (except in the seat sense) is...* In contrast, when using a multidimensional adjective, it is but natural to explicitly refer to some of its dimensions, as in, for instance, *healthy with respect to (wrt) cholesterol and blood pressure, but not wrt lung functions*; likewise, it is perfectly natural to say things like *He is healthy in every respect except for high cholesterol* or *I am not sick, except at heart*.¹ When speakers use bare forms of adjectives (e.g., *healthy*) they presuppose that their addressees can select contextually relevant respects and use them to build a unified contextually appropriate interpretation.

Thus, on top of questions concerning the way adjectival semantics is affected by each scalar dimension, multidimensional adjectives pose difficult questions concerning the way a set of contextually relevant dimensions may be construed and the way information regarding different dimensions in such a set may be incorporated within context to create a single uniform interpretation for a given adjective. This paper dives into these mysterious issues, discussing some basic observations, based not only on intuitive judgments of native speakers, but also on a corpus study. This study forms no more than a preliminary stage in the research of the topic; it sheds light on some pieces

¹In fact, in the Corpus of American English (COCA, 2010), one finds no entries of the form “in every sense except” versus 9 entries of “in every respect except”, and searching Google, one finds an estimated number of 214,000 versus 1,510,000 counts, respectively, the ratio being 1/7. Similarly, one finds estimated numbers of 1,270 vs. 212,000 Google counts of “in most senses except” versus “in most respects except”, the ratio being 1/167, etc.

The 9 uses of “in every respect except” in COCA (2010), involve mainly adjectives, verbs and prepositional phrases of identity and similarity (*identical, of the common sort, like, fits the ideal*), the adjective *human* (except genetically), the verb *cease* (all matters of life routine except matters of the soul cease to exist upon closing off in a convent) and a +human noun (*wasn't an astronaut at all, in every respect except traveling in space*).

of the puzzle pertaining to what adjectives do and how they do that, for future research to reveal how these, as well as additional as yet missing pieces should be put together.

1.2 A new method to explore concepts and accommodation

Adjectives with multiple dimensions may have a ‘dimension’ argument, which can be either saturated as in (1a-b), or bound as in (1c-d). When the adjective occurs bare, as in (1e), the dimension argument is implicitly saturated or bound. Which binding operations can get implicitly accommodated? Are these operations quantificational or mean-based? How do speakers and listeners guess what gets accommodated when? Are the same options available also with nouns?

- (1) a. Dan is healthy with respect to blood pressure
- b. Sam is intelligent / good in mathematics
- c. Dan is healthy in every/ some respect
- d. Dan is generally healthy
- e. Dan is healthy

Extensively supported cognitive concept-theories (reviewed in Murphy, 2002; Lakoff, 1987) analyze nominal concepts as **mean-based**. Nominal concepts (those concepts underlying the semantics of count nouns like *bird*) are seen as associated with multiple dimensions (e.g., feathered, winged, small, flying, perching,...), such that an entity is classified under a concept iff (roughly) its mean degree in the dimensions (of the concept or of one of its exemplars) reaches the membership standard. Do multi-dimensional adjectives (like *healthy*, *normal*, *similar*, *typical*, etc.) resemble nouns?

Consider, for example, a context in which health is measured by the dimensions *blood pressure*, *pulse* and *sugar* (a measure of diabetics). Imagine that Dan has the maximal degree in two of these dimensions, but he is not within the norm in the third. Conversely, imagine that in all these dimensions, Sam's levels are within the normative range, but they are the lowest possible, so Dan's mean on the dimensions is higher than Sam's. Nonetheless, intuitively, in this scenario, Sam is healthy, but Dan is not, because Sam, but not Dan, reaches the norm in all the contextually relevant respects. Because of that, intuitively, Sam is healthier than Dan. This judgment suggests that we do not directly compare Sam's and Dan's means on the dimensions. Had we done that, we would have judged Dan to be healthier than Sam. Rather, we fix negative and positive denotations for healthy, based on dimension intersection. For the positive denotation, we select entities that reach the standard in all the dimensions. Only then (if at all), do we allow comparisons based on mean degrees, between denotation members (and between non-members).

These observations suggest that there exists a systematic semantic difference between paradigmatic count nouns and paradigmatic adjectives. While classification in nominal denotations is mean based (cf., (2a)), the situation is different in adjectives, as proposed in (2b-c).

- (2) Hypothesis 1: A typology based on strategies of dimension integration

- a. Nouns are **mean based**. An entity is classified under a count noun iff (roughly) its mean degree in the dimensions of the noun (or one of its exemplars) exceeds the membership standard (cf. Murphy, 2002).
- b. Adjectives like *healthy* are by default **conjunctive**. Entities are required to reach the standard in **all** the dimensions, even unimportant ones; e.g., when one is healthy in every respect except a slight cold, strictly speaking, one is *not healthy*.
- c. Adjectives like *sick* are by default **disjunctive**. Entities are required to reach the standard in but **one** dimension, e.g., intuitively, entities that satisfy one dimension of *sick* (measure of sickness) in a context are considered *sick*.
- d. Adjectives like *intelligent* are **indeterminate**. Pragmatics determines whether, e.g., being intelligent in but one dimension (say, mathematics) suffices to count as intelligent, or every contextually relevant intelligence measure must be considered.

How can we check the validity of hypotheses regarding dimension integration such as those in (2a-d)? The context-dependency of the adjectival dimensions makes it hard to experimentally support or refute such hypotheses. Consider, for instance, the conjunctive dimension-integration hypothesis in (2b). It is hardly possible to design a questionnaire or a classification procedure that will completely control subjects' dimension selection. But this is necessary in order to say whether subjects in fact treat all the dimensions they select for *healthy* as categorization criteria (as the proposal in (2b) predicts), or not (counter the proposal's prediction).

To overcome these difficulties, this paper makes use of a new corpus-based method. The method is based on the fact that exception phrases are compatible with universal (or quasi universal) quantifiers such as *every* and *no*, but not with existential ones, as the contrast in felicity between (3a,b) and (3c) illustrates.²

- (3) a. **Everyone** is happy **except** for Dan
- b. **No one** is happy **except** for Dan
- c. # **Someone** is happy **except** for Dan

Therefore, the use of exception phrases can reveal the force of the operations that bind the dimensions of a multidimensional adjective when occurring bare (as in *Dan is healthy*). In particular, if the dimensions of a bare adjective combine through a *conjunctive* strategy, i.e. via an implicit universal quantifier, then exception phrases are expected to associate with it, as illustrated in (4). In contrast, if the dimensions combine through a *disjunctive* strategy, i.e. via an existential quantifier, then exception phrases are expected not to associate with the bare adjective. These predictions are supported by intuitive judgments, as the felicity contrast in (5a,b) illustrates.

- (4) [[Dan is healthy **except** wrt blood pressure]]_c = 1 iff
 $\forall Q \in (\text{DIM}(\text{healthy},c) - \{(\text{healthy wrt blood pressure})\}): [[\text{Dan is } Q]]_c = 1$
s.t. DIM(P,c) is a set of predicates, P's dimensions in context c

²Note that (3c) is infelicitous, except in an alternative, "in addition to" interpretation, whereby someone is happy in addition to Dan. An interpretation whereby Dan is presumably not happy is unavailable here.

- (Dan is healthy wrt all dimensions except bp in context c)
- (5) a. Dan is healthy, except for high blood pressure
 b.#Dan is sick, except for blood pressure

Furthermore, negated universals are existential, and vice versa, as the equivalences in (6) illustrate.

- (6) a. *healthy* ⇔ healthy in every respect **iff**
not-healthy ⇔ “not-healthy” in *some* respect
 b. *sick* ⇔ sick in some respect **iff**
not-sick ⇔ sick in *no* respect

Hence, exception phrases are expected to combine with negated disjunctive adjectives (as illustrated in (7)), but not with conjunctive adjectives. Again, these predictions are supported by intuitive judgments, as the felicity contrast in (8a,b) illustrates.³

- (7) [[Dan is not sick **except** wrt blood pressure]]_c = 1 iff
 ¬∃Q ∈ (DIM(sick,c) – {(sick wrt) blood pressure }): [[Dan is Q]]_c=1 iff:
 ∀Q ∈ (DIM(sick,c) – {(sick wrt) blood pressure }): [[Dan is Q]]_c≠1
 (Dan is sick wrt no dimension except bp in context c)
- (8) a. Dan is not sick, except for high blood pressure
 b.#Dan is not healthy, except for normative blood pressure

We can, then, test quantitatively the predictions of the proposal that adjectival dimensions are integrated through Boolean operations (conjunction and disjunction, or equivalently – universal and existential quantification), rather than through mean operations (averaging), by searching for exception phrases and checking whether they can operate over the dimensions of adjectives.

An important key for the success of such a study lies in a careful control of other roles universal and existential quantifiers, as well as negation, might play in the interpretation of adjectives. The next section discusses the role of quantifiers in relation to the membership standard and polarity of different adjective types. Also, it is suggested that these factors reveal whether dimension integration is by default conjunctive or disjunctive; i.e. polarity and scale structure (standard type) function as cues for determining the force of the quantifiers we implicitly use to bind the dimensions of multidimensional adjectives.

³ Crucially, the distribution of exception phrases is restricted to ‘positive’ (upward entailing) contexts (von Stechow, 1993, 1994; Fox and Hackl 2006 and references within), meaning that, indeed, no exception phrases are expected to occur with conjunctive adjectives when negated, especially not in written corpora. Thus, the reading of “#*Dan is not healthy (in every respect) except bp*” whereby negation outscopes the implicit universal quantifier (as in “it is not the case that: Dan is healthy in all respects except bp”) is generally not available (except with a very special intonation). I am indebted to Danny Fox for these observations. Here are two rare examples of this sort (Coca 2010; notice that (iia) can only convey (iib) for, e.g., vomiting cannot be ‘healthy’).

- (i) It is fallacious to claim that the U.S. health care system is pretty good except that it costs more.
 (ii) a. ... the infant was not healthy except for the regurgitation or vomiting
 b. In addition to regurgitation or vomiting, the infant was not healthy also in other respects

1.3 Interactions between dimension integration, standard type and polarity

1.3.1 Adjectives and quantification

Importantly, also the interpretation of one-dimensional adjectives may be mediated by quantification (cf. Yoon 1996; Winter and Rothstein 2005; Kennedy and McNally 2005). For example, the interpretation of *total* adjectives like *closed*, *empty*, *full* and *invisible* (adjectives whose standard of membership is the maximum on their scale) involves no quantification over dimensions, yet it is often analyzed as involving universal quantification over degrees or parts of individuals; e.g., for Kennedy and McNally (2005), *invisible* holds true of an individual *x* iff *for every* degree *r*, *x* is *invisible* to at least degree *r* (so only maximally invisible entities are in fact *invisible*). In contrast, the interpretation of *partial* adjectives like *open* and *visible* (adjectives whose standard of membership is the minimum on their scale) is assumed to involve existential quantification over degrees or parts of individuals; e.g., for Kennedy and McNally (2005), *visible* holds true of an individual *x* iff *for some* degree *r* other than zero, *x* is *visible* to at least degree *r* (so even minimally visible entities are *visible*). For Yoon (1996), these one-dimensional scales reflect the relative part or quantity of parts of a plural individual that fall under an adjective, e.g., the relative part of an individual that is visible or invisible; the quantity of empty chairs in a room; the relative part of one's head that is covered by hair, etc.

Notice that the total/partial distinction is different from the conjunctive/disjunctive distinction. The former applies for each dimension separately, whereas the latter is rather about the way judgments of membership in all the dimensions together determine membership in the adjective. Yet, both distinctions seem to uniquely apply to gradable adjectives, discerning them from, for instance, typical count nouns. In addition, both determine a typological classification of adjectives based on the default force of a quantifier mediating their interpretation.

Quantifiers over degrees determine whether an adjective is total or partial. These quantifiers can be marked explicitly, as in, for instance, *completely empty/full*, *entirely bald*, *partially visible* and *slightly open*, which contrast with infelicitous and/or less frequent combinations such as *?completely open/visible*, *?partially full* and *?slightly invisible*. We also find naturally occurring examples of exception phrases operating over the universal quantifier over degrees or parts of individuals in total adjectives and negated partial adjectives (COCA 2010). Few of the abundant examples of the former, with the total adjectives *empty*, *bald*, and *closed*, are found in (9); no equivalent examples with the partial antonyms *open* and *hairly* are found in the corpus.

- (9)
- a. Entirely bald **except** for a fringe of grey hair.
 - b. Malcolm sat in a tiny room, empty **except** for his chair.
 - c. The church parking lot is empty **except** for the cars in the spaces marked "Seniors Only."
 - d. Kobe's port, which handles more than 12 percent of Japan's exports -- closed **except** for emergency use.
 - e. The ocean salmon fishery is closed **except** for the Elk River

Likewise, considering *invisible* and *visible*, we see that none of the examples of *invisible except* in COCA up to date (20/07/2010) is negated (cf. (10)). In sharp contrast, all the counts of *visible except* (cf. (11)) are negated or admit some negative-polarity operator.

- (10) a. he was below again, invisible except for roiling water and an explosion of bubbles.
- b. silent rain, invisible except for brief appearances against dark backgrounds.
- c. tall, dressed in black, invisible except for his hands and face
- d. holding a large picture in place, invisible except for dust and the faint, silvery outline
- e. its blackness made it invisible except for the dimples of its feet.
- f. The criado, invisible except for his eyes
- g. The webbing was clear and invisible except where leaves or dirt had become attached
- (11) a. the elevator rides **wasn't** usually visible except for the bright strobe lights that warned fliers away
- b. **Nothing** of the spook's face was visible except a bristly bearded mouth that growled, "Welcome to Heaven's Footstool.
- c. **few** things are visible except the Sun, Moon, Jupiter, and Venus.
- d. So smeared with blood that the corpse inside **isn't** visible except for its massive bulk.
- e. **no** nearby motion was visible except our signing.
- f. with **no** skin visible except their eyes
- g. the underside of the roof is **no longer** visible except for a one- or two-inch strip at the roof peak.

These data are in accordance with *invisible* and *visible* being maximum- and minimum-standard adjectives, respectively. But these data are also suggestive of a stronger generalization, namely that any implicit aspects of interpretation of *invisible* (degrees, parts, times, locations, etc.) tend to be mediated by (implicit) universal quantification, whereas any implicit aspects of interpretation of *visible* tend to be mediated by existential quantification. According to this hypothesis, accommodation of implicit quantifiers is guided by a default strategy whereby their force is fixed to a default value depending on the given adjectival sense and regardless of the type of entities they quantify over (whether they bind degrees, parts, dimensions or entities of any other domain).

This hypothesis is supported by the fact that different authors claim for different roles of the universal and existential quantifiers in the interpretation of absolute adjectives. For example, Yoon (1996) claims for universal and existential interpretations of absolute adjectives in plural forms and donkey sentences; e.g., according to Yoon, the toys of small children in a nursery can be considered *dirty* even if some of the toys are dirty but not all of them, but they can be considered *clean* only if all the toys are clean. Also, Yoon argues that in order to accept a sentence such as *Most boys who had a baseball card in their pockets soiled it while playing in the mud*, it is sufficient that most

of the boys have each at least one card that got soiled while they played. However, in order to accept that *Most boys who had a baseball card in their pockets kept it clean*, the boys must have kept all their cards clean while playing. Then again, Rossdeutcher and Kamp (1994), whose original classification is a basis for Yoon's work, claim that in order for a man to be healthy, all his body parts should be healthy, while it is enough that one organ is sick in order for the man to be sick. Similarly, for Cruse (1980), for instance, a clean knife is a knife that is free of dirt, while a dirty knife is not necessarily a knife that is free of cleanliness. These examples relate to quantification over parts of an individual in the singular denotation of an absolute adjective. Finally, Winter and Rothstein (2005) as well as Kennedy and McNally (2005), speak about universal and existential quantifiers over degrees, relating to the extent to which the property denoted by an adjective applies to an individual.

We see, then, that one and the same default quantifier force plays many apparently different roles in the interpretation of each absolute adjective, relating to quantification over either a set of denotation members, or a set of parts of a denotation member, or a set of extents to which a denotation member exhibits the given property, or even a set of dimensions or respects (factors into which the gradable property can be broken, so to speak).⁴

1.3.2 Scale structure (standard type) as an indicator of dimension-integration strategy

Given this general observation, the experiment reported in this paper aims to empirically support the hypothesis that an adjective's default scale structure and default dimension-integration strategy are systematically connected. This putative connection may be due to more than a mere coincidence. If the standard type of an adjective is determined once and for all (rather than for each dimension separately), it may affect or be affected by the choice of dimension-integration strategy in the following systematic ways.

(12) Hypothesis 2: Dimension integration – Predictive factors

- a. A is total/ relative \Leftrightarrow A is conjunctive
- b. A is partial/ relative \Leftrightarrow A is disjunctive
- c. A is conjunctive \Leftrightarrow A's antonym is disjunctive

Why? Consider, for instance, *healthy* and *sick*. Assume that to count as healthy, one must be maximally healthy. Therefore, to count as healthy, one must be maximally

⁴In fact, none of the other examples with *invisible* (where quantification is over times, places, etc. rather than over parts or degrees) is negated, yet **all** other examples with *invisible* are negated:

- (i) a. When the sun is high in the sky, rain-caused rainbows are invisible except when you're at a high vantage point, such as a mountain
 - b. ...invisible except from where we'd first spotted him.
 - c. Their small sizes make most of them invisible except during a total eclipse
 - d. held in place by a filigree net, invisible except when the sunlight caught it.
 - e. indeed almost invisible except to devotees
- (ii) a. The bookshelves are **no longer** visible except when the sun shines through the fat.
 - b. far **too small to** be visible except by sophisticated measurements of atomic forces
 - c. green snakes are **not** visible except in the middle of the day
 - d. **No** men are visible except the scurrying man

healthy in **all** of the contextually relevant dimensions. In contrast, assume that to count as sick, one must be minimally (somewhat) sick. Therefore, to count as sick, it suffices for one to be sick in **but one** dimension. Perhaps, then, the force of quantification over dimensions is directly derived from the standard type. According to this hypothesis, in adjectives whose standard is context relative (like, for instance, *intelligent*) the strategy of dimension integration may also be context relative (semantically undetermined).

The choice of a standard may be similarly constrained by the choice of dimension integration strategy. If to count as healthy, one must be healthy in every respect (in all the dimensions), this eliminates the possibility that being somewhat healthy suffices to count as healthy. The standard of membership of *healthy* can only be either the maximum on the health scale, or perhaps some context-relative value that is high enough, so that to reach it one must be at least somewhat healthy in each and every one of the contextually relevant health dimensions. Thus, if *healthy* is interpreted conjunctively, it can only be classified as a total or relative adjective. In contrast, if to count as sick, one must count as sick in but one dimension, this eliminates the possibility that one must be maximally sick. Hence, the standard of membership of *sick* can only be either the minimum value on the sickness scale, or perhaps some context-relative value that is low enough, so that to reach it, it suffices for one to be sick in but one of the contextually relevant sickness dimensions. So, if *sick* is interpreted disjunctively, it can only be classified as a partial or relative adjective.

The advantage of this hypothesis is that it is economic. Only a standard type, or alternatively only a dimension integration strategy, has to be specified for each adjectival sense. Also, in terms of acquisition, one cue would suffice for the acquisition of both.⁵

1.3.3 Antonym polarity as an indicator of dimension-integration strategy

An additional advantage of this hypothesis relates to inferences from adjectives to their antonyms. Normally (although not always) the standard type of an adjective systematically constrains the standard type of its antonym (and vice versa); e.g. while adjectives like *healthy* and *invisible*, denote their scale's maximum, their antonyms, *sick* and *visible*, denote their scale's minimum. Antonymy is not a completely reliable cue for scale structure; *full* and *empty* are obvious counterexamples. Still, antonymy may also serve as a cue for the selection between dimension integration strategies. If to count as healthy one has to be (maximally/much) healthy in every dimension *and* sick is the antonym of healthy, then to count as sick one should count as not-healthy (not maximally/much healthy) in at least one dimension. Similarly, if to count as *familiar* it suffices that an object be (minimally/much) familiar in but one respect, then to count as *unfamiliar* an object should count as not (at all/much) familiar in each and every respect.

⁵This hypothesis is consistent with a radical-pragmatic view, according to which the structure of sentences with conjunctive and disjunctive adjectives need not be mediated by a quantifying expression (I thank Francois Recanati for this observation). Rather, these adjectives are construed as one dimensional; their standard type is responsible for the fact that their dimensions (or the factors into which their scales can be broken) are seen as universally/existentially bound. If so, then quantifiers are only accommodated when necessary, e.g. in the presence of exception phrases.

This is the minimal requirement; relaxing it would amount to allowing an overlap between the denotations of the two antonyms.

In particular, the syntactic negation theory of antonymy (cf. Heim 2006, 2008; Buring, 2008) states that instead of being specified in the lexicon, antonyms are formed by a predicate negation operator *little*, hidden in the logical form of words such as *short*. In other words, negative antonyms are negations of their positive counterparts. Such a theory appears to predict that the quantifier force will systematically vary in antonym pairs, because it should be affected by compositional processes (namely, by the negation operator accompanying negative antonyms); e.g., if *healthy* is equivalent to $\lambda x. \forall Q \in \text{DIM}(\text{healthy}), \text{healthy-wrt}(x, Q)$, *sick* should be equivalent to $\lambda x. \neg \forall Q \in \text{DIM}(\text{healthy}): \text{healthy-wrt}(x, Q)$ which reduces to $\lambda x. \exists Q \in \text{DIM}(\text{healthy}): \neg \text{healthy-wrt}(x, Q)$.

Last but not least, if compositionality plays a systematic role, we may expect that the dimensions of comparative adjectives be integrated via the default operation of the adjectives they derive from. This needs to be the case, for the comparative morpheme ‘er’ can only handle one dimension at a time; thus, e.g. we may expect that by default *healthier* be interpreted as conveying “healthier in every respect” ($\lambda x. \forall Q \in \text{DIM}(\text{healthy}): \text{er}[\text{healthy-wrt}(x, Q)]$).

A study of dimension integration strategies based on the use of exception phrases may shed light on whether scale structure and/or polarity systematically constrain the selection of a dimension-integration strategy in antonym pairs.

2. An experimental study of accommodation

While the use of a linguistic corpus is generally superior to the use of, for instance, Google and the internet, the low frequency of exception phrases turns this generalization around. Section 2.1 presents a preparatory study illustrating the usage of exception phrases in a linguistic corpus and their usage in the internet; given the similarity between the two, section 2.2 presents a systematic Google-based study of exception phrases naturally occurring in the internet.

2.1 A preparatory study

2.1.1. Method

The material for the pilot study consists of two samples. The former includes the naturally occurring uses of *except* with 10 adjectives (5 antonym pairs) in the corpus of contemporary American English (COCA, 2010). The latter, based on the internet, includes the first set of Google counts (about 70) for each of 8 adjectives of 4 antonym pairs (Sassoon 2007). Putting all the items searched in double quotes (as in: "healthy except") was necessary to reduce much irrelevant data, although it excludes all other word orders. Coca 2010 is the largest balanced corpus of American English, with more than 400 million words of text, equally divided among spoken, fiction, popular magazines, newspapers, and academic texts. However, as mentioned already, the data in linguistic corpora is limited. This limitation is particularly problematic for the present study due to the low frequency of negated adjectival forms, as well as exception phrases

(especially within negated forms) in linguistic corpora. Despite the large amount of possible artifacts, Lapata and Keller (2005) illustrate the usefulness of the internet and Google in a variety of case studies, showing that Google-based counts correlate with frequencies obtained from a carefully edited, balanced corpus such as the BNC and reliably predict speakers' judgments. Furthermore, the present study involves a careful examination of a set of entries, one by one. Repeated entries or entries by non-native speakers (with clearly identified non-native English mistakes) could therefore be tracked and excluded from the sample; thus, two of the main problems pertaining to the use of Google and the internet are surpassed.

The procedure consisted of selecting those examples of the given samples in which the adjective occurs bare and an implicit quantifier over dimensions is accommodated ('dimension set readings' from now on). This selection process involves subtle decisions, because universal quantification can sneak into the interpretation, so to speak, through many different sources. Uses in which *except* does not operate on the adjective's dimensions ('non dimension-set readings') are illustrated in (13).

- (13) Quantification over entities, events, cases, time points, degrees, parts, etc.:
- a. Everyone's been sick (except me--ha!) ...
 - b. Never been sick (except a cold last year)
 - c. My hair is healthy except for the front part.
 - d. Healthy except when/ except by/ except through the lens of/except if...

Only quantifiers over dimensions should count as evidence for the simultaneous relevance of multiple dimensions and the different dimension-integration strategies in (2) (conjunctive, disjunctive, and intermediate); hence, relevant counts include only examples of the form "adjective except a dimension", as in, e.g. *Dan is healthy, except for high blood pressure*.

Furthermore, uses of exception phrases operating over dimensions whereby a (quasi) universal expression explicitly occurs are also irrelevant, e.g., in (14a) we find the expression *everything* which suffices to license an *except* phrase. Thus, we cannot use this example as evidence to the view that *healthy* triggers accommodation of an implicit universal. Similar examples of 'non dimension-set readings' include quantifiers like *nothing*, as well as adverbs like *perfectly*, *totally*, *completely*, *absolutely*, *otherwise*, *never*, *all in all*, *generally* and *most*, as illustrated in (14b-f);

- (14) a. **Everything** normal except for high bp
 b. **Nothing/ Little** abnormal except for high bp
 c. **The tests** appeared normal except for high bp
 d. **Totally/ Completely/ Absolutely** healthy except for failing eyesight
 e. **Otherwise/ All in all** healthy except for failing eyesight
 f. **Most** vegetarians I know never seem to look very healthy, except for the few that regularly take many vitamin ...

Example (14e) includes the expression *otherwise*, which is either universally quantifying on its own right, or triggers the accommodation of a universal; in fact, the interpretation of (14e) is equivalent to "healthy in every other respect except failing eyesight". The

plural in (14c) may also suffice to license an exception phrase. Examples like this have been selected only if it was possible to determine based on previous linguistic context that each one of the tests in questions includes a variety of parameters, such that, e.g., blood pressure is but one of these parameters.

I have accepted uses preceded by *very, pretty, quite, super, clearly, really, distinctly, so, that, that much, too, apparently, previously* and *basically*. Notice however, that when an explicit quantifier does not interact with the exception phrase, the example can count as evidence for implicit quantification over dimensions, as in, for instance *He had always been healthy except for an irregular heartbeat* (meaning, roughly, “for any time t, he was healthy in t in every respect except heartbeat).

Finally, on other irrelevant examples, *except* functions merely as a marker of contrast or of mitigation at the clause level, as in (15), or else it simply relates to a subsequent or preceding clause, not to the adjective preceding it, as in (16a,b).

(15) Contrast /Mitigation:

- a. I was off sick, **except** I was only half sick; the rest was tiredness
- b. All sugars are not healthy **except** in moderation
- c. This **would** be fine, **if** it were not for the fact that ...

(16) A new clause:

- a. ...would never know I was sick. **Except** for being bald, I look **great**...
- b. **Nothing** interesting ever happens when you're sick, **except** the occasional...

Example (15a) clearly has a mitigation interpretation; same with example (15b) (meaning roughly “all sugars are not healthy in big quantities but are perhaps fine in small quantities”), so I classify (15b) as a non dimensional reading. Example (15c) has a counterfactual interpretation (the situation could be fine, but is actually not); again this is not a dimensional reading, etc. On (16b), *except* relates to *nothing interesting* rather than to *sick*.

I accepted adjectives followed by either a copula or verbs like *look, remain, appears, acts* or *feel* (17a), and also adjectives in attributive use (17b).

- (17) a. But like you, I find it annoying being labeled on caloric intake alone - I look healthy and feel healthy (except for being hungry, which is a drag). ...
- b. In this population of community-dwelling, healthy (except for osteoporosis) postmenopausal women, IGF-I levels were significantly reduced in osteoporotic

Based on all these criteria, a table was compiled for every adjective in the sample, dividing the counts of exception phrases to the categories ‘dimension set readings’ (“P except DIM”) and ‘non dimension-set readings’ (‘P ELSE’). Finally, I have counted the number of examples with a negated versus non-negated adjective. The table of uses of *healthy* and *sick* naturally occurring in COCA is presented by way of illustration. In examples of dimension set readings (‘P EXCEPT DIM’), expressions relating to dimensions are written with capital letters. In other examples (‘P ELSE’), quantifying expressions (or explicit triggers of quantifier accommodation) are written with capital

letters. Tables with uses of *except* with all other adjectives in the sample are found in appendix 1, except those for which no such uses exist in COCA up to July 2010.

Table 1A: The counts for “*healthy except*” and “*sick except*”, COCA 2010

	P EXCEPT DIM	P ELSE (explicit quantification)	NEG P EXCEPT DIM
	The brilliant young judge, <u>healthy except</u> for his HEART, had first been	He looks PERFECTLY <u>healthy except</u> for a CAST on both his leg and hand.	Jimmy wasn't <u>sick</u> <u>except</u> at HEART.
	Now 91, he is <u>healthy except</u> for FAILING EYESIGHT	Susie is a ten-month-old baby, PERFECTLY healthy except that she has a CONGENITAL ABNORMALITY OF HER FOOT, commonly known as clubfoot	
Healthy	2	2	0
Sick	0	0	1

My predictions concerning the number of dimension-set uses are as follows. In conjunctive adjectives, relatively few dimension-set uses will occur when the adjective is negated (18a). Conversely, in disjunctive adjectives, relatively few dimension-set uses will occur when the adjective is non-negated (18b).

- (18) a. **Conj. Adj.** >> **Negated Conj. Adj.**
 (Dan is healthy except for bp) (Dan is **not** healthy except for bp)
- b. **Negated Disj. Adj.** >> **Disj. Adj.**
 (Dan is **not** sick except for bp) (Dan is sick except for bp)

2.1.2 Results

As predicted (cf. table 1B), about **half** of the uses of *except* with the conjunctive adjectives *healthy*, *similar*, *identical* and *normal* (45 out of 87) involve implicit quantification over dimensions. Importantly, **none** of the dimension-set uses **is negated**. Nor is any of the cases of explicit quantification over dimensions negated. In contrast, and again, as predicted, the single example of implicit quantification over dimensions with the disjunctive antonyms *sick*, *abnormal*, *different* and *dissimilar* is **negated**, and so are all of the 4 cases of explicit quantification over dimensions. The whole set of data is presented in table 1B in appendix 1.

Table 1B: Types of uses of *except* with 10 adjectives, COCA 2010

	Dimension-set uses		Total
	P	Neg P	
<i>Healthy</i>	2	0	4
<i>Similar</i>	6	0	12
<i>Normal</i>	8	0	19
<i>Identical</i>	29	0	52
<i>Typical</i>	0	0	0
All the conjunctives:	45	0	87

<i>Sick</i>	0	1	1
<i>Dissimilar</i>	0	0	0
<i>Abnormal</i>	0	0	0
<i>Different</i>	0	0	5
<i>Atypical</i>	0	0	0
All the disjunctives:	0/1	1/5	6

However, the absence of negated dimension-set readings with conjunctive adjectives may merely reflect the low frequency of negated forms compared to non-negated forms in natural use, casting doubt on the validity of any possible conclusions. It is well known that negated forms are less frequent than non-negated ones; this fact may well be the cause for the absence of exception phrases (including ones with dimension set readings) with negated conjunctive adjectives (rather than their dimension integration strategy).

Considering the Google counts, without searching separately for negated forms one finds the same basic pattern (cf. table 1C). As predicted, **most** (75%) of the dimension-set uses with the disjunctive adjectives *sick*, *atypical*, *different* and *abnormal* **are negated** (despite the low frequency of negated forms). Conversely, except for one, **none** of the dimension-set uses of *except* with the conjunctive antonyms *healthy*, *typical*, *identical* and *normal* **is negated**.

Table 1C: Types of uses of *except* with 8 adjectives, GOOGLE 2007

	Dimension-set uses		Total
	P	Neg P	
<i>Healthy</i>	46	0	70
<i>Typical</i>	31	1	63
<i>Normal</i>	46	0	78
<i>Identical</i>	60	0	74
All the conjunctives:	183	1	285
<i>Sick</i>	1	7	70
<i>Atypical</i>	8	16	63
<i>Abnormal</i>	2	2	78
<i>Different</i>	3	17	74
All the disjunctives:	14	42	285

All in all, the Google counts resemble the COCA counts (which is good), but we also encounter the same problem again (which is, naturally, not so good). Few counts for each adjective, if any at all, are negated. Thus, the absence of dimension-set readings with negated conjunctive adjectives may merely reflect the low frequency of negated forms compared to non-negated forms in natural use, casting doubt on the validity of any conclusions. To cope with this situation, more negated forms preceding exception phrases need to be examined. Since too few negated forms can be found in COCA, we are forced into using Google. Hence, the study the next section reports of is designed to improve upon its predecessors not only in the number of predicates and search-results studied, but also in controlling for frequency, by separately Google searching for negated forms, like, e.g., *not healthy except*, and evaluating the proportion of dimension-set readings within a set of negated forms, versus their proportion within a set of non-

negated forms. Finally, in addition to testing hypothesis 1 (regarding different dimension integration strategies), this study tests hypothesis 2 as well (i.e. how reliable negative antonymy and standard-type are as cues for the type of dimension integration strategy).

2.2 A study of accommodation in adjectives and their negation

2.2.1 Method

The material consists of more than 1800 naturally occurring examples of uses of exception phrases preceding a predicate, including:

- The first 100 Google-search results for the noun probes “*bird except*”, “*table except*” and “*mother except*”, as well as 34 Google-search results for each of two additional noun probes with *capital* and *carrot* (mean = 74; in total 368);
- The first more or less 60 Google-search results for each of 18 probes of the form “Adjective except” with a sample of 18 adjectives; also, due to the low frequency of negated forms (such as *not healthy*) in comparison to non-negated forms (e.g., *healthy*) in natural use, when necessary, additional more or less 20 Google-search results were added based on probes of several negated forms, such as “not adjective except”, “wasn’t adjective except” and “isn’t adjective except”; the results of these searches add up to a total of 883 positive counts (mean = 49) and 561 negative counts (mean = 31). All in all 1444 adjectival examples (mean = 80).

The sample of predicates can be divided by category (adjective vs. noun), antonym polarity (positive vs. negative antonyms) and scale structure (partial or relative standard vs. total or relative standard; more details on these divisions come later on in the paper).

The procedure consists of classification of the counts into 4 categories of usage of exception phrases in the following way. First, the counts are classified as either dimension-set readings or not, according to the criteria established in the previous studies (cf. 2.1).⁶ Second, the counts are classified as either *negative* or *positive* depending on whether the adjective does or does not occur in a negative context. In positive contexts, a count of the form “P except DIM” is interpreted as roughly equivalent to λx . for every Q except DIM, x is Q, but x is **not DIM**, whereas in negative

⁶Briefly, uses of exception phrases in which *except* does not operate on the adjective’s dimensions (but rather on a set of entities, events, cases, time points, degrees, parts, etc.) are ignored (classified as ‘non dimension set readings), as in, e.g. *Everyone’s been sick (except me--ha!)*. Furthermore, uses of exception phrases with an explicit occurrence of a (quasi) universal expression are ignored, like *everything*, *nothing*, *little*, *most*, *mostly*, *much*, *totally*, *completely*, *absolutely*, *otherwise*, *never*, and *all in all*, as in e.g. *Nothing abnormal except for high bp*. An expression like *nothing* suffices to license an *except* phrase. Thus, we cannot use this example as evidence to the view that *healthy* triggers accommodation of an implicit quantifier. Only when no explicit quantifier interacts with the exception phrase, the example counts as a dimension set reading. I have accepted as dimension-set readings counts preceded by *very*, *pretty*, *quite*, *super*, *clearly*, *really*, *distinctly*, *so*, *that*, *that much*, *too*, *apparently*, *previously* and *basically*, as well as adjectives in attributive use or in the scope of verbs like *look*, *remain*, *appears*, *acts* or *feel*. Finally, I ignored examples whereby *except* marks contrast or mitigation at the clause level (e.g. *I was off sick, except I was only half sick; the rest was tiredness*), or is related to a different clause, not to the adjective preceding it (e.g. *...would never know I was sick. Except for being bald, I look great*).

(downward entailing⁷) contexts it is interpreted as roughly equivalent to λx .for every Q except DIM, x is **not Q**, but x is **DIM**. Thus, in “Dan is healthy except for high cholestrol”, the adjective *healthy* is not in the scope of negation or a negative (downward entailing) expression like *hardly* (henceforth, a positive context). It can combine with an exception phrase in that context to convey “**not healthy wrt cholestrol but healthy otherwise**”. in contrast, in “Dan is not sick except for high cholestrol”, the adjective *sick* occurs under negation (a negative context) and it can combine with an exception phrase in that context to convey “**sick wrt cholestrol but not sick otherwise**”. This classification criterion is further illustrated in (19)-(20). Thus, for instance:

- (19) a. Examples such as ...*near normal except Dim* count as positive (‘non-negated contexts’) because they are interpreted as “(near) **normal** in everything and **not normal** in Dim”. In contrast:
 b. Examples such as ...*hardly normal except Dim* count as negative (‘negated/ downward entailing contexts’) because they are interpreted as “(almost) **not normal** in everything and **normal** in Dim”.

Likewise, double negation counts as positive, as it conveys the interpretation “adjective except dim”, e.g., (20a) conveys that everything the speaker eats is *healthy*, *except* maybe beer. Conversely, (20b) conveys roughly *not sick except for blood in poop* and hence counts as a negative dimension set reading (“not adjective except dim”).

- (20) a. There's nothing I eat that's *not healthy*, *except* maybe beer, but to be fair I don't bring that to work with me!
 b. My dog does not seem to be showing signs of being sick except for blood in his poop

For similar reasons, forms like *nothing normal*, *never healthy*, *no different* and *hardly similar* count as negative, while *almost normal* counts as positive. Finally, when negation affects a different clause, rather than the target adjective (as in e.g. *Nothing interesting ever happens when you're sick, except...*) the example counts as positive.

In this way, a table was compiled for every adjective in the sample, with counts of the following 4 categories of usage of exception phrases:

- (21) a. Dimension set uses in positive (neither negated nor otherwise downward entailing) contexts (e.g., examples of the form *P except Dim*)
 b. Other uses in positive contexts (e.g., *P except John/ yesterday*, etc.)
 c. Dimension set uses in negative (negated or downward entailing) contexts (examples of the form *not P except Dim*)
 d. Other uses in negative contexts (e.g., *not P except John/ yesterday*, etc.)

⁷A downward entailing context C reverses the direction of entailment (for any A and B s.t. A entails B but not vice versa, C(B) entails C(A), but not vice versa), e.g., *red* asymmetrically entails *colored*, but it is *not colored* that asymmetrically entails *not red*, same with *hardly colored* vs. *hardly red*, and so on.

By way of illustration, the entire tables for the adjectives *healthy* and *sick* (tables 5A,B) are presented in appendix 2.⁸

These tables served to calculate two important indices, a *conjunctivity index* – the percentage of positive (non-negated) counts with dimension set readings for each adjective, i.e. $|(21a)|/|(21a+b)|$ (the proportion of positive dimension-set uses out of all positive uses with a given adjective) and a *disjunctivity index* – the percentage of negative counts with dimension set readings for each adjective, i.e. $|(21c)|/|(21c+d)|$ (the proportion of negative dimension-set uses out of all negative uses with that adjective).

2.2.2 Predictions

The predictions of hypothesis 1 are that dimension set readings will characterize exception phrases modifying adjectives, but not nouns, and that adjectives will classify into the three-way typology summarized in (2b-d) above. According to this typology, an *except*-phrase should more easily lend itself to an interpretation in which it operates on the dimension-set, in some adjectives (conjunctive ones, as in (22a)) than in others (disjunctive ones, cf. (22b)). In the latter, this requires the accommodation of a non-default universal quantifier (as in *sick in every respect*).

- (22) a. I am a 64-year-old man, quite **healthy except** for high blood pressure
 (= Dan is healthy wrt **everything** except blood pressure)
 b. # ..., quite **sick except** for (normative) blood pressure
 (= #Dan is sick wrt **something** except blood pressure)
 c. They do **not appear to be sick, except** for the diarrhea
 (= Dan is sick wrt **nothing** except blood pressure)
 d. #They are not healthy, **except** for (normal) cholesterol
 (= #Dan is not-healthy wrt **something** except blood pressure)

Yet, on this proposal, a *negated* disjunctive adjective like *not sick* should denote the entities that fall under *no* 'sick' dimension, so it is predicted that under negation 'except' *should* operate on the dimension-set, as in (22c). Conversely, a negated conjunctive adjective is disjunctive, so *except* should be less likely to access and operate on the dimensions in this case, as illustrated in (22d).

To recap, for conjunctive adjectives like *healthy* we predict that the frequency of a positive dimension set use will be significantly larger than the frequency of a negative

⁸These tables contain more examples than were initially taken into consideration in the statistical evaluation, but the statistical ratios are preserved even when taking these examples into account. For example, the conjunctivity values of *healthy and sick* according to table 2 are 53.7% and 2.44%, respectively, versus 56.5% and 1.47%, respectively according to table 5. Given that the two tables were compiled separately, the similar results suggest that the classification of counts into the 4 categories (positive vs. negative use and dimension set use vs. non-dimension set use) is reliable.

The disjunctivity values of *healthy and sick* according to table 2 are 11.11% and 26.32%, respectively, versus 10.71% and 41.18%, respectively, according to table 5. Thus, the disjunctivity value of *sick* significantly diverges between the tables. A larger proportion of negative contexts were considered for table 5. The many more negative counts considered included more dimension set readings for *sick*, but crucially not for *healthy*, in line with our predictions. This suggests that further enrichment of the material for this study with negative contexts is likely to strengthen the results pertaining to the disjunctive adjective, but crucially, not to affect the results pertaining to the conjunctive adjective.

(negated/ downward entailing) dimension set use, as stated in (23a). For disjunctive adjectives, we predict the opposite, as stated in (23b). Based on the disjunctive results in the study reported in 2.1, I expect ‘significantly larger’ to be 3 times as large or larger.

- (23) a. Conjunctive adjectives: $| (21a) / (21a+b) | \gg | (21c) / (21c+d) |$.
 b. Disjunctive adjectives: $| (21a) / (21a+b) | \gg | (21c) / (21c+d) |$.
 c. Intermediate adjectives: $| (21a) / (21a+b) | \cong | (21c) / (21c+d) | \gg 0$.
 d. Nouns: $| (21a) | \cong | (21c) | \cong 0$

Finally, for nouns we predict no dimension set readings to occur with exception phrases as stated in (23d) (cf. the infelicity of both (24a) and (24b)), while for intermediate adjectives, like *intelligent*, we expect that dimensions set readings will be licensed and be equally likely in negative and positive contexts, as stated in (23c) (cf. the felicity of both (24c) and (24d)).⁹

- (24) a. #Tweety is a bird, except with respect to flying / except for her size
 b. #Tweety is not a bird, except with respect to flying / except for her size
 c. Sam is intelligent, except in mathematics
 d. Sam is not intelligent, except in mathematics

The two predictions of hypothesis 2 in (12), pertaining to predictive factors or cues for deciding about a dimension integration strategy in each adjective, are as follows:

- (25) a. Antonyms differ with respect to the default force of the quantifier binding their dimensions (e.g. if P is conjunctive P’s antonym is disjunctive).
 b. Total/relative adjectives generally receive conjunctive interpretations, while partial/relative adjectives generally receive disjunctive interpretations.
 c. Predominantly relative adjectives are intermediate, i.e. their classification as conjunctive or disjunctive is completely unbiased and context dependent. It is expected, therefore, to be relatively balanced.

2.3 Results

2.3.1 Hypothesis 1: A predicate taxonomy by type of dimension-integration strategy

The predictions are generally borne out. First, none of the 368 exception phrases examined with the nouns (*bird, table, mother, carrot, capital*) operate on dimensions, whether the noun occurs negated or not. Thus, the prediction of (2a) stated in (23d) is borne out (null conjunctivity and disjunctivity values: $| (21a) | \cong | (21c) | \cong 0$), supporting a mean-based dimension-integration hypothesis for nouns (cf. Murphy 2002).

Second, while **no** dimension-set uses are found with the count nouns, as shown in Table 2 hundreds of such uses are found with the examined adjectives (550 in total). In addition, dimension set uses are found with all the examined adjectives (mean 30.5, std

⁹ Dimensions of yet other adjectives might in principle be bound by quantifiers such as *many* (*beautiful* and *tasty*, perhaps?), thereby exception phrases would be bad in both positive and negated contexts, but, precisely for this reason, I wouldn’t know how to test this hypothesis.

20, and median 23.5). These data are explained iff an option to combine via quantifiers, not averaging, is available, and perhaps even preferable, for adjectival dimensions.

Table 2: Summary of the basic data

CONJUNCTIVES	P Except Dim	P except	Neg P Except Dim	Neg P Except	Total Dim	Total	Dim/Total
<i>Normal</i>	46	67	3	30	49	97	0.51
<i>Healthy</i>	36	67	3	27	39	94	0.41
<i>Typical</i>	31	57	4	45	35	102	0.34
<i>Familiar</i>	28	62	3	32	31	94	0.33
<i>Healthier</i>	21	60	1	11	22	71	0.31
Mean	32.40	62.60	2.80	29.00	35.20	91.60	0.38
DISJUNCTIVES	P Except Dim	P except	Neg P Except Dim	Neg P Except	Total Dim	Total	Dim/Total
<i>Bad</i>	1	30	22	40	23	70	0.33
<i>Sick</i>	1	41	5	19	6	60	0.10
<i>Atypical</i>	7	36	15	22	22	58	0.38
<i>Abnormal</i>	2	34	13	66	15	100	0.15
<i>Different</i>	5	38	18	45	23	83	0.28
Mean	3.20	35.80	14.60	38.40	17.80	74.20	0.25
MIXED	P Except Dim	P except	Neg P Except Dim	Neg P Except	Total Dim	Total	Dim/Total
<i>Unfamiliar</i>	13	88	4	15	17	103	0.17
<i>Worse</i>	7	35	11	34	18	69	0.26
<i>Dissimilar</i>	22	38	35	42	57	80	0.71
<i>Intelligent</i>	48	60	14	21	62	81	0.77
<i>Better</i>	13	35	11	27	24	62	0.39
<i>Good</i>	11	44	4	16	15	60	0.25
<i>Similar</i>	5	21	5	24	10	45	0.22
<i>Identical</i>	60	70	22	45	82	115	0.71
Mean	22.38	48.88	13.25	28.00	35.63	76.88	0.43

Third, the frequency of dimension-set uses of *except* with the 5 adjectives in (26a) is **3-7 times higher in positive than in negative contexts** (roughly, when not negated than when negated; cf. table 3A). Thus, the prediction of (2b), stated in (23a), is born out (greater conjunctivity than disjunctivity values: $|(21a)|/(21a+b)| \gg |(21c)|/(21c+d)|$), supporting a default conjunctive classification. Conversely, the frequency with the 5 adjectives in (26b) is **3-10 times higher in negative than in positive contexts** (roughly, when negated than when not negated; cf. table 3B). Thus, the prediction of (2c), stated in (23b), is born out (smaller conjunctivity than disjunctivity values: $|(21a)|/(21a+b)| \ll |(21c)|/(21c+d)|$), supporting a default disjunctive classification.

- (26) a. normal, typical, healthy, familiar, healthier
 b. bad, sick, atypical, abnormal, different
 c. identical, similar, good, better, intelligent, dissimilar, worse, unfamiliar

Table 3A: The frequency of dimension-set uses of *except* with conjunctive adjectives.

CONJUNCTIVES	Conjunctivity:	Disjunctivity:	Conj Disj	Disj Conj
	<u>P Except Dim</u> P except	<u>Neg-P Except Dim</u> Neg P except		
<i>Normal</i>	0.69	0.10	6.87	0.15
<i>Typical</i>	0.54	0.09	6.12	0.16
<i>Healthy</i>	0.54	0.11	4.84	0.21
<i>familiar</i>	0.45	0.09	4.82	0.21
<i>Healthier</i>	0.35	0.09	3.85	0.26
Mean:	0.51	0.10	5.30	0.20

Table 3B: The likelihood of a dimension-set use of *except* with disjunctive adjectives.

DISJUNCTIVES	Conjunctivity:	Disjunctivity:	Conj Disj	Disj Conj
	<u>P Except Dim</u> P except	<u>Neg-P Except Dim</u> Neg P except		
<i>Bad</i>	0.03	0.55	0.06	16.50
<i>Sick</i>	0.02	0.26	0.09	10.79
<i>Atypical</i>	0.19	0.68	0.29	3.51
<i>Abnormal</i>	0.06	0.20	0.30	3.35
<i>Different</i>	0.13	0.40	0.33	3.04
Mean:	0.09	0.42	0.21	7.44

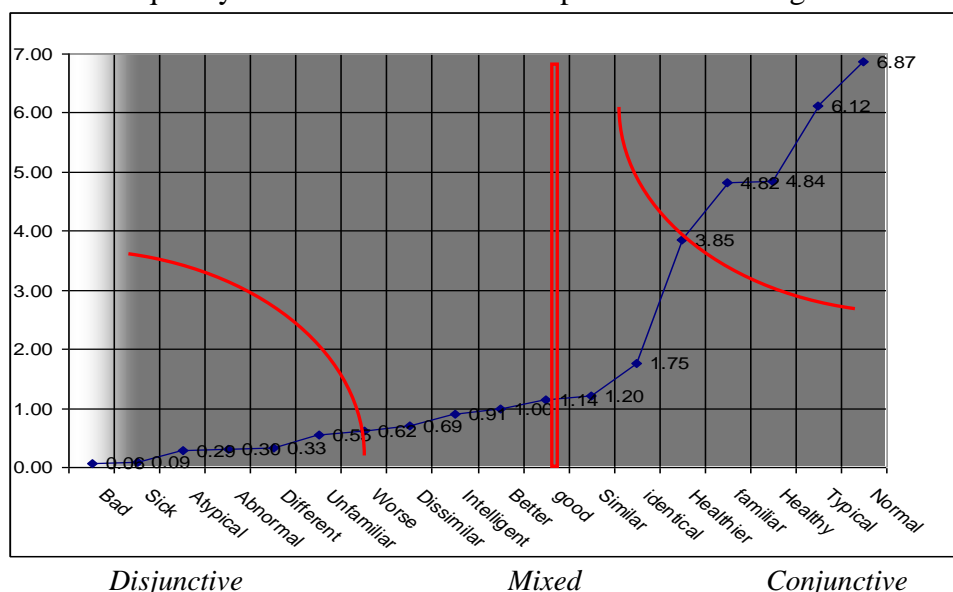
A third set of 8 adjectives exhibit a mixed pattern; (26c) lists them, starting from the borderline conjunctives and ending with the borderline disjunctives. As can be seen in Table 3C, the prediction of (2d), stated in (23c), is born out (relatively high but balanced conjunctivity and disjunctivity values: $|(21a)|/|(21a+b)| \cong |(21c)|/|(21c+d)| \gg 0$). So these adjectives regularly license exception phrases with dimension-set readings, meaning that their dimensions are often integrated via Boolean operations. But no default operation is semantically predetermined or preferred. Pragmatic factors determine whether, e.g., being intelligent in but *one* dimension (say, mathematics) suffices to count as *intelligent*, or *every* contextually relevant intelligence measure counts.

Table 3C: The frequency of dimension-set uses of *except* with intermediate adjectives.

MIXED	Conjunctivity:	Disjunctivity:	Conj Disj	Disj Conj	
	<u>P Except Dim</u> P except	<u>Neg-P Except Dim</u> Neg P except			
Borderline Disjunctives	<i>Unfamiliar</i>	0.15	0.27	0.55	1.81
	<i>Worse</i>	0.20	0.32	0.62	1.62
	<i>Dissimilar</i>	0.58	0.83	0.69	1.44
	<i>Intelligent</i>	0.37	0.41	0.91	1.10
Borderline	<i>Better</i>	0.25	0.25	1.00	1.00
Borderline Conjunctives	<i>good</i>	0.24	0.21	1.14	0.88
	<i>Similar</i>	0.80	0.67	1.20	0.83
	<i>identical</i>	0.86	0.49	1.75	0.57
Mean:	0.43	0.43	0.98	1.15	

The location of the cutoff points separating these three sets can be disputed. As Figure 1 illustrates, when looking at the values representing the frequency of exception phrases operating on the dimension-set of adjectives in positive versus negative contexts, we find a continuum from clearly conjunctive, through intermediate to clearly disjunctive values. One way to draw sharp boundaries is discussed in the next section.

Figure 1: The frequency of dimension-set uses in positive versus negative contexts



2.3.2 Hypothesis 2: Polarity as a predictive factor

What semantic-pragmatic factors determine whether an adjective is by default conjunctive, disjunctive, or mixed? If the typology of adjectives in (2b-d) is real, as the findings suggest, predictive factors must exist, for otherwise how can it be that children acquire this typology in a relatively short time? Predictive factors are also needed for adults to use when ‘guessing’ whether a particular utterance of an adjective (including an ‘intermediate’ one) is to be read conjunctively or disjunctively.

Let us begin with antonym polarity. Interestingly, the results suggest that antonym polarity (positive /negative) is a reliable predictor, supporting the hypothesis in (25a). The clearly conjunctive adjectives in (26a) – *normal, typical, healthy, familiar, healthier* – all appear to be positive (unmarked; cf. Kennedy 2001; Rett 2007; Heim 2008; Sassoon 2010), while the clearly disjunctive adjectives in (26b) – *bad, sick, atypical, abnormal, different* – all appear to be negative (‘marked’). On top of this, we see on (26c) that the borderline conjunctive adjectives – *identical, similar, good, better, intelligent* – appear positive, while the borderline disjunctive – *dissimilar, worse, unfamiliar* – are negative.

Thus, a sharper boundary between conjunctive and disjunctive adjectives can be drawn, such that all the positive adjectives (*normal, typical, healthy, familiar, healthier, identical, similar, good, better* and *intelligent*) would fall under the category ‘conjunctive’ and all the negative antonyms (*bad, sick, atypical, abnormal, different, unfamiliar, worse* and *dissimilar*) would fall under the category ‘disjunctive’, the cutoff being precisely in between the adjectives *intelligent* and *dissimilar*, which are among

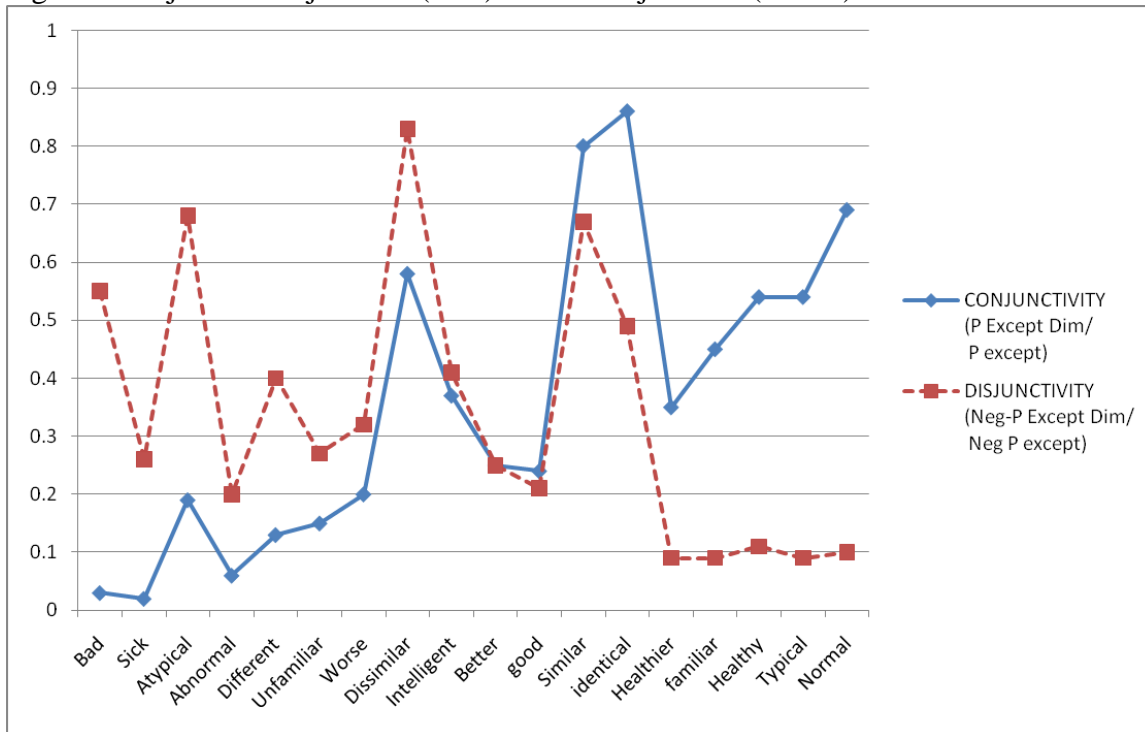
the most balanced ones (cf. figure 2 below). With these two sets, we can test whether the difference between the conjunctive and disjunctive values is indeed statistically significant in each of these two sets.

First, a paired t-test for the 10 positive adjectives yields a very significant difference. The frequency of exception phrases operating on the dimension set is significantly greater ($t = 3.7617$; $df = 9$; $P = 0.0045$) in positive (non-negated) contexts (as in, e.g., *healthy except*) than in negative (negated or downward entailing) contexts (as in, e.g., *not healthy except*, *hardly similar except*). The means and standard deviations are 0.5090 vs. 0.2510 and 0.2186 vs. 0.2055, respectively.

Second, a paired t-test for the 8 negative adjectives yields a very significant difference as well, except that this time the frequency of exception phrases operating on the dimension set is significantly smaller ($t = 4.82$; $df = 7$; $P = 0.0019$) in positive (non-negated) contexts (as in, e.g., *sick except*) than in negative (negated or downward entailing) contexts (as in, e.g., *not sick except* or *hardly sick except*). The means and standard deviations are 0.17 vs. 0.4388 and 0.1795 vs. 0.2257, respectively.

We can therefore conclude that the difference between sample means is unlikely to be a coincidence. The conjunctivity values of positive adjectives are higher than their disjunctivity values, whereas those of negative adjectives are smaller than their disjunctivity values.

Figure 2: Adjectival disjunctive (blue) versus conjunctive (brown) values



Moreover, we can test whether the difference between the positive adjectives and their negative antonyms with respect to the conjunctivity index is indeed statistically significant (likewise, with respect to the disjunctivity index as well).

First, a paired t-test for the 8 antonym pairs yields a very significant difference along the conjunctivity index between the 8 positive adjectives and their 8 negative antonyms.

The frequency of exception phrases operating on the dimension set in positive (non-negated) contexts is significantly greater ($t = 4.5967$; $df = 7$; $P = 0.0025$) in the 8 positive adjectives (e.g., *healthy except*) than in their negative antonyms (e.g., *sick except*). The means and standard deviations are 0.5463 vs. 0.1700 and 0.2313 vs. 0.1795, respectively.

Second, a paired t-test yields a significant difference along the disjunctivity index between the 8 positive adjectives and their 8 negative antonyms. This time, the frequency of exception phrases operating on the dimension set in negative (negated or downward entailing) contexts is significantly smaller ($t = 2.6239$; $df = 7$; $P = 0.0342$) in the 8 positive adjectives (e.g., *not/hardly healthy except*) than in their negative antonyms (e.g., *not/hardly sick except*). The means and standard deviations are 0.2513 vs. 0.4388 and 0.2168 vs. 0.2257, respectively.

We can therefore conclude that the difference between sample means is unlikely to be a coincidence. Positive and negative adjectives are different both with respect to conjunctivity and with respect to disjunctivity.

Finally, we may consider one combined measure - *normalized conjunctivity* – i.e. an adjective's conjunctivity value divided by the sum of its conjunctivity and disjunctivity values. A paired t-test yields a very significant difference between the 8 positive adjectives and their 8 negative antonyms. The former have higher values of normalized conjunctivity than the latter ($t = 5.4262$; $df = 7$; $P = 0.001$). The means and standard deviations are 0.7 vs. 0.2463 and 0.1632 vs. 0.1353, respectively.

2.3.3 Hypothesis 2: Standard type as a predictive factor

To what extent does scale structure, in particular, the distinction between maximum or relative standard versus minimum or relative standard, correlate with the conjunctive - disjunctive classification? Our sample allows us to make a preliminary examination into this question, as it includes

- (i) 6 antonym pairs whereby the positive counterpart is relative or total and its negative counterpart is relative or partial (*normal-abnormal*, *typical-atypical*, *healthy-sick*, *good-bad* and *identical-different*);
- (ii) 2 antonym pairs whose positive is relative or partial and whose negative is relative or total (*familiar-unfamiliar*, *similar-dissimilar*);
- (iii) 1 merely relative adjective (*intelligent*), and
- (iv) 3 derived comparatives (*better*, *worse* and *healthier*). Comparatives are all partial.

The above characterization of the items' standard type in is based on standard tests of speakers' judgments on this matter (Winter and Rothstein 2005; Kennedy and McNally 2005).¹⁰ Since the resulting classification of the adjectives to total/relative (Unfamiliar,

¹⁰The tests used to determine scale structure (Winter and Rothstein 2005; Kennedy and McNally 2005): First, typically, in partial (minimum standard) predicates, any non-zero degree in P entails P-hood, but in relative predicates many non-zero degrees may be below the contextual standard. Thus, the interpretation of (a), but not of (b), is intuitively judged to be a contradiction.

- a. # The door is not open, but it is still ajar [contradiction]
- b. Sam is not tall but his height is normal for his age [No contradiction]

Second, the negation of a total predicate entails the assertion of its (partial) antonym, but in relative predicates entities may fall under neither P nor P's antonym. For instance, *not closed* entails *open* (a), but *not short* does not entail *tall* (b).

normal, typical, healthy, identical, good, dissimilar) vs. partial/relative (Familiar similar abnormal atypical sick Different Bad, healthier, worse, better) cross-cuts the classification by antonym polarity, statistically significant differences along the parameters of interest are unlikely to occur. Indeed, illustrating briefly, the 10 total or relative adjectives indeed have higher normalized conjunctivity values than the 7 partial or relative adjectives, but the difference is not statistically significant. The results of a non-paired t-test are almost but not quite significant ($t = 2.067$; $df = 15$ and $P = 0.056$; the means and standard deviations are 0.64 vs. 0.386 and 0.215 vs. 0.276, respectively; the results of a paired t-test excluding the 3 derived comparatives are even less significant, with $P = 0.1$).

However, perhaps a true connection between standard type and type of dimension integration strategy can only be revealed by using, rather than a mere binary distinction, a gradable quantitative estimation of the likelihood that an adjective be used as total, partial or relative. For example, measurement of frequency of co-occurrences of adjectives with degree-modifiers characterizing relative vs. total vs. partial interpretations can serve as a basis for classification by standard type (relative, total or partial). This method may be advantageous for two main reasons. First, empirical research of language acquisition supports the view that degree modifiers play an important role as cues for acquiring standard type (cf. Syrett, 2007; Tribushinina, 2010).). Second, we could use Google-search results for this measurement of standard type. Such results are precisely the right thing to compare to our Google-based conjunctive versus disjunctive values.

In light of these two points, Table 4 presents measurements of the percentage of Google counts with each adjective that are preceded by modifiers characteristic of total adjectives (*entirely* and *perfectly*), partial adjectives (*slightly* and *partially*), and relative adjectives (*very*), respectively. The second left column of table 4 presents Google's estimation of the number of counts of each adjective in thousands ('frequency'). The third column presents Google's estimation of the number of counts in which each adjective is preceded by *entirely* divided by its frequency. The subsequent columns present the data for the other modifiers. With this we can calculate the following indices.

For any adjective A, the sum of the third and fourth columns (namely, $|perfectly\ A|/|A| + |entirely\ A|/|A|$) forms its *totality* value. The *totality index* gives us an idea about the relative frequency of total interpretation (the percentage of counts with total

- a. The door is not closed \Rightarrow The door is open.
- b. Sam is not short $\neg\Rightarrow$ Sam is tall.

Third, mid-point modifiers like *half* or *partially* entail P-hood in partial predicates and non-P-hood in total predicates (a-b). They entail membership under neither P nor not-P in relative predicates (c).

- a. The door is half open \Rightarrow The door is open.
- b. The door is half closed \Rightarrow The door is not closed.
- c. The tree is half tall $\neg\Rightarrow$ The tree is (not) tall.

Forth, in minimum standard predicates *x is more P than y* entails *x is P* (a). In maximum standard predicates *x is more P than y* entails *y is not P* (b). Comparative phrases with a relative predicate P entail neither that x is P nor that y is not P (c), etc.

- a. The door is more open than the window \Rightarrow The door is open.
- b. The door is more closed than the window \Rightarrow The window is not closed.
- c. Rod A is longer than Rod B $\neg\Rightarrow$ Rod A is long.
 $\neg\Rightarrow$ Rod B is not long.

modification) in different adjectives. Similarly, the sum of the fifth and sixth columns ($|slightly\ A|/|A| + |partially\ A|/|A|$) forms A's *partiality* value. The *partiality index* gives us an idea about the relative frequency of partial interpretation (the percentage of counts with partial modification) in different adjectives. The seventh column ($|very\ A|/|A|$) is a *relativity index* reflecting the relative frequency of relative interpretation (the percentage of counts with relative modification) in different adjectives. Finally, the rightmost column provides a *normalized totality index*, representing the frequency of a total interpretation (percentage of counts with total modification) given a non-relative interpretation (percentage of counts with total or partial modification).

Table 4: Percent of Google counts (July 2010) in which each adjective is preceded by modifiers indicative of total (*entirely* and *perfectly*), partial (*slightly* and *partially*), and relative (*very*) interpretations, respectively.

GOOGLE	FREQUENCY IN THOUSANDS	ENTIRELY	PERFECTLY	SLIGHTLY	PARTIALLY	VERY	PERFECTLY +ENTIRELY PERFECTLY +ENTIRELY +SLIGHTLY +PARTIALLY
WORSE	93,600	0.01%	0.00%	0.35%	0.00%	0.13%	2%
BETTER	826,000	0.00%	0.00%	0.28%	0.00%	0.02%	3%
HEALTHIER	32,800	0.01%	0.00%	0.25%	0.00%	0.02%	3%
SICKER	1,100	0.00%	0.00%	0.18%	0.00%	0.50%	4%
ATYPICAL	5,020	0.08%	0.01%	0.35%	0.01%	0.71%	19%
ABNORMAL	21,300	0.19%	0.03%	0.41%	0.00%	0.25%	35%
DIFFERENT	791,000	0.63%	0.01%	1.02%	0.00%	3.26%	38%
SICK	111,000	0.02%	0.01%	0.03%	0.00%	1.33%	49%
SIMILAR	665,000	0.01%	0.01%	0.01%	0.00%	2.24%	50%
FAMILIAR	128,000	0.04%	0.04%	0.03%	0.01%	1.81%	68%
INTELLIGENT	69,500	0.01%	0.08%	0.03%	0.00%	2.19%	71%
BAD	627,000	0.01%	0.02%	0.01%	0.00%	1.90%	73%
UNFAMILIAR	10,100	1.11%	0.00%	0.20%	0.00%	0.53%	85%
HEALTHY	172,000	0.06%	0.26%	0.05%	0.00%	1.09%	87%
DISSIMILAR	3,330	3.45%	0.07%	0.42%	0.01%	2.88%	89%
IDENTICAL	50,400	0.09%	0.15%	0.00%	0.03%	0.23%	89%
GOOD	1,720,000	0.00%	0.11%	0.01%	0.00%	8.55%	90%
TYPICAL	107,000	0.06%	0.03%	0.01%	0.00%	0.46%	92%
NORMAL	444,000	0.03%	0.34%	0.01%	0.00%	0.13%	98%

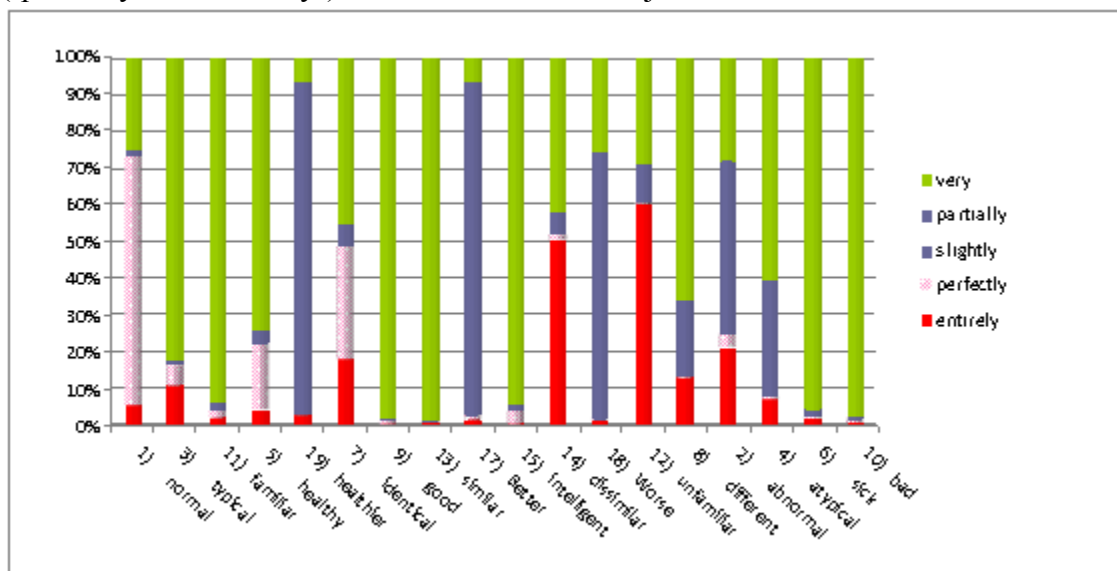
Figure 3 illustrates the results of these measurements, by presenting the ratio of relative ('very') vs. partial ('slightly' and 'partially') vs. total ('perfectly' and 'entirely') modification for each adjective. For example, the preference for partial- as opposed to relative- or total-modification is greatest for the item *healthier*.¹¹

Three important clarifications are needed here. First, the results presented in figure 3 should be taken with a grain of salt. To be sure, they contain noise. The modifier *very*, for example, has additional irrelevant interpretations that can be licensed with non-relative adjectives or even nouns (as in *the very first paper I have published was...*) In addition, *very sicker*, for example, is obviously ungrammatical, but is found in examples

¹¹The figure does not represent the fact that, e.g., relatively few counts of *healthier* are preceded by a modifier at all, whether partial or other.

such as *I'm very sick, very sicker than you* (syntactic priming probably play a role here). Such noise affects the results most for adjectives that co-occur with degree modifiers rarely, i.e. in particular, *sicker* and other derived comparatives.¹² That being said, for the most parts, the graph seems to reliably represents English speakers' intuitions.

Figure 3: The ratio of relative ('very') vs. partial ('slightly' and 'partially') vs. total ('perfectly' and 'entirely') modification in each adjective.



Second, unlike other adjectives, the conjunctivity and disjunctivity values of derived comparatives may not be determined by their standard type; rather, as suggested in section 1.3, dimensions of comparative adjectives may be integrated via the default operation of the adjectives they derive from. While the sample of adjectives studied includes but three comparative adjectives (*healthier*, *better*, and *worse*), interestingly this prediction appears to be borne out for all the three cases; i.e. *healthy* is conjunctive, and indeed so is *healthier* (it tends to be interpreted as conveying “healthier in every respect”); *good* and *better* are both intermediate, and *bad* and *worse* are both disjunctive, albeit the former is a very clear case and the latter a borderline. On the one hand, this suggests that future research into this question may lead to fruitful results. On the other hand, it suggests that we should not expect the conjunctivity and disjunctivity values of derived comparatives to correlate with their totality and partiality values (if anything they should correlate with the values of the adjectives they derive from).

Third, the judgment tests of standard-types (Kennedy and McNally 2005; cf. footnote 8) and our measurement of modifier-distribution (figure 3) produce somewhat different classifications (see also Sauerland and Stateva 2010; Tribushinina, to appear). For example, on the one hand, intuitively, the adjective *bad* is associated with either relative or partial interpretations, but not total ones. (Thus, e.g., *#the paper is not bad, but it is somewhat bad* is odd; in addition, *my paper is worse than yours* implies that my paper is bad, and does not imply that your paper is not bad; rather to the contrary, it

¹² *Sicker* was excluded from the sample of the study of exception phrases because, unfortunately, it rarely co occurs with *except*.

implies that it is bad too. These judgments suggest that *bad* is partial.) On the other hand, intuitively, *entirely bad* and *perfectly bad* are perfectly grammatical, while *slightly bad* and *somewhat bad* are odd. These judgments are reflected by the Google counts (figure 3) in that, of these two pairs of modifier, the former co-occur with *bad* more often than the latter. Thus, it is important to keep in mind that probably modifier distribution reflects something more fine-grained than mere standard type.

In fact, maximizers such as *entirely* are thought to only combine with total adjectives in English. However, as observed by Tribushinina (2009; to appear), in other languages (e.g. Russian) they also combine with relative adjectives, and especially negative ones. Thus, whereas *entirely short* is flat out ungrammatical in English, its Russian equivalent can be used felicitously to refer to local height minimums. More generally, relative adjectives denoting less of a property (e.g. *korotkij* “short”, *dešěvyj* “cheap”) are quite frequently modified by maximizing adverbs in Russian (*soveršenko* “totally/perfectly”, *absolûtno* “absolutely”, *sovsem* “entirely/completely” and *polnost’û* “fully”). It is plausible, then, that some negative adjectives in English as well are capable of licensing maximizers, which explains the high frequency of, e.g., *entirely* with negative adjectives such as *bad* and *different* (the latter is cited by Syrett 2007 among the most frequent adjectives occurring with total modifiers!).

With these three points in mind, we can now ask whether there is correlation between normalized totality and normalized conjunctivity. Recall that an adjective’s conjunctivity value is the frequency in which *except* operates on its dimension set in positive contexts; an adjective’s disjunctive value is the frequency in which *except* operates on its dimension set in negative contexts. A combination of these two values, an adjective’s *normalized conjunctivity* is its conjunctivity value divided by the sum of its conjunctivity and disjunctivity values. This combined index represents the frequency of counts with conjunctive interpretations among the counts with either conjunctive or disjunctive interpretations. The correlation between normalized totality and normalized conjunctivity is $r = 0.308$ including the three comparative adjectives, and $r = 0.62$ excluding the three comparative adjectives.

It is easy to see in the graph in figure 4A that the three comparative adjectives are by no means total (the three blue points on the zero level of the vertical *totality* axis), regardless of whether they tend more towards a conjunctive or a disjunctive interpretation. This is expected given our hypothesis that in comparative adjectives, the implicit quantifier over dimensions is indicated by the default quantifier associated with the base adjective the comparative is derived from (cf. 1.3).

However, in non-comparative adjectives, a default operation must be indicated using non-compositional (lexical or pragmatic) strategies. And indeed, as we see on the graph, the relative frequency of total interpretation does admit a weak correlation with the relative frequency of conjunctive interpretation ($r=0.62$), supporting to some extent the hypothesis that a default standard type is a cue for a default dimension integration strategy and vice versa (25b). These findings are consistent also with the more general hypothesis that a default quantificational force is uniformly associated with several aspects of a given adjectival interpretation. This suggests that this hypothesis should be examined further in the future. Naturally, there are many modifiers other than those used in this experiment that are indicative of total vs. partial interpretation (such as *almost*, *completely* and *totally*). I leave it for the future to test whether talking into account additional modifiers results in better fit. One possible way to go is by examining

modifiers that are common among negative adjectives, since the main (non-comparative) outliers are negative adjectives (in particular, *bad* and *sick*, but also *dissimilar* and *unfamiliar*). Excluding the negative adjective *bad* improves the correlation up to $r = 0.7$ ($r^2 = 0.5$; cf. figure 4B). This findings add up to Tribushinina's findings, according to which non-total negative adjectives license maximizers like *entirely* in a variety of languages.¹³

Figure 4A: Dimension integration vs. scale structure: The main outliers for this correlation are the three comparative adjectives (*healthier*, *better* and *worse*) and four of the seven negative adjectives (*bad*, *sick*, *dissimilar* and *unfamiliar*)

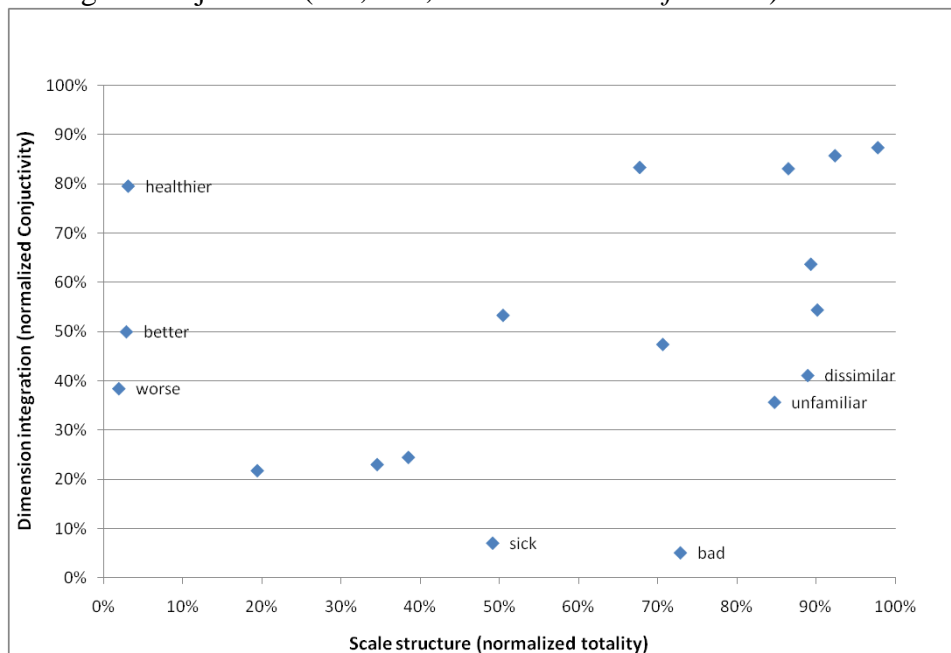
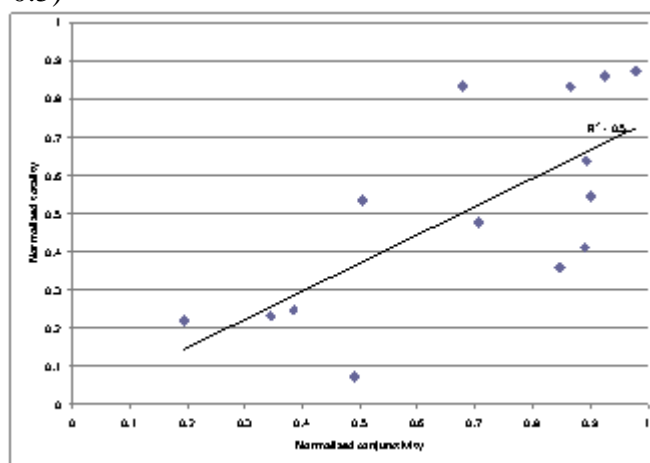


Figure 4B: Normalized totality vs. normalized conjunctivity excluding the comparatives and *bad* ($r = 0.7$; $r^2 = 0.5$)



¹³Interestingly, the data in figure 3 suggests that *perfectly* is a better predictor of conjunctivity vs. disjunctivity than *entirely*. In fact, the correlation with the frequency of *perfectly* alone is $r = 0.54$ when all adjectives including the comparatives are considered (excluding the latter, $r = 0.635$). Apparently, *perfectly* is entirely incompatible with negative adjectives, while *entirely* is perfectly compatible.

Finally, looking at the likelihood of a relative interpretation as measured by the use of *very*, we see the following values for the non-comparative intermediate adjectives: *identical* (0.23%), *similar* (2.24%), *good* (8.55%), *intelligent* (2.19%), *dissimilar* (2.88%), *unfamiliar* (0.53%). We see that with *good*, the use of *very* is exceptionally frequent. *Good* is also very clearly intermediate. The comparative of *good* is rarely used with *very*, but this is expected. Since it is a comparative, it patterns with *good* with respect to dimension integration, over and above the fact that it is clearly partial. For the rest of the non-comparative adjectives the average use of *very* is 1.32%; hence, 4 out of 6 of the remaining intermediate adjectives are far above these values (with the exception of *identical* and *unfamiliar*).

All in all, 75% (6 out of 8) of the intermediate adjectives support our hypothesis concerning scale structure in that they are relatively relative, so to speak, or are comparatives of relatively relative adjectives. Again, many more modifiers other than *very* are indicative of relative interpretation (for instance, *extremely*, *really*, *relatively* and *too*, cf. Syrett 2007). I leave it for the future to test whether talking into account additional modifiers results in better fit.

3. Discussion

Despite the great efforts of carefully examining the structure and interpretation of thousands of examples, the sample size in the present study is still too small for the results to conclusively generalize. Still, they are suggestive of interesting generalizations along the lines suggested in (2) and (12). Thus, the fruitfulness of the experimental method calls for future research into the problems under discussion. Future research will have to determine how wide ranging is the taxonomy in (2) and how general is the use of antonym polarity and standard type (or modifier distribution) to predict dimension integration strategies (cf. (12)).

First, the present study sheds new light on the difference between nouns and adjectives. The distinction between nominal versus adjectival categorization tasks may merely amount to different default ways to combine dimensions (with averaging versus Boolean operations, respectively). The distinction between different dimension-integration strategies appears to have neural and developmental correlates (for a review of research of invented categories including ones with conjunctive- and disjunctive- vs. mean-based categorization criteria see Ashby and Maddox 2005). It also sheds new light on a variety of semantic contrasts between adjectives and nouns. These facts suggest that it may be a main reason for the mere existence of two different syntactic classes, nouns and adjectives. A detailed discussion of the noun-adjective distinction in relation to the different ways dimensions might be combined is found in Sassoon (2010).

Second, our results suggest that positive and negative adjectives are different both with respect to conjunctivity and with respect to disjunctivity. Yet, although the classification of the antonyms in our sample into positive and negative is for the most parts relatively straightforward and uncontroversial, this is not the case for many other adjectives that are not morphologically marked for antonymy. Thus, future research should determine precisely which notion of negative antonymy is indicative of type of dimension-integration (for a review of a rich battery of tests for negative antonymy

resulting in only partially overlapping sets see Lehrer 1985; for a psycholinguistic characterization see Giora 2006). Although I did not measure it precisely, I have a strong impression (based on my examination of the 1800 examples for this study) that negative antonyms appear much more often within negative contexts (e.g. negation) than positive antonyms do (I am not aware of any research suggesting this as a test). In addition, the range of degree modifiers they tend to license often seems to be different (cf. Tribushinina, to appear, in regard to Russian negative relative adjectives). These two possible characterizations can and should be addressed in the future to shed light on the nature of negative antonymy in multidimensional adjectives.

At any rate, the present findings pertaining to negative antonymy as a predictive factor are surprisingly clear-cut and significant. Assuming, then, that they generalize to many other multidimensional adjectives, these findings support an analysis of negative antonyms as negations of their positive counterparts (cf. Heim 2006, 2008; Buring, 2008), for otherwise why would the force of quantifier over dimensions systematically vary in antonym pairs? These findings are preliminary, but suggestive of the importance of future inquiry into a possible interactions between antonymy and quantifier force in multidimensional adjectives. These findings suggest that quantifier force is affected by compositional processes. While positive adjectives are associated with a default quantifier, negative ones inherit it, so to speak, and the force of the quantifier is switched due to a negation operator in which scope the quantifier falls, as illustrated in (27).

- (27) a. $\lambda x.sick(x) \Leftrightarrow \lambda x.\neg healthy(x)$ \Leftrightarrow
 b. $\lambda x.\neg[\forall Q \in DIM(healthy): healthy-wrt(x,Q)]$ \Leftrightarrow
 c. $\lambda x.\exists Q \in DIM(healthy): \neg healthy-wrt(x,Q)$ \Leftrightarrow
 d. $\lambda x.\exists Q \in DIM(healthy): sick-wrt(x,Q)$

Notice, however, that for this to work, negation in (27b-c) should stand for normal sentential negation, not for the slightly different operator (adjectival negation) used by Heim (2006, 2008) and Buring (2008). This difference is problematic if adjectival negation is crucial for an account of denotation gaps for adjectives like *sick* and *healthy*, i.e. for the fact that entities may fall under not-healthy (e.g., (27c)) without falling under sick (e.g. (27d)); entities may be neither healthy with respect to blood pressure, nor sick with respect blood pressure, etc. (cf. Winter and Rotstein 2005). However, Solt (2010) shows in a series of experiments that sentential negation can also create denotation gaps, thus, e.g., entities may be judged neither tall nor not tall. The use of antonyms (e.g. short) differs from the use of syntactic negation (not tall) only so far as it triggers interpretations with larger gaps. The difference between *healthy* and *sick* is therefore quantitative, rather than qualitative; perhaps it is merely pragmatics that ought to explain it, rather than semantics. Alternatively, ((27c) and (27d)) may in fact be different, but the difference between may be explained by a free shift between two negation operations.

An explanation whereby compositional processes are assigned an important role in determining the force of implicit quantifiers, receives a preliminary support also from the fact that the dimensions of the three derived comparatives in our sample seem to be integrated via the default operation of the adjectives they derive from (e.g both *healthy* and *healthier* are by default conjunctive). Plausibly, then, future research into the role of

compositionality in the interpretation of multidimensional comparatives might reveal such systematic connections.

Regarding the role of scale structure (standard type), we have found for non-comparative adjectives, a modest correlation ($r = 0.62$) between conjunctivity (vs. disjunctivity) and totality (vs. partiality). This result is likely to be improved by taking into account a larger sample of adjectives and relevant degree modifiers. Another way to go is by disambiguating, i.e. separating different interpretations of adjectives (see more on that in the next paragraph).

An interesting point pertains to the findings from COCA (cf. 2.1), which suggest that the force of explicitly used quantifiers over dimensions (as in (28a,b)) are a good predictor of the force of implicitly accommodated ones. Google counts with explicit quantification have to be systematically examined in order to support or refute this hypothesis.

- (28) a. Dan is healthy in every respect
- b. The boxes are no different except in their size
- (29) a. ...working like a dog this weekend as I do every weekend. 24 hours in 2 days. Not healthy, except for my bank account
- b. Patient 4 was atypical except for the high pitched voice

Also, both the COCA data and the Google data (cf. 2.1) suggest that variance in interpretation correlates with quantifier type. For example, while the data is consistent with the adjectives *healthy* and *typical* being typically conjunctive and with their antonyms *sick* and *atypical* being typically disjunctive, my impression is that the apparent counterexamples to these generalizations seem to systematically belong to secondary senses of these adjectives. For example, in (29a) *healthy* merely conveys ‘good’; with such a sense it can be used disjunctively. Similarly, (29b) is an ‘exceptional’ conjunctive use of *atypical*. However, in scientific contexts *atypical* is used to convey a non-default interpretation “belongs to an atypical group”, which is, apparently, conjunctive. For a potential subject to belong to an atypical group in a scientific research (say, specific language impairment; aphasia, etc.), that individual should ideally exhibit many if not **all** of the symptoms defining that group. I leave it for future research to determine how far variance in interpretation can help predicting a dimension integration strategy, in particular in the usage of intermediate adjectives like *good*.

Last, but not least, along the way, this study shows that the constraint on the licensing of *except* in positive polarity contexts should be a bit weaker than one might have thought in advance. The requirement is merely that no existentially quantifying expression blocks the licensing of a possibly implicit universal quantifier. Moreover, since determiners like *most* appear to frequently suffice for the licensing of *except*, a question for the future is whether quasi-universal quantification suffices for the licensing of exception phrases, or, alternatively, the interpretation *most* involves strictly-universal quantification. Clearly, examples like, say, *most birds fly, except ostriches* can be used to convey *all birds fly, except ostriches* (likewise, *all* can be replaced by *mostly* in examples such as *I’m all healthy, except for high cholesterol*); but can we use such examples if, e.g., some bird type other than ostriches does not fly, as well? And can

existing proposals regarding the semantics of *most* derive these two putative interpretations compositionally?

4. Concluding remarks

All in all, this paper provides a systematic way to explore the mystery of accommodation. It does so by presenting some rules and strategies that may govern accommodation processes, and it exemplifies how corpus studies can (and hence should!) be used to uncover them. Many questions for the future arise, in fact, more questions than answers. I conclude with but two important issues. First, what are the implications of the quantifier over dimensions in the interpretation of adjectives for the analysis of comparison statements? Second, the present study suggests that the degree functions of multidimensional adjectives are not (or not always) mean-based; if so, then how are they construed? One option is that they are derived from the denotation along the lines proposed in vagueness based gradability theories (cf. Kamp 1975 and more recently van Rooij 2010).

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Appendix 1: Adjectives and exception phrases, COCA 2010

Table 1C: Types of uses of *except* with 10 adjectives, COCA 2010

	P EXCEPT DIM	P EXCEPT PART	P ELSE
	the objects in each of the two groups were identical except for SIZE.	grammatical readings i and iii are identical except for THE READING OF THE VERB <i>wrecks</i> as transitive (i) or intransitive (The role of the author in the two works is virtually identical except IN DEGREE , because Burgos stops short of admitting to fictionalizing.
2)	compared the watch with the one he wore on his wrist. They looked identical except for the TIME	the end of one section of concrete and crossed into the next bay, identical except for THE FIGURES a dozen feet away, frozen in front of an open car	wasn't crazy about the superheroes or supervillains. They were boring, ALL identical except for their particular gimmicks.
3)	We found the two services practically identical except in PRICE	The scenarios were identical except for THE TWO MANIPULATED VARIABLES, the intoxication level of Chris and the intoxication level	In fact, EVERYTHING about these two types of programs is identical except their use.
4)	rooms that were identical except for WINDOW VIEW	has two stick-figure women that I presume are Helen and me. They are identical except FOR THE HEADS; the one who is supposed to be me has shorter	
5)	Crossing, is just a half-circle of twelve houses that used to be identical except COLOR and even that was standardized, choices being light blue, light green,	They made two grocery lists that were identical except that ONE OF THEM CALLED FOR INSTANT COFFEE, AND THE OTHER ONE CALLED FOR	
6)	They, in turn, will have an advantage over organisms that are identical except for that ONE BENEFICIAL CHANGE.	Test Center evaluated the motherboards by putting them into PCs that were identical except for THEIR MOTHERBOARD/CPU/RAM COMBINATIONS	
7)	wooden-frame homes, almost identical except for their COLOR, one white, the other yellow	The two square arrays of pixels are identical except for THE DIAGONALS (running from top left to bottom right), where a	
8)	if a person makes a choice between two actions Or objects that are identical except in ONE SPECIFIC ASPECT, one can assume that this particular difference is the driving	two quartets of Pearl River views, both datable to 1785-1795, are identical except for THE VIEW of the Boca Tig-is. One, in the National Museum of	
9)	sand-grain-size particles that are identical except in COLOR	The pretest and posttest materials were identical except THE POSTTEST INCLUDED THREE ADDITIONAL TASKS designed to measure the differential effects of instruction	
10)	two side by-side portions of sand-size grains that are identical except for COLOR.	the services were identical except HE WAS NOT ORDERED TO WEAR AN	

		ELECTRONIC TETHER	
11)	If you were to place side by side two photographs that were identical except for the fact that ONE WAS DISPLAYED IN A SUNNY ROOM AND THE OTHER STORED	The Arabic version was identical except that IT ALSO INCLUDED THE NAME OF THE MUSLIM PROPHET, Muhammad.	
12)	Items on the two forms were identical except the WORDING of the items was changed to REFLECT AN OTHER-DIRECTED OR SELF-DIRECTED PERCEPTUAL VIEWPOINT	Experiment 2 was identical except that THE VIDEO SHOWED A POLICE CAR using flashing lights and sirens	
13)	The two wetlands, with initial conditions essentially identical except for PLANT INTRODUCTION, experienced a short period of divergence, when the introduction of	The setup for the chlorite mode of operation in Plant 1 was identical except that ONLY ONE UNIT WAS NEEDED to satisfy the chlorine dioxide demand. O	
14)	[All] the blouses are white, identical except for PRICE AND SMALL DETAILS indistinguishable from a distance: shawl collar, tuxedo pleats	addresses that are identical except for the LAST FEW CHARACTERS.	
15)	As employees, they are essentially identical except for their RACE but one of the two must be laid off.	All the skis looked identical except for CODE NUMBERS.	
16)	expositions, one for the orchestra and one for the soloist, that are identical except for THE KEY in which the second theme is introduced	The testing sequence for the second serum sample from high-risk subjects was identical except IT USED THE CAMBRIDGE ELISA.	
17)	the muon and the tau -- are electrically charged particles that appear to be identical except for their GREAT DISPARITY IN MASS.	ten players from the University of California at Irvine with two bats that were identical except for THE HANDLES	
18)	their behavior would match during the interview. Our goal was to make them identical except for their LOOKS.	these names are identical except for the FOURTH AND SEVENTH LETTERS	
19)	the two models are identical except for COLOR.	I asked what are the two longest words you can think of that are identical except for their FIRST LETTER and yet they don't rhyme or even have any syllables	
20)	rode a putt-putt boat through Utopias where all the world's children prove identical except for their COLOR AND CLOTHES.	two breast cancer reports that appeared identical except for the DATE OF SURGERY	
21)	The homework policies were identical except for THE SEVERITY OF THE CONSEQUENCES FOR not returning prompt and complete homework.		
22)	There are two execution units, which are identical except that ONLY THE b EXECUTION UNIT MAY DO MULTIPLY AND DIVIDE OPERATIONS		
23)	the other form was identical except that IT HAD NO WORD BANK FROM WHICH TO CHOOSE ANSWERS.		

24)	The two versions of the test were identical except for the PRESENCE OR ABSENCE OF A WORD BANK.	FTW and STW procedures were identical except that during ftw THE WORDS WERE PRESENTED IN 15 SECONDS (one word every second	
25)	The two mice were virtually identical except that EACH WORE A DIFFERENT-COLORED YARMULKE on his head so they could be told apart	Found the one next door, which was identical except that the FLOOR PLAN WAS REVERSED	
26)	had just received test results indicating positive HIV antigen results. The vignettes were identical except for THE MANIPULATION OF RISK-GROUP MEMBERSHIP AND SEX. For risk-group membership, the individual	two drawings of a house. The two were identical except that ONE OF THE BUILDINGS HAD FLAMES BILLOWING OUT OF its left side.	
	29	20	3

	P EXCEPT DIM	P ELSE (explicit quantification/plural)	P NEG
1)	Laboratory data was normal except for LEUKOCYTOSIS (14000/mm3) and elevated erythrocyte sedimentation rate (62mm/1h).	Screening TESTS for hypercoagulability were normal except for positive antiphospholipid antibodies.	
2)	Extremity evaluation was normal except marked for atrophy in the right lower limb	Laboratory FINDINGS were normal except for an increased leukocyte count	
3)	the genes had apparently sneaked in, yielding cells that appeared normal except for their green glow.	Preoperative cardiopulmonary function TESTS and blood oxygen LEVELS were normal except for a sinus tachycardia up to 140 bpm.	
4)	The morning was almost normal except for the awkwardness that seems to be hovering over the city like a dark rain	FINDINGS on the blood workup were normal except for leukocytosis (
5)	On the right side, the middle ear cavity was normal except for a small amount of blood in the posterior epitympanum and mesotympanum, which was	FINDINGS on laryngeal EMG were essentially normal except for the detection of a few large-amplitude motor units within the left thyroarytenoid muscle that	
6)	After a heavy meal I felt more or less normal except for a wonderful immersion in peacefulness	FINDINGS on physical examination were normal except for the presence of left infraorbital pain on pressure	
7)	intellect and his basic intelligence and his ability to communicate, he was totally normal except for one thing: He was -- he was no longer honest	ALL IN ALL, I was getting normal except for girls and my size: I quit rising at three feet six.	
8)	electroencephalogram, done the day after she " crashed, " was normal except for some mild sedative effect, also consistent with GBS. The EEG tests brain	OPS Normal except for the radio conversation between the AC and the Air Traffic Controller	
9)		EVERYTHING was pretty normal except for the fact that I had a father who was missing.	

10)		I checked her vital signs from the nurse's records. They were ALL normal except for the slightly fast heart rate. "	
11)		women shuffling with bags, boys hiding behind lampposts, ALL apparently normal except for, lurking on the corner, a doll with his coat collar turned up	
	8	11	0

	P EXCEPT DIM	P ELSE (explicit quantification/plural)	P NEG
1)	a slightly later version is similar except that it has a TRAPEZOIDAL SEAT AND CARVED KNEES. These chairs are among a	The RESULTS for the single-district analytical framework are similar except that the single-district framework suppresses observed differences between Asians and Whites and between Native Americans	
2)	The groups were similar except for SEX, the placebo group having more boys (table 2).	TDI PARAMETERS were similar except for the myocardial performance index of the right ventricle (lower in diffuse SSc,	
3)	In addition, the range of credit hour requirements are quite similar except for the HEALTH course category.	Entry RATES between pairs of CTs supervising the same ST were GENERALLY similar except for CTs of ST #2, whose entry rates differed by greater than 0.8 entries	
4)	bargaining and faculty salaries, that is, matching pairs of schools that are similar except for UNION STATUS.	The Ranges and Means for ALL OF THE ACTIVITIES appears very similar except for Conditioning and Rhythmic Activities. Both the Ranges and Means for these two activity	
5)	Transmittance is similar except that TRANSMITTED LIGHT IS USED.	Percentages of males and females within STUDENT CATEGORIES were similar except for the EBD group, which had a higher percentage of males.	
6)	Procedures for structure removals in state waters were similar except that PERMITS WERE OBTAINED FROM THE U.S. ARMY Corps of Engineers (COE).	Fish consumption between the GROUPS was similar except that persons in group III ate fewer fish meals per month than the other groups	
	6	6	0

	P EXCEPT DIM	P ELSE (quantification over times)	P NEG ELSE (explicit quantification)
1)		But now that I am involved; it is very different Except ON SUNDAYS, when I cheer my heart out.	The person who leaves the recording doesn't know that ANYTHING'S different except for, again, at the

			company, and they're just converting it into
2)			There's NOTHING different except because Dubai ports is a wealthy company, they will probably end up with better
3)			Aside from that he hasn't changed since I met him. NOTHING is different except that he is growing older, and so am I.
4)			The Friday night before Flynn had an abortion was NO different except Margaret, who'd lent Flynn the money, couldn't concentrate.
	0	1	4

Appendix 2: Google counts with exception phrases occurring with *healthy* and *sick*

On tables 5A,B, in examples of dimension set readings, expressions relating to dimensions are written with capital letters. In other examples ('P ELSE'), expressions are written with capital letters if they explicitly refer to (or trigger accommodation of) a quantifier or of a domain for the exception phrase to operate on (individuals, parts, locations, times, etc.)

Table 5A: Exception phrases co-occurring with *healthy*

	HEALTHY EXCEPT DIM	HEALTHY ELSE	NOT HEALTHY EXCEPT DIM	NOT HEALTHY ELSE
1.	her dog Brody was healthy except for MILD ARTHRITIS.	He was OTHERWISE healthy except for mild renal function impairment and hypertension. On examination, symmetric extensive brownish reticulated pigmentation	working like a dog this weekend as I do every weekend. 24 hours in 2 days. Not healthy, except FOR MY BANK ACCOUNT	Pizza, that's sort of not HEALTHY. EXCEPT if you put vegetables on it,...
2.	...I am a 64-year-old man, quite healthy except for high BLOOD PRESSURE, which was diagnosed last year. My doctor gave me Hydro-Diuril, which was only partly ...	I have a 2yr old ginger tom who is PERFECTLY healthy, except his gums seem to have dark brown patches on them? -	confusion is not healthy except that IT WILL ULTIMATELY LEAD TO THE TRUTH	[single-sex is] not healthy, except WHEN junior
3.	"healthy" except for OVERUSE OF PESTICIDES. Health standards in privately-owned subsidized. housing vary but are decent. Housing codes and tenant rights can .	She has OTHERWISE been relatively healthy except for a long history of asthma.	It should be noted that many affluent neighborhoods, also, are not healthy, except for THEIR ECONOMIC CONDITION. The lack of community that the nonsatisfaction of this system needs represents is a macrosystemic norm.	... that the infant was not healthy except [= IN ADDITION TO] for the regurgitation or vomiting

4.	Mother: 65, healthy except BC AGE 35.	evidently, I am PERFECTLY healthy. Except that I'm in pain for no apparent reason!		anything above that is overweight and NOT HEALTHY. EXCEPT in a few medical circumstances, there is no excuse for being overweight
5.	mentally normal and healthy except for a FEELING OF WEAK-[Offprint requests] Halbrecht. hess and a tendency to spastic bronchitis and asthma ...	My buddy killed perfect 8 with 18 3/4" spread that looked healthy except for THE WARTS WHISTLIN WINGS and the smell of gun powder.		nearly all estrogen given in medicine is not healthy, except IN CASES WHERE a woman has had her ovaries removed
6.	of the proband was healthy except for her SHORT STATURE associated with	Sixty to seventy percent of all the adult age groups see eating less fast food as a way of staying HEALTHY. EXCEPT for the 50+ group, the less fast food ...		noth healthy, except THE GREEN TEA PART
7.	physically and mentally healthy, except that they have DISPROPORTIONATELY SHORT..	ALL were healthy except the extreme vegan (exc. dairy products) and the any meat category. The heathiest was the vegetarian (inc. dairy ...		all sugars are not healthy except IN MODERATION
8.	A total of 54 patients (mean age 11.5 years, median 11, standard deviation ± 4.52) were healthy except for NEUROPATHIC BLADDER due to	EVERYBODY in the dining table look healthy except uncle		Although, MOST VEGETARIANS I know (and there are a lot in this area) never seem to look very healthy, except FOR THE FEW that regularly take many vitamin ...
9.	I am healthy except for high CHOLESTEROL, high BLOOD PRESSURE, and a high bmi.	These differences persisted in the subgroup of children who were OTHERWISE healthy except for otitis media		My son will not eat healthy except for CORN AND APPLE SAUCE. I try my best to limit the junk food. Again I hope that you don't see this as critical. ...
10.	Doctors say the baby is growing well, physically normal and healthy except for the TINY SIZE.	The skin over the encephalocele was BY AND LARGE healthy, except FOR A SMALL AREA in the center where there was skin erosion. ...		Their intense-self examination was surely not healthy except FOR THOSE who...
11.	But like you, I find it annoying being labeled on caloric intake alone - I look healthy and feel healthy (except for BEING HUNGRY, which is a drag). ...	EVERY kind of fruit is healthy except pineapples, watermelons, ripe bananas, and raisins. Every kind of vegetable is healthy except beets, corn, parsnips, ...		EVERYTHING on the menu is yummy but not healthy, except maybe the
12.	The lungs were healthy, except a FEW OLD ADHESIONS ATTACHING THEM TO like waiting on the occasional slow elevator or dealing with elevator hogs (you know the kind...PERFECTLY healthy, except for the laziness within them).		not healthy except IN CHILDBIRTH

13.	The heart also appeared healthy, except that THERE EXISTED AN OLD ...	Hubby has gained back all of his weight (30 pounds), feels great, has lots of energy and is PERFECTLY healthy (except for the cancer). ...		144 oz. of ANYTHING is not healthy except water
14.	Tonsils and adenoids (VERY large) removed at 19 months; Normal when compared with other kids; healthy except FEBRILE SEIZURES AGES INFANT TO 9 YEARS OLD ...	Among people who are OTHERWISE healthy except for mild hypertension — which represents an awful lot of people — the message is, after a proper screening, ...		throwing up is not healthy except IN CERTAIN CASES
15.	She had been healthy except for WELL-CONTROLLED HYPERLIPIDEMIA.	...Eat ANYTHING healthy except mucous forming foods i.e. meat, sugar, white flour and all ... Drink anything healthy except tea or coffee and drins with sugar. ...		too much of ANYTHING is not healthy. except money
16.	In this population of community-dwelling, healthy (except for OSTEOPOROSIS) postmenopausal women, IGF-I levels were significantly reduced in osteoporotic	That makes the MOSTLY Healthy Except for RANCID BEAN SPROUTS SEAFOOD SALAD Burrito tops in two categories -- it's not only the healthiest offering we've ...		I know it is not healthy (except for THE WHEAT BREAD)
17.	the patient was healthy except for THE PALM	She took no medications and stated that she was GENERALLY healthy, except for minor chronic anemia. She exercised frequently and denied use of tobacco or ...		MOST food here is obviously not healthy, except for the salads.
18.	been healthy, except for a DEPRESSED SCAR IN THE RIGHT PALM	Well, he is ALL healthy except for his reflux!!!! All caught up on nasty shots and ready to go for 3 months. We are working on getting hos reflux under ...		not healthy (except for THE VEGGIE BURGER), but tasty
19.	people are told that they are healthy, except for. their OBESITY.	Now ALL OF THE Discus seem to be healthy, except one young Blue Diamond who has been getting less and less "blue" over the last fortnight in particular. ...		my kids don't eat anything that is not healthy except FOR BIRTHDAYS AND HOLIDAY but in moderation still
20.	I gave a kidney, some years ago (I'm 59 and basically healthy, except for TOO MUCH FAT, no gall bladder and colestherol in the liver, a few things more not ...	ALL are looking pretty healthy except the sun is causing the leaves to curl up a little bit on a few ...		I stay around 8-9% and eat whatever I want, probably not healthy except my PROTEIN SHAKES.
21.	a brother to the proband, was healthy except for INFERTILITY; he had had. three wives, one of whom had previously borne children	...I bought these new dog treats, and i know that ALL OF THE INGREDIENTS are really healthy-except i'm unsure of the peanut butter.		I refused drinking alcohol because I think it is not healthy except SMALL AMOUNTS.

22.	I worked at the infamous “bomb” plant for 31 years and am still healthy except for AN UNRELATED HEART PROBLEM.	How was he on death's door a few weeks ago and now he's up and about, TOTALLY healthy, except for a few plot driven coughing spells? ...		his "well patients" were not healthy, except when judged BY A VERY LOW STANDARD.
23.	...Another dog remained healthy, except for SLIGHT ANAEMIA	It was ALL relatively healthy except the hot dog.		coloured eggs are not healthy except IF COLOURS USED ARE LABELLED TO BE USED FOR EGGS which are very rare to find and imported
24.	I'm healthy except for DIABETES.	MOSTLY eating healthy except FOR ONE DAY A WEEK WHEN we eat out		There's NOTHING I eat that's not healthy...except maybe beer
25.	I was 26 and pretty healthy except for SOME MILD ASTHMA.	EVERY YEAR he's been healthy except this pass year. Vince is incredible if we pass on Vnce we will live to regret it. ...		Unless you are a child, it is NOBODY else's job to keep you healthy except yours.
26.	Our girls have been super healthy except for A BOUT OF KENNEL COUGH.	Mental health was not considered as part of being healthy except BY A FEW of the oldest children.		
27.	My father is 74 now, and I have always thought him quite healthy, except for THE MURMUR. Me too, except that the doctors keep mentioning a murmur.	Diseased standing tree, crown green and healthy except for ONE DEAD BRANCH, epicormic branches present, chlorotic leaves, base hollow, ...		
28.	The plant has really "taken off" and appears very healthy except that some of THE LEAVES ON THE LOWER PORTION OF THE PLANT ARE TURNING YELLOW AROUND THE ...	They ALL do seem healthy except for the wont-flower issue on the Mr. Stripey.		
29.	my daughter wasn't breast fed, and she's so healthy, except for a LITTLE EAR PROBLEM	Why Green Tea WOULD be Healthy EXCEPT for this One Dangerous Issue by SixWise.com. Green tea has emerged as a major natural player in fighting diseases like ...		
30.	He looks and acts healthy, except he is HESITANT TO JUMP IN AND OUT OF THE BED OF MY TRUCK WITHOUT ASSISTANCE. I know he should be able to do this with no ...	Managing OME in an OTHERWISE healthy younger child ...Modern Medicine healthy except for OME. The algorithm does not apply if the child has any craniofacial or neurologic abnormality (eg, cleft palate or mental retardation) or		

31.	He seems very healthy (except for DIABETES that he controls with pills and diet). Should I try to force him to get these lumps checked (it will be ...	If so, this would explain why I'm so healthy (except for MY RECENT VISIT TO YOUR ESTABLISHMENT LAST WEEK FOR A DREADED CHEST COLD).		
32.	...healthy, except very SKINNY.	Do u think that w/ the amount of exercise I get & eating healthy (except for THE COFFEE), it's ok for me to drink the blended coffee? ...		
33.	They are healthy except for a SMALL SKIN DISEASE for which they are under treatment.	My hair is healthy except FOR THE FRONT PART.		
34.	Their changes in 20 years are all in the adverse direction in those becoming ill as compared to those remaining healthy, except for CHOLESTEROL AND SMOKING, ...	A family of four was healthy, except FOR ONE SON, who had asthma.		
35.	Very healthy except for CURRENT OSTEOARTHRITIS.	Neither condition can be seen as "healthy" except THROUGH THE LENS OF AN INDIVIDUAL'S VALUES AND POLICY PREFERENCES.		
36.	The patient, a 48-year-old man, was apparently healthy except for MILD ALCOHOLIC STEATOSIS of the liver.	for someone who is OTHERWISE healthy except for excess body weight, drinking two glasses of water before each meal is a great strategy in appetite ...		
37.	Outgoing now and healthy except for PAINFUL ARTHRITIS--	ALL came carefully packaged and healthy (except FOR ONE)		
38.	I was perfectly healthy (except for WEIGHT) until I was 29.	Two percent of all males, however, have no such abnormalities and are OTHERWISE healthy except that they do not produce new sperm (azoospermia) or they ...		
39.	Being healthy except for an INJURY can speed up healing time.	who is OTHERWISE healthy except for otitis media with effusion. ...		
40.	He had always been healthy except for an IRREGULAR HEARTBEAT.	The ves&eh were ALL healthy except ONE, and that the left ...		
41.	Physically and mentally I am healthy except that I have 'FLAT NIPPLES'.			

42.	Would one say that someone is healthy except for their DIABETES?			
43.	This 18-month-old boy, previously healthy, except for RECURRENT BOUTS OF OTITIS MEDIA,...			
44.	Have a clean record and am healthy except ONE INJURY in the last 6 months which has healed			
45.	Very interesting about healthy marriages being healthy except when it comes to WEIGHT control... so far, it's been my experience! ...	Healthy except 25 YRS SINCE LAST TETANUS. Sore shoulder now.		
46.	Fairly healthy, except for the TWO NASTY LOOKING BUGS ON ITS UPPER SURFACE - a sexually transmitted infection, perchance?	Max - a 2 yr old male great Dane mix that was healthy except for the INTESTINAL PARASITES most of the dogs shared.		
47.	we have a Cardinal down here who is very healthy except he is COMPLETELY BALD except for a tuft of feathers on the top of his head.	Managing OME in an otherwise healthy younger child - Modern medicine healthy except for OME		
48.	appeared healthy, except for ONE-SIDED CHRONIC OTITIS.	Healthy, except that DURA MATER. WAS UNDULY ADHERENT TO SKULL. Arachnoid and Pia Mater. ...		
		52	40	3
				25

Table 5B: Exception phrases co-occurring with *sick*

	SICK EXCEPT DIM	SICK ELSE	NOT SICK EXCEPT DIM	NOT SICK ELSE
1.	I think its sick, except A FEW THINGS. I have never heard of those subs, id swap em out for JL Subs and Amps..id get rid of the body kit on the front, and maybe change the rims.. but if it was cheap for me to buy that id definitely buy it	he said Edna was home and they were ALL sick except HER AND DAN.	So I'm not sick? Except for THIS TERMINAL DISEASE? ...	I told her NOBODY was every really sick except HER
2.		There's been so much bad news on the health care front for working Americans that it makes us SICK. EXCEPT, if you do get sick you probably can't afford it.	puppy has been having mucous and BLOOD IN HIS POOP, he is still very playful and it does not seem to be showing signs of being sick except for HIS POOP	NONE OF US got sick, except on the way back I had nausea, but I think it was stress

3.		Ye SHALL not heal the sick except it be required of you by them who desire, D&C 24: 13-14.	A Flu shot cannot make you sick, except for INJECTION SITE REACTIONS SUCH AS A BIT OF SWELLING	He's definitely hungry and doesn't act sick except for RIGHT BEFORE he throws up and right after.
4.		On Thursday I was off SICK. EXCEPT I was only half sick and the rest was tiredness.	Joe, with his terminal "brain cloud", not sick except FOR THE SYMPTOMS	I don't mean to brag, but I just don't USUALLY get real sick. Except last year I had pneumonia right about ...
5.		The process is exactly the SAME when I project my guilt onto my body and get sick, EXCEPT we call it sickness instead of anger.	Haven't really been sick except maybe A COLD	I NEVER got sick except for maybe a brief cold each fall and spring.
6.		Tien craves my sexually harassing compliments when he is SICK. EXCEPT I don't send them anymore.	He has not really been seriously sick except for HIS EARS. The ears problem runs in both my family and my husbands.	We were all very seasick indeed for the first two days but after that NONE OF US WERE AT ALL sick, except Gen.
7.		DO NOT travel if you are sick EXCEPT TO SEEK local medical care.	I didn't get sick, except for HOMESICK, and FOOD, no matter how spicy, DIDN'T TASTE like anything ...	I HARDLY get sick (EXCEPT THESE MONTHS that I'm pregnant)
8.		There were NO hospitals for the poor and sick except of their creating, and few of the heathen ever entered abodes of suffering on errands of mercy. ...	She doesn't look sick except for the way she holds herself--HEAD TILTED TO THE SIDE.	I could eat and drink whatever I wanted, NEVER felt sick except IF I forgot to ...
9.		A night wear one of your kids is SICK. EXCEPT that we have five, so often the Oliver Infirmary has multiple patients.	I wasn't sick, except THIS FINGER	I was lucky I NEVER got really sick, except once in my junior year.
10.		one would never know he was SICK. EXCEPT for being bald, apparently I look great. My kids had a bit of a time adjusting to it ...	I'm not sick, except maybe IN THE HEAD	I never get SICK. EXCEPT for my annual check-ups with the gynecologist, the last time I was in a doctor's office was three or four years ago
11.		I've been sleeping a lot this weekend, partially because I've been a little SICK. EXCEPT that now (3am!) I'm not sleeping, and it sure would be nice to ...	the affected dog is not sick except for THE COUGH	she has NEVER been sick except for 1 or 2 stuffy noses
12.	current reimbursement structures make it financially PROBLEMATIC to gain a reputation for excellent care of the very sick, EXCEPT perhaps IN HOSPICE	If this one comes a knockin', your body has never seen it before, it cannot defend you, and you will get SICK. EXCEPT in this case, this one is bad. ...	I'm not sick, except for a BIT OF A COUGH	I flew more than 100000 miles last year, and I NEVER got sick except once --
13.	there is NO criminal, no immaturity, NO insane, NO physically sick, except	We're ALL Sick....Except Jarrod	I'm not sick, except for a NASTY COLD last week	They show NO SIGNS of being sick, except for this throwing up business.

	AS SUB-CATEGORIES OF DEPENDENCY.			
14.	I don't feel sick, except WHEN I'm on chemo.	Lu Aza has kidnapped Nino! That's just sick, except for FLORINA, she deserved it.	physicall, I am not sick (except A COLD)	he is acting like himself and not sick except for WHEN he starts coughing
15.	they'd ALL gotten really quite sick, except for Bill.	We usually eat together as a family but this week EVERYONE'S been sick (except me--ha!)	it is usually not sick except for [outside of] FEVER	Sick leave abuse is defined as charging sick leave for WORK ABSENCES when not sick, except for an FMLA qualifying event or use of sick leave for doctor
16.	the whole bloody store WOULD be out sick except they would probably come to work	I've never made ANYONE sick, except for the odd vegetarian I've convince to eat the odd half-pound of beef after three years of rabbit ...	Tony and myself not sick, except for my HEART ATTACK of course	and I'm not SICK. EXCEPT mine doesn't bother me when I work out.
17.	I WOULD have called in sick except that A. we just had a week vacation (Spring Break) and B. I had ...	Folks has ALL been Sick Except THE TWO BOYS	I woke up feeling generally okay... not "sick"... except for the fact that THE LEFT SIDE OF MY THROUGHT IS PRETTY MUCH SWOLLEN SHUT.	I am not sick except WHEN my PCP orders a CBC and then he panics...
18.	We have ALL been sick sick sick. Except the damn dog	Arrogance and pride are the only known illnesses that make EVERYBODY sick except THOSE who suffer from them.	I'm not sick, except AT HEART	she is pregnant, not SICK. EXCEPT under ...
19.	you CAN'T DO MUCH about an illness once you're sick, except leave the gym and give your body time to recover.	Oh yeah FATTIES make me sick, except for THE FUNNY ONES, and party animals.	I'm not sick (except for a slight COLD)	he wasn't sick except IN her dreams
20.	Dreams are pretty sick. Except WHEN you have nightmares about ET; I hate that fool.	EVERYONE in my click are sick except for.... weiyIng! Bwahaha! Hopefully i can transmit my virus to her..	but I am not sick (except for this VERY NORMAL COLD I'v got)	he was not sick except WHEN he came home in August of 64 when he was chilling
21.	But a few days later, I CANNOT REALLY RECAPTURE the experience of being sick, except IN A SORT OF INTELLECTUAL WAY-- I know I had a sore throat, ...	ALL my friends thought I was sick. Except one, who was relieved- as was I- at not being the only one. We found others since.	not sick, except my PAIN WITH THE LASHES	WE were not sick, except A FEW SNIFFLERS
22.	he had spit out a pollen that made ALL the friends sick except Brandy who was tall enough to avoid the pollen	Eventually, the ENTIRE farmer family gets sick except for THE BOY		MOST OF THE TIME, it just make me not sick, except that one time it made me...
23.	ALL the kids are sick, except Pumpkin, who says	EVERYONE here has been sick, except me, as usual.		I'm not SICK. EXCEPT for the 700\$ I had to drop on my car, it's been a good month.
24.	I can't do ANYTHING about it if I'm still sick (except make antibodies to pass on),	EVERY man, woman and child in camp is sick except for me and the cook		THESE COMMENTS are not 'sick' except to those...

25.	It is RARELY USED in BrE today in verbal phrases like "to be sick", "to feel sick" EXCEPT in the precise sense of feeling nauseated, being sea-sick, etc. ...	No person will be allowed to carry from the field ANY wounded or sick except THIS CORPS.		He is not sick except WHEN he is sick
26.	EVERYONE in the house has been sick except for B1. He holds up in his room, emerging only long enough to eat and then returns to his "den of health" ...	By this time MOST people on the trip had been sick except for ME and a few others		Sick children make as big gains as the not sick except AT AGE 12 and over
27.	ALL her children sick, except little Heber;	So today has been pretty boring - NOTHING interesting ever happens when you're sick, except maybe the OCCASIONAL PUKEAGE.		Not sick except ONE PERSON
28.	there is NOWHERE else you can go when you are sick except to THE HOSPITAL	I haven't taken ANY vitamin C or preventive measures from getting sick EXCEPT for drinking kombucha everyday for about five weeks now.		I NEVER got sick (except maybe from too many drinks).
29.	leaving ALL the soldiers sick except three	As most diseases are in some degree infectious, NO ONE should continue long with the sick, except THE NECESSARY ATTENDANTS.		Dogs and cats that are affected mildly GENERALLY are bright, alert and do not appear to be sick, except for the DIARRHEA. ...
30.	Runny nose, coughing, congested, and grumpy SICK. EXCEPT for Paul, with the immunity of steel, we've all been sick for what feels like forever.	ell, now EVERYBODY in the entire house is sick except me. I'm sure I'm next.		not sick (except for THE PERDIZONE DAYS). Ginny jokes with me about the "perdizone glow" I seem to have after my chemo
31.	ALL of these were sick except, surprisingly, those who had cider to drink, leading the. examining doctor to speculate that the cider may have	I haven't learned ANYTHING from being sick, except that I don't like being sick!! I prefer to learn from wisdom than experience. ...		
32.	Not really sure how this works that EVERYONE in the house can be sick except Mom. Must be that small print in her Mother's contract!!!!	It's hard to feel ANYTHING when you are sick except like crap!		
33.	Avoid contact with PEOPLE WHO are sick, except of course THE PATIENTS	EVERYONE I talked to had gotten sick except me. Then this weekend my daughter came down with something		
34.	SONGS were sick except for mike	EVERYONE in my department of 12 is sick except for 1 person!		
35.	Failure results in nausea IDENTICAL to being space sick, EXCEPT that a recovery roll may be made 10 minutes later.	There really is NOTHING WORSE than taking care of your kids when you're SICK. EXCEPT maybe also having sick kids at the same time.		

36.	We have NO HOSPITAL at this post for our sick, except casemates which ...	we are ALL a little sick except Mr. Olmstead who is more fortunate ...		
37.	Paul felt like he MIGHT get sick except there wasn't anything inside of him to come up.	The singular is used WHEN Communion is given to one who is sick, except IN THE RARE CASE IN which it is given during Mass, when the plural form is used.		
38.	NO ALTERATION during these days in the sick EXCEPT the improvement of Fierman the soldier and Moy the Convict.	even the sick, except THOSE who had contagious diseases		
39.	EVERYONE in her group got sick except her.	they were ALL sick, except for Flakey Stevo.		
	1	67	21	30